REPUBLIC OF TURKEY

ANKARA UNIVERSITY

GRADUATE SCHOOL OF SOCIAL SCIENCES

DEPARTMENT OF INTELLECTUAL PROPERTY, TECHNOLOGY POLICIES AND INNOVATION MANAGEMENT

CREATION, PROTECTION AND TRANSFER OF INTELLECTUAL PROPERTY RIGHTS IN MOBILE APPLICATIONS

Master's Thesis

Arda ZENGİNPEDÜK

Ankara, 2021

REPUBLIC OF TURKEY

ANKARA UNIVERSITY

GRADUATE SCHOOL OF SOCIAL SCIENCES

DEPARTMENT OF INTELLECTUAL PROPERTY, TECHNOLOGY POLICIES AND INNOVATION MANAGEMENT

MASTER OF LAWS (LL.M.) in INTELLECTUAL PROPERTY

CREATION, PROTECTION AND TRANSFER OF INTELLECTUAL PROPERTY RIGHTS IN MOBILE APPLICATIONS

Master's Thesis

Arda ZENGİNPEDÜK

Assist. Prof. Dr. Selin ÖZDEN MERHACI

Supervisor

Ankara, 2021

REPUBLIC OF TURKEY
ANKARA UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
DEPARTMENT OF INTELLECTUAL PROPERTY, TECHNOLOGY POLICIES AND INNOVATION MANAGEMENT

CREATION, PROTECTION AND TRANSFER OF INTELLECTUAL PROPERTY RIGHTS IN MOBILE APPLICATIONS

MASTER'S THESIS

Assist. Prof. Dr. Selin ÖZDEN MERHACI

Supervisor

THESIS JURY MEMBERS

1- Assist. Prof. Dr. Selin ÖZDEN MERHACI
2- Assist. Prof. Dr. Zehra ÖZKAN ÜNER
3- Assist. Prof. Dr. Pınar ÇAĞLAYAN AKSOY

Date of the Thesis Examination

16.02.2021

DECLARATION

REPUBLIC OF TURKEY

ANKARA UNIVERSITY

To the Directorship of Graduate School of Social Sciences

I hereby, declare that all information in my master's thesis named "Creation, Protection and Transfer of IIntellectual Property Rights In Mobile Applications" which has been prepared under the supervision of Assist. Prof. Dr. Selin ÖZDEN MERHACI has been gathered and submitted in compliance with academic rules and ethical conduct principles and as required by these rules and principles, I have fully indicated and cited all sources that are not original to this work. I also declare that, I have acted according to scientific research and ethical rules during the study process and if it is proven otherwise, I will accept all legal consequences.

Date:……

THE TABLE OF CONTENTS

ABBREVIATONS

Art.	**:** Article
CIAW	**:** Code of Intellectual and Artistic Works No. 5846
DRM	**:** Digital Rights Management
ECJ	**:** European Court Of Justice
ed.	**:** Edition
EPO	**:** European Patent Office
Etc.	**:** Et cetera
EU	**:** European Union
EUIPO	**:** European Union Intellectual Property Office
EULA	**:** End-user License Agreement
IPC	**:** Industrial Property Code No. 6769
ibid.	**:** In the same place
p.	**:** Page
RCD	**:** Registered Community Design
TCT	**:** Turkish Code of Trade No. 6102
TRIPS	**:** Trade-Related Aspects of Intellectual Property Rights Agreement
WIPO	**:** World Intellectual Property Organization
US	**:** United States
USPTO	**:** United States Patent and Trademark Office

INTRODUCTION

As technology develops each day, it is becoming more efficient in our daily lives. Phones are considered as a necessity for communication since its invention by Alexander Graham Bell on 1876 but the term "phone" does not point the same product as it did on 19th century. Calling people on the phone and communication between two people was the main and only function of a phone since "smartphones" are announced. Phone, nowadays generally understood as a portable computer with a large capacitive touchscreen and most importantly, including many functions other than calling or texting which makes it called as "smart" phone. Smartphone is defined as *"a mobile phone that is also a small computer and can connect to the Internet"* by Longman Dictionary[1]. In accordance with this definition, aspects that makes a phone accepted as a smartphone is its function to work as a portable small computer and ability to connect internet. At this point, mobile applications have to be mentioned because they are the programs that makes a smartphone able to have more functions rather than calling and texting.

Mobile applications are also developed and changed since its first announcement. As it is understood from number of downloads since its first announcement, mobile applications were seen as a fun and entertainment material at first but in 2019, their function to make life easier for people is ahead of its entertainment function. Once they started to effect and ease our daily life, we have been seeing them as a necessity rather than an entertainment. As all necessities of human being, this also became a market and in less than ten years, this market became one of the biggest markets in the world with billions of consumers.

[1] https://www.ldoceonline.com/dictionary/smartphone (accessed on: 19.11.2020)

Apple is one of the leading companies in smartphone and mobile application market nowadays. Apple's then CEO Steve Jobs announced that their mobile application store which will contain different kinds of application available for download will be launched on 11st of July 2008.2 After only three days, Apple released the following statement from its official website:

"The App Store is a grand slam, with a staggering 10 million applications downloaded in just three days," said Steve Jobs, Apple's CEO. "Developers have created some extraordinary applications, and the App Store can wirelessly deliver them to every iPhone and iPod touch user instantly."[3]

On 2008, functional apps and games are nearly had a 50-50% share in the market but on 2020, this proportion has changed and nowadays almost 75% of the applications on the Apple Inc.'s App Store is functional applications and only 25% of it consists of games.[4]

As it seems, applications on smartphones becomes more functional for our lives each day and this functionality makes them also more valuable each day. As they become more valuable and able to make application developers earn more money, protecting them becomes crucial for developers.

---

[2] https://www.apple.com/newsroom/2008/07/10iPhone-3G-on-Sale-Tomorrow/, (accessed on: 19.11.2020)

[3] https://www.apple.com/newsroom/2008/07/14iPhone-App-Store-Downloads-Top-10-Million-in-First-Weekend/, (accessed on: 19.11.2020)

[4] **Clement, J**: "Number of apps in the Apple App Store from 2008 to 2020", 17.08.2020, https://www.statista.com/statistics/268251/number-of-apps-in-the-itunes-app-store-since-2008/, (accessed on: 19.11.2020)

Legal protection of a mobile application has various ways. However, in the field of technology, acting quick and build a shield against possible infringement acts as immediate as possible may be more important than the scope of that protection when speed of development in technology is considered. Other than that, after having immediate precautions, expanding the scope of protection also becomes important when the number of consumers, value of the market and possibility of the application to be imitated by pirate developers considered.

It has to be stated that these ways of protection and scope of them may also differ between regions and legal systems. Since every jurisdiction has its own legislation and interpretation consisted through court practices, different types of legal protections and different court decisions against infringement claims may take place in each region. Although there are various international agreements, conventions and treaties regulating intellectual property law that has international member states, these regulations do not always oblige strict rules that have to be applied the same in every region. There are also regional rules determined by regional offices such as EUIPO and USPTO.

Vast majority of mobile applications are achievable and downloadable from most of the countries in the world. Still, each state may permit or prohibit usage or download of particular applications according to compliance of such mobile application with its local law and legislation. Apart from this, as most of mobile applications are permitted in most of states, there are also common rules that are binding for every consumer, developer, publisher and software operating system provider which arise from international treaties.

The first step of a mobile application is an idea. Having a unique idea is a perfect place to start developing an application but the idea has to be protected only by the one who has come up with the idea, since ideas themselves are not considered as protectable materials. Following the idea, it has to be expressed with some written codes and software

architecture that creates a visual and audial product that is presented to end-user's usage. This is the part where copyright law comes into force because copyright only protects the expression of ideas, not the ideas themselves.[5] Berne Convention for the Protection of Literary and Artistic Works is the most inclusive international convention about copyright protection that has 179 member states according to official WIPO records as of 2020.[6] Article 2 of Berne Convention states the list of works that are protected under copyright law: *"1. 'Literary and artistic works'; 2. Possible requirement of fixation; 3. Derivative works; 4- Official texts; 5. Collections; 6. Obligation to protect; beneficiaries of protection; 7. Works of applied art and industrial designs; 8. News."*[7]

Trademark protection is also important when it comes to monetization of the mobile application because the distinguishing characters of a mobile application that distinguishes it from other mobile applications are its logo and name. Name and logo of a popular mobile application spreads among the world immediately which makes it necessary to protect rights arising from that name and logo to gain profit out of it. Protecting a trademark is crucial for both preventing third parties from using the same

---

[5] **Lim, Tze Ping**, "Beyond Copyright: Applying a Radical Idea-Expression Dichotomy to the Ownership of Fictional Characters", Vanderbilt Journal of Entertainment & Technology Law, Vol. 21, Issue 1, Tennessee 2018, p.100-101

[6] WIPO-Administered Treaties Contracting Parties > Berne Convention (Total Contracting Parties:179),https://wipolex.wipo.int/en/treaties/ShowResults?start_year=ANY&end_year=ANY&search_what=C&code=ALL&treaty_id=15, (accessed on: 19.11.2020)

7 **Christie, Andrew & Gare, Stephen**: "Intellectual Property", Oxford University Press, 12th ed., Oxford 2014, p. 268

logo and name with a successful mobile application and also preventing a possible confusion that may occur in consumer's mind about associating some third party's completely different product with yours.

Another way to protect your valuable mobile application is design law. Design law is one of the systems that differ between common law and civil law countries. Common law countries such as United States has a different system called "Design Patent" rather than Registered Community Design ("RCD") system in EU, which will be considered in the relevant part of this work. In both legislation, design is more about ornamental and aesthetic features of mobile applications. Sometimes, vision of a particular artistic work in a mobile application may become more popular than the mobile application itself which makes it as profitable as the mobile application. At this point, it becomes essential to protect the work of the developer among the world to control different markets that contains products manufactured based on the protected design.

As it is stated that each day, mobile applications become more and more functional, there is a possibility of inventing a new technology that takes today's technology one step forward. Creating such product considered as patentable under TRIPS rules is difficult because the operating system platform that any mobile application may enable its function is provided by Apple, Google or Microsoft for vast majority of mobile applications. Therefore, any mobile application that will be available on these platforms has to be operatable with them. At this point, it becomes harder for a developer to invent such mobile app that is considered as patentable but if it happens, patent law will be the most effective way to make a developer receive the prize out of the invention.

On this work, my main aim is not only to examine legal protection of intellectual mobile applications in different regions, but also transfer of these rights through contracts. Developer of a mobile application has to be in a legal relationship with operating system

platform providers to put the mobile application on market. Secondly, there is a relationship between developer and end-user as well, which is also defined through an agreement. Lastly, sometimes developing an application and publishing of it may be handled by different entities which is also a relationship that has to be determined by laws and agreements. As a conclusion, work hereby tries to present the most efficient ways to protect a mobile application and the most important aspects of a license agreement by using examples of court practices from different jurisdictions.

FIRST CHAPTER

MOBILE APPLICATIONS AND COMPUTER PROGRAMS

I. Definition Of Mobile Application and Difference Between Computer Programs

A computer program is the combination of instructions that makes a computer executes the function that is expected from it, according to *Yıldırım*.[8] Cambridge Business English Dictionary defines mobile application as *"a software program that runs on a mobile phone"*.[9] Then, it can be said that computer program stands at the basis of every mobile application.[10] However, mobile applications state a narrower interpretation rather computer programs because they are only available in a specific type of software and needs an operating system platform provider to exist as an audiovisual product. Legal protection of computer programs is regulated under *"Directive 2009/24/Ec Of The European Parliament And Of The Council of 23 April 2009 on the legal protection of*

[8] **Yıldırım, Mustafa Fadıl**, "Bilgisayar Programlarında İkinci El İşlemler", Fikri Mülkiyet Yıllığı, On İki Levha Yayıncılık, 2011, p.295

[9] Cambridge Business English Dictionary, Cambridge University Press, 2020, https://dictionary.cambridge.org/us/dictionary/english/mobile-application (accessed: 20.11.2020)

[10] **Shemtov. Dr. Noam**, "Intellectual Property and Mobile Applications", January 2018, https://www.wipo.int/export/sites/www/ip-development/en/agenda/pdf/ip_and_mobile_applications_study.pdf, p.9 (accessed on: 20.11.2020)

computer programs"[11] ("EU Computer Directive") which is an amendment to Council Directive 91/250/EEC of 14 May 1991. In this directive, it is clearly stated that *"the term 'computer program' shall include programs in any form, including those which are incorporated into hardware. This term also includes preparatory design work leading to the development of a computer program provided that the nature of the preparatory work is such that a computer program can result from it at a later stage."*[12] Moreover, legal protection of mobile applications are more complicated than computer programs as a general term. As it will be examined below, computer programs and codes constitute the internal organs of a mobile application. Outer organs of a mobile application are also issues of the intellectual property law which are not only audiovisual screenplays generated by computer programs but also icons, names, logos as trademarks or even animated features that may be protected under copyright law irrelevant of its code and technical features.

While protection and interpretation under intellectual property law of mobile applications differs from computer programs, transfer and license agreements are also considered unique for mobile applications. At first, developer is obliged to license a software operating system provider to use some intellectual property rights of the product to distribute it through the application market. Secondly, platform provider also obtains the

---

[11] **European Union, Directive 2009/24/EC of the European Parliament and of the Council Of 23 April 2009 On The Legal Protection Of Computer Programs,** Official Journal of the European Union, 05.05.2009, p. L 111/16, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0024&from=EN (**EU**, *"Computer Directive"*)

[12] ibid.

right to use logo, name and other trademark rights to exhibit the product to consumers on the platform. Secondly, there is also a legal relationship between end-user and developer which also needs to be regulated with an end-user license agreement.

As it seems, mobile applications may be considered as a specific issue of the general term of computer programs and there are different legal systems available for mobile applications.

II. Aspects of a Mobile Application

There are hidden aspects that cannot be seen by end-users such as codes, data structures, software architecture which provides the final outlook. Even though they are not visible for users, they lie at the basis of each mobile application that are being used by millions of people. As a result, they are not very related to the trade dress of an application.[13] These features of the mobile applications are considered as internal organs while the final outlook they provide like overall desktop, individual components of applications and animated features of them are considered as outer organs.[14]

[13] **Shemtov**, p. 14

[14] ibid., p. 39-40

A. Internal Aspects

1. Object Code

Object code refers to the type of code that is written in computer language, which provides the ability for a program to be run by a computer.[15] Object code communicates directly with the hardware of the computer and carries out the instructions.[16] As it can directly communicates with the computer hardware, it is understood that its language cannot be read by humans. Although theoretically it is possible that a computer program can be written by a programmer by using machine language,[17] thinking and writing commands and codes in machine language is a highly difficult process which makes it almost impossible in practice. This is the reason developers also need a type of code that is readable by humans as well so that they can understand and write as well, which defines the source code.

2. Source Code

Source Code is a written form of algorithm that is readable and understandable by humans.[18] This feature of the source code makes it considered as a literary work under

---

[15] **Lin, Daniel; Sag, Matthew; Laurie, Ronald S**., "Source Code versus Object Code: Patent Implications for the Open Source Community", Santa Clara Computer & High Technology Law Journal, 2002, p. 238

[16] **Yazıcı, E. Sena**, "Bilgisayar Programlarının Fikri Mülkiyet Hukuku Çerçevesinde Korunması", On İki Levha Yayıncılık, İstanbul 2019, p. 17

[17] **Yazıcı,** p.24

[18] **Akdemir Kamalı, Tuğba,** "Fikri Hukuk Kapsamında Bilgisayar Programlarındaki Değişikliklerin Sonuçları", Seçkin Yayıncılık, Ankara 2019, p.90

copyright.[19] EU Computer Directive also states that *"In accordance with the provisions of this Directive, Member States shall protect computer programs, by copyright, as literary works within the meaning of the Berne Convention for the Protection of Literary and Artistic Works."*.[20] Berne Convention is the EU regulation that regulates the protection of literary and artistic work.[21] As it seems, computer programs are different than traditional works as they become meaningful only in a machine and protectable work only appears on a screen . This specific situation of computer programs is the main reason that makes them considered as protectable under copyright law which brings the difficulty of determining limits of such protection.[22]

Since source code is the type of code that is used for communication with humans rather than machines, this type of codes are more likely to become the issue of an infringement act. Although a developer produces its mobile application in source code format, the product is offered to the market in its machine language format which is the object code. Therefore, when an infringer aims to copy or emulate a mobile application, one has to write the "literary work" in source code format. It has to be mentioned that same or similar visual contents may be created through using completely different source codes which means although a source code is considered as the "literary work" of the mobile application, unlike traditional literary works, same visual result can be achieved without using the original code.

---

[19] **Dalyan, Şener**, "Bilgisayar Programlarının Fikri Hukukta Korunması", Seçkin Yayıncılık, Ankara 2009, p.32

[20] **EU**, Computer Directive, p. L 111/18

[21] **Christie & Gare**, p. 260

[22] **Shemtov**, p. 9

B. Outer Aspects (Graphical User Interface)

The structure that combines a physical and logical bond between computer operating system and user, other programs or the facets of the computer operating system to make program able to perform its function is called as interface in general.[23]

According to this definition, interfaces that allows the connection between user and computer and allows user to convey demands and get results are called as user interface.[24]

Graphical User Interface, then is the general term being used to point out all commands that forms the operating system and produced to control devices, icons, windows, buttons and panels as a whole that interacts with features of hardware like mouse, keyboard, monitor, instead of memorizing every special output of each command.[25] In another words, it can be summarized that graphical user interface is the main object that makes the user sees meaningful visual contents such as icons, images, windows rather than numbers and texts that has no meaning for the user.

Graphical user interface in general consists of three subjects: *"(1) the desktop or overall interface outlay; (2) the individual components included in the desktop; and (3) the ephemeral and animated features."*[26]

Users are most commonly interested in graphical user interface of a mobile application. Before getting in detail, these graphical user interface categories generally consist an issue for different types of intellectual property protection. Overall look of a mobile application

---

[23] **Dalyan**, p. 32

[24] **Akdemir Kamalı,** p. 91

[25] **Sakman, Samed**, "Arayüz Tasarımları İçin Prototip Kullanımı", Sanat ve Tasarım Dergisi, 2017, p.227

[26] **Shemtov**, p. 39

is the general "look and feel" of an application like its menus, command bars and other outer features that consists a general look for the mobile application in question. On the other hand, icon and name of an application is generally the distinguishing character of that product and users, for that reason, use these icons and names to describe the application which is mentioned as the individual components of the application. Individual components are the type and design of the product that has visual effect on the user while performing its function and lastly animated features can be considered as the moving features included in a mobile application.

1. Desktop

Desktop feature of a mobile application points out the overall look of an interface outlay which can be described as the hardest feature of the graphical user interface for intellectual property protection. Since the overall look of an application is generally constituted as basic as possible to achieve a user-friendly experience, it becomes harder to add creative and original aspects and protect it with the intellectual property rights like copyright or trademark. As these functions usually do not considered as patentable functions, it has to contain such originality to trigger copyright protection.[27] One of the most important cases about this issue is the case between Navitaire Inc v easyJet Airline Company and Bulletproof Technologies Inc. examined by High Court of England and Wales. This case generally summarizes the legal position of desktop features of the graphical user interface since its focus is on the "look and feel" of the interface of the website of two competitor firms.

"The World Wide Web interface of the OpenRes system was provided by a software module called TakeFlight. For reasons that I explain below, the TakeFlight module

[27] **Lim**, p. 104

consists only of source code (it was written in an interpreted rather than a compiled language) and it was copied and modified on a number of occasions by easyJet. The purpose of this copying was to fix bugs, provide for the display of promotions and the like and to provide foreign language interfaces because the code was not internationalized. This copying is said to be a breach of the terms of the license to use the software granted by Navitaire or its predecessor in title to easyJet. easyJet's own WWW interface for eRes was written in-house by easyJet's employees and, again, it cannot be suggested that the code itself was copied. Again the allegation is of 'non-textual copying' of the software by producing a user interface having the same 'look and feel' as TakeFlight."[28]

This part of the decision clearly sets the focus of the litigation which is on the general look of the interface and the term "look and feel" is used to determine the main method for distinguishing two desktop of the interfaces. Continuously, court examines the originality and differs coding and visual layout from each other.

"Factually the claim in respect of the user interfaces of the eRes system does not present serious difficulty. There is a dispute as to originality, or more accurately to the amount of originality in the works relied on, but the problems are essentially legal ones once the technical aspects have been understood. (...) While I might have expressed my views globally, I should make it clear that I have considered all the reports, and I find this claim cannot be substantiated. I am impressed by the amount of programming effort that went into the display of very simple layouts on the screen, and in manipulating the data, but

[28] **Navitaire Inc. v. Easyjet Airline Company and Bulletproof Technologies**, High Court Of England And Wales, [2004] EWHC 1725 (Ch), https://www.bailii.org/ew/cases/EWHC/Ch/2004/1725.html, (accessed on 21.11.2020)

the defendants manipulate the data in a different way and display in a different way. The actual layouts are trivial. What the defendants have taken cannot amount to a substantial part either of the individual modules identified above or of the code as a whole."[29]

Although this decision is about websites, it has lots of similarities with desktop and overall interface of mobile applications on technical and legal basis. As it seems, High Court of England and Wales has focused on the general "look and feel" of the desktop feature of graphical user interface and the functionality of this general design. The Court appreciates the value and effort on the programming, however in the final decision "business logic" is considered as the main matter of fact lies behind the "look and feel" of the interface, which cannot be protected under intellectual property law and therefore allocated the a sole party.

2. Individual Components

Individual components of a graphical user interface are generally commands, icons, menus and other components of a mobile application which are also the elements of the main communication between user and the device. Likewise the desktop feature, functional parts of the individual components are not protected under intellectual property law regulations.[30] A decision of United States Court of Appeals is one of the key decisions when considering individual components of the graphical user interface of a mobile application. Citated part of aforementioned decision between Lotus and Borland firms explains the technical and legal consideration of the "menu" and "command" parts in an interface, which is considered as the individual component of the interface.

[29] ibid.

[30] **Dalyan**, p. 89

"17 U.S.C. § 102(b). Section 102(b) states: 'In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.' Because we conclude that the Lotus menu command hierarchy is a method of operation, we do not consider whether it could also be a system, process, or procedure.

We think that 'method of operation' as that term is used in § 102(b), refers to the means by which a person operates something, whether it be a car, a food processor, or a computer. Thus a text describing how to operate something would not extend copyright protection to the method of operation itself; other people would be free to employ that method and to describe it in their own words. Similarly, if a new method of operation is used rather than described, other people would still be free to employ or describe that method.

We hold that the Lotus menu command hierarchy is an uncopyrightable 'method of operation.' The Lotus menu command hierarchy provides the means by which users control and operate Lotus 1-2-3. If users wish to copy material, for example, they use the 'Copy' command. If users wish to print material, they use the 'Print' command. Users must use the command terms to tell the computer what to do. Without the menu command hierarchy, users would not be able to access and control, or indeed make use of, Lotus 1-2-3's functional capabilities. (...)

The fact that Lotus developers could have designed the Lotus menu command hierarchy differently is immaterial to the question of whether it is a 'method of operation.' In other words, our initial inquiry is not whether the Lotus menu command hierarchy incorporates any expression. Rather, our initial inquiry is whether the Lotus menu command hierarchy is a 'method of operation.' Concluding, as we do, that users operate Lotus 1-2-3 by using

the Lotus menu command hierarchy, and that the entire Lotus menu command hierarchy is essential to operating Lotus 1-2-3, we do not inquire further whether that method of operation could have been designed differently. The 'expressive' choices of what to name the command terms and how to arrange them do not magically change the uncopyrightable menu command hierarchy into copyrightable subject matter."[31]

Although stated decision is given by United States Court of Appeals, which is a common-law state, it is important to define individual component features of a graphical user interface and their legal position in front of intellectual property law.

3. Animated Features

Animated features of a graphical user interface are the features that contains a move inside. To explain, one of the best example is the genie effect in iOS (Apple's operating system) when minimizing or maximizing the screen.[32] Other than that, as mobile applications offer various types of games and functional applications, most of them contain lots of animated features which also triggers another type of copyright. Lately, there had been a group of people sued Epic Games because of the animated features in a game. Epic Games is the developer and publisher of the popular game "Fortnite" and in this game, some in-app purchases are also available to entertain users which contains some special dances or other moves of the characters, called as "emotes". In those purchasable emotes, there are some dance moves as well, that people claiming that they

[31] Lotus Development Corporation v. Borland International, Inc., United States Court of Appeals, First Circuit, Heard 06.10.1994, Decided 09.03.1995, https://h2o.law.harvard.edu/collages/40204, (accessed on 21.11.2020)

[32] **Shemtov**, p. 40

own the copyright of that dance move which makes Epic Games an infringer.[33] Although consideration of a dance move and an animation in a mobile application is different, claim of the Epic Games in this lawsuit puts forward the uniqueness of the protection of interfaces. According to news, while Epic Games claim that dance moves in general are not protectable by copyright, later on they also claim that two dance moves are not identical so there are no infringement even if the dance moves of plaintiff is protected.[34]

Protecting a dance move under copyright is not an issue under this work but when considering an animated dance, figure or any other animated feature as part of the graphical user interface of an application, it may be protectable since animated effects are generally designed to reach an aesthetic outlook which reflects the creativity of its designer and not include any functionality.[35]

---

[33] **Martin**, **Liam**, "Fortnite dance emote lawsuits: Can you really copyright a DANCE MOVE?", 26.03.2019, https://www.express.co.uk/entertainment/gaming/1104934/Fortnite-dances-Carlton-law-suit-legal, (accessed on 21.11.2020)

[34] **Lanier**, **Liz,** "Epic Games Pushes Back Against Lawsuit: 'No One Can Own a Dance Step'", 13.02.2019, https://variety.com/2019/gaming/news/epic-games-no-one-can-own-a-dance-step-1203138304/, (accessed on 21.11.2020)

[35] **Shemtov**, p. 42

SECOND CHAPTER

CREATION AND PROTECTION OF INTELLECTUAL PROPERTY RIGHTS IN MOBILE APPLICATIONS

General consideration about mobile applications and the computer programs that are basis of these applications is made above in the first chapter of this work. It is explained that mobile applications are formed of internal and outer aspects. Internal aspects are the codes and software that cannot be seen by the user but are of developer's interest while outer aspects are defined as graphical user interface which enables the communication of the device with the user.

As two aspects of the mobile application serves different functions, possible infringers of these aspects also differ which leads to differentiation of creation and ways of protection of the mobile application. This differentiation also shows itself in different legal systems.

I. Intellectual Property Rights in Internal Aspects of Mobile Applications

A. Copyright

1. Codes As "Literary Works"

In civil law countries including Turkey, computer programs as a general rule, protected under Bern Convention with copyright regulations.[36] In Turkish Law, according to Article 2/1 of Code of Intellectual and Artistic Works No. 5846 ("CIAW"), "computer programs and preparatory designs of computer programs under the condition to turn into a computer program in the following step" are counted as scientific and artistic works.[37] Doctrine that

[36] **Suluk; Karasu; Nal**, "Fikri Mülkiyet Hukuku", Seçkin Yayıncılık, Ankara 2020, p. 147

[37] Code of Intellectual and Artistic Works No. 5846, dated 05.12.1951, published in Official Gazette dated 13.12.1951 numbered 7981.

makes the issue clearer considers computer programs as "literary works" in accordance with EU Computer Directive and Bern Convention.[38] To consider a computer program as "protectable", it is not compulsory to save them in a CD, disk or hard disk.[39] Actually in Article 1/3 of EU Computer Directive, it is clearly stated that the only criteria to protect a computer program under the regulation is "originality" with the statement of *"A computer program shall be protected if it is original in the sense that it is the author's own intellectual creation. No other criteria shall be applied to determine its eligibility for protection."*[40]

2. Idea/Expression Dichotomy

Basic principle of copyright law is not protecting the idea but protecting the expression of that idea.[41] This rule is firstly enunciated in *Baker v. Selden* case in United States, in which Supreme Court stated Copyright protection extends only to the expression of an idea, not the idea itself.[42]

---

[38] **Topaloğlu, Mustafa**, "Bilgisayar Programları Üzerindeki Haklar ve Bu Hakların Korunması", Türkiye Bilişim Vakfı Yayınları, İstanbul 1997, p. 86

[39] **Suluk; Karasu; Nal,** p. 147

[40] **EU**, *"*Computer Directive*"*, Article 1/3

[41] **Akdemir Kamalı**, p. 112

[42] **Kramer, Karen J.**, "Extending Copyright Protection to a Computer Program's Structure. Whelan Associates, Inc. v. Jaslow Dental Laboratory, 797 F.2d 1222 (3d Cir. 1986) Inc. 797 F.2d 1222 (3d Cir. 1986)", January 1987, Washington University Law Review, vol. 65, issue 2, p. 473

Aim of this principle is avoiding creation of an idea monopoly, which also applies to computer programs.[43]

Determining whether a code or a cluster of codes (software architecture) is considered as idea or expression can sometimes be difficult. One of the key cases about this issue was heard by United States Court of Appeals between Oracle America, Inc. and Google LLC. This case also shows the difference between mobile applications and mobile softwares and computers, desktops and servers, in fact one of the responds that Google stated in this lawsuit is that *"a reasonable jury could have concluded that Google used a small portion of the Java API packages to create a new work in a new context—"Android", a platform for smartphones, not desktops and servers."*[44] Focus of this lawsuit is; Oracle is a company that owns Java programming language and Google used the application programming interfaces of this language and transitioned it to Android (Google's operating system) without Oracle's permit.[45]

Although it is still an ongoing case, appealed by Google against the decision of Court of Appeals before Supreme Court, it has crucial determinations about mobile application codes, functionality of codes and the term of "originality".

Court stated its final decision with the statement below:

"allowing Google to commercially exploit Oracle's work will not advance the purposes of copyright in this case. Although Google could have furthered copyright's goals of

---

[43] **Akdemir Kamalı**, p. 112

[44] Oracle America, Inc. v. Google LLC, United States Court of Appeals for the Federal Circuit, 2017-1118, 2017-1202, March 2018, https://cases.justia.com/federal/appellate-courts/cafc/17-1118/17-1118-2018-03-27.pdf?ts=1522162917 (accessed on:22.11.2020)

[45] ibid.

promoting creative expression and innovation by developing its own APIs, or by licensing Oracle's APIs for use in developing a new platform, it chose to copy Oracle's creative efforts instead. There is nothing fair about taking a copyrighted work verbatim and using it for the same purpose and function as the original in a competing platform. (...) Google's copying and use of this particular code was not fair as a matter of law"[46]

As it seems, Court did not consider Google's act of copying the Oracle's codes and transforms in another creative program, although they accept that what Google did is original and creative. Decision of the Supreme Court will be effective on interpreting of the protection of internal aspects of the mobile applications.

3. Functionality

Functionality is also kept out of the scope of protection provided by copyright. Most court decisions also state that functionality is not a protectable subject matter under copyright law which points programming language or the format of data files when it comes to mobile applications as they are considered as the idea behind the application.[47]

Final decision given by High Court of England and Wales in the lawsuit between SAS Institute Inc. and World Programming Limited makes clear that idea or functionality of a mobile application provided through coding is not protectable under copyright regulations, with respect to EU Computer Directive, TRIPS, and EU Software

[46] ibid.

[47] **James, Steven; Arkley, Ruth**, "Intellectual Property in Mobile Applications: The Practicalities", E-Commerce Law & Policy, November 2012, https://www.lw.com/thoughtLeadership/ip-in-mobile-applications (accessed on:22.11.2020)

Directive.[48] *"With respect to the programming language and the format of data files used in a computer program to interpret and execute application programs written by users and to read and write data in a specific format of data files, these are elements of that program by means of which users exploit certain functions of that program.*

In that context, it should be made clear that, if a third party were to procure the part of the source code or the object code relating to the programming language or to the format of data files used in a computer program, and if that party were to create, with the aid of that code, similar elements in its own computer program, that conduct would be liable to constitute partial reproduction within the meaning of Article 4(a) of Directive 91/250.

As is, however, apparent from the order for reference, WPL did not have access to the source code of SAS Institute's program and did not carry out any decompilation of the object code of that program. By means of observing, studying and testing the behaviour of SAS Institute's program, WPL reproduced the functionality of that program by using the same programming language and the same format of data files. (...)

Consequently, the answer to Questions 1–5 is that Article 1(2) of Directive 91/250 must be interpreted as meaning that neither the functionality of a computer program nor the programming language and the format of data files used in a computer program in order to exploit certain of its functions constitute a form of expression of that program and, as such, are not protected by copyright in computer programs for the purposes of that directive."[49]

---

[48] SAS Institute Inc. v. World Programming Limited, High Court of England and Wales, [2013] EWHC 69 (Ch), https://www.bailii.org/ew/cases/EWHC/Ch/2013/69.html, (accessed on: 22.11.2020)

[49] ibid.

A similar lawsuit was also heard by United States courts between Computer Associates International, Inc. and Altai, Inc. on 1992, where the court presented a method to determine whether functionality and the idea behind an application is combined or not.[50] This method is called abstraction, filtration and comparison, which defines an application by considering the aim/idea of the application and the coding of it together and then determining if the relevant coding is serving for the function of the application, which makes it non-protectable under copyright law.[51]

In the light of decisions of courts belonging to different jurisdictions (EU and United States) it is possible to say that general principles in copyright regulations on codes and computer programs that underlie a mobile application is similar. Creation of a copyright and protecting a mobile application's internal aspects through copyright mostly depends on these three features: originality, non-functionality and being an expression of author rather than idea.

B. Patent

1. Patentability Regulations In Different Jurisdictions

Article 52 of European Patent Convention regulates that *"European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application."*[52] Later on, in the same

[50] **Yazıcı,** p. 36

[51] **McJohn, Stephen**, "Intellectual Property", New York: Wolters Kluwer, 2015, p. 93

[52] **European Patent Office, European Patent Convention**, p. 108, http://documents.epo.org/projects/babylon/eponet.nsf/0/158C4E1A5C4BD54EC125859700523F0A/$File/EPC_16th_edition_2016_en.pdf, (accessed on: 22.11.2020)

article, it is clearly stated that programs for computers are not patentable.[53] As it seems, computer programs in general, are excluded from patent as they are business methods and mental acts.[54] However, in case of containing a technical effect, these programs may be protected under patent law as long as this function does not mean performing an excluded method that is not considered as a valid technical effect, like implementing a business method to a computer program.[55]

Although minimum requirements for patent registration s determined through international agreements, each country may have some differences in details in their legislation. However, it can be stated that minimum requirements for a patent registration is: novelty, capability of industrial application and not being one of the excluded, non-patentabe inventions.[56] In Turkey, Industrial Property Code determines the patentability requirements as; novelty, inventive step and capability of industrial application.[57] In United States, this topic firstly came up in 1963, with the case of Gotschalk v. Benson.[58] In this case, court decided that algorithm is not different than a basic mathematical

[53] ibid.

[54] **Bainbridge, David; Howell, Claire**, "Intellectual Property Law", Pearson Education Limited, 4th edition, 2015, p. 172

[55] ibid.

[56] **Tekinalp, Ünal,** "Fikri Mülkiyet Hukuku", İstanbul 2012, p. 537-546

[57] **Turkish Industrial Property Code No. 6769**, dated 22.12.2016, published in Official Gazette dated 10.01.2017 numbered 29944.

[58] **Akdemir Kamalı**, p. 100

formula underlies in a counting machine and it is only a production of intangible idea, so it is not patentable.[59]

As a result, although codes of a mobile application are considered as protectable under copyright regulations, it is not sufficient as it is possible to bring out the same program with same functional properties by using different type of coding.[60] EPO examined this issue in an application made by VICOM Systems and agreed that completely excluding computer programs from patent protection will cause problems so decided to expand the scope of protection determined in the EPC by stating: "*a computer program claimed by itself is not excluded from patentability if the program, when running on a computer or loaded into a computer, brings about, or is capable of bringing about, a technical effect which goes beyond the 'normal' physical interactions between the program (software) and the computer (hardware) on which it is run."*[61] Following this decision, 4 years later on 2002, same issue was also expressed in a text by EU Commission, through a proposal about patentability of computer implemented inventions as: *"The holder of a patent for a computer-implemented invention has the right to prevent third parties from using any*

[59] **Barnaby Jr., Howard B.**, "Patent Law – Computer Programs – Unpatentable Mental Process – Gottschalk v. Benson", Boston College Law Review, Vol.14, https://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=1395&context=bclr, (accessed on: 22.11.2020)

[60] **Kur, Anette; Dreier, Thomas**, "European Intellectual Property Law", Edward Elgar Publishing, 2013, p. 138

[61] **VICOM Systems application, European Patent Office, T 1173/97** (Computer program product/IBM), 01.07.1998, https://www.epo.org/law-practice/case-law-appeals/recent/t971173ex1.html, (accessed on: 22.11.2020)

software which implements his invention. This principle holds even though various ways might be found to achieve this using programs whose source or object code is different from each other and which might be protected in parallel by independent copyrights which would not mutually infringe each other."[62]

As a result, while United States legislation is considering computer programs as patentable,[63] different than that, computer programs are excluded from being patentable under Article 52 of EPC.[64]

In general, it is possible for a mobile application to be patented. Virtual keyboards on the screen of mobile phones are also computer programs that lies under a mobile phone and these were considered as patentable when the first came out. Patenting a mobile application is possible in various ways that are both patentable subject matters and also includes novelty and inventive step. Also, communication of a mobile device with serves or other devices may also be an issue for patent protection if a new method that meets the requirements come out.[65]

---

[62] **European Union, Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions**, Official Journal of the European Communities, https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2002:0092:FIN:EN:PDF, (accessed on: 22.11.2020)

[63] **Suluk; Karasu; Nal,** p. 241

[64] **Akdemir Kamalı**, p. 101

[65]

2. Novelty

The term "novelty" can be briefly defined as inventions that are not included to the current state of knowledge.[66] State of knowledge in turn comprises according to Article 54 (2) of EPC:

"everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application."[67]

Additionally, European patent applications that are filed before the application in question are also detrimental to novelty even if they are published on or after the date of filing.[68]

Industrial Property Code in Turkey also defines novelty identical with EPC in Article 83/2.[69] Applications coming from PCT and EPO, in which the application price is paid, are included to examination of novelty together with national applications.[70] Additionally, Turkish Supreme Court of Appeals ("*Yargıtay")* states that independent from national, EPO or PCT applications, any publication in any part of the world affects novelty, which means during an expertise on a lawsuit, experts need to examine

---

SyndiGate Media Inc., "Protection of IP rights for Mobile Apps.", Law Update, 20.05.2015, Gale General OneFile, accessed through http://kutuphane.ankara.edu.tr/?page_id=792 (accessed on 23.11.2020)

[66] **Erdil, Engin**, "Fikri Mülkiyet Hukuku Pratik Çalışmaları", Vedat Kitapçılık, İstanbul 2018, p.181

[67] **Kur; Dreier,** p. 111

[68] ibid.

[69] **Industrial Property Code No. 6769**, dated 22.12.2016, published in Official Gazette dated 10.01.2017 numbered 29944.

[70] **Suluk; Karasu; Nal,** p. 242

publications around the world and inform the court about publications even if they are not exists in Turkish national patent system.[71]

In EPO practice, in a key case between *Symbian Limited v. Comptroller General of Patents*, it is stated that patentability requirement for a computer program is a "*novel effect outside the computer"*.[72] Thus, a program has to bring a new method *to "technology for carrying out a new procedure or better way of carrying out an existing procedure, to be accepted as a patentable program. On this basis, a program for an improved system for manufacturing a product, or for performing a new or improved function on any machine would be patentable."*[73] Finally, Court of Appeal also considered the issue in the same way and decided not to bring a common rule about computer programs as patentable or not but stated that facts and feature of each case has to be determined while giving the decision.[74]

In United States, novelty was interpreted in the broadest way possible that the idea of "a person may have invented a machine or a manufacture, which may include anything under

[71] Yargıtay 11th Civil Chamber, Case Number: 2018/3856, Decision Number: 2019/5148, dated 09.09.2019, https://khyk.kazancihukuk.com/#1z8a3FJ52UKT3eC8cP4IpMX+7NMt2gFWlnEsBd88JGeWdJxfjN9QUlg~~&_=0.11403980678934089, (accessed on: 23.11.2020)

[72] **Cole, Paul**, "Patentability of Computer Software As Such", Patently-O Patent Law Journal, 2008, https://patentlyo.com/media/docs/2008/10/cole.pdf, p.3, (accessed on: 23.11.2020)

[73] ibid.

[74] ibid, p.4

the sun that is made by man. . . ."[75] was the general rule at first. Today, still USPTO regards computer programs and mobile applications as patentable, such that, one of the most popular and current patents granted for Apple Inc. is the one for famous mobile application of Apple called "Siri" as "Intelligent automated assistant".[76] In the patent file, it is described as "*an intelligent automated assistant is implemented on an electronic device, to facilitate user interaction with a device, and to help the user more effectively engage with local and/or remote services. In various embodiments, the intelligent automated assistant engages with the user in an integrated, conversational manner using natural language dialog, and invokes external services when appropriate to obtain information or perform various actions."*[77]

As it seems, USPTO has a broader interpretation than European system starting from the beginning of patentability discussions. Anyway, it has to be considered that while filing a patent application, novelty claims may have key importance. When a claim is drafted narrowly, it would be easier to escape from competitors' challenges but its scope would also involve less specifications however, when its drafted broadly, it becomes easier to challenge against so that makes it harder to reach patent protection.[78]

---

[75] Diamond v. Chakrabarty, US Supreme Court 447 U.S. 303**,** 1980, https://supreme.justia.com/cases/federal/us/447/303/**,** (accessed on: 23.11.2020)

[76] USPTO, "Intelligent automated assistant", US9318108B2, granted on: 19.04.2016, https://patents.google.com/patent/US9318108B2/en?q=%22Intelligent+automated+assistant%22&assignee=Apple+Inc.&status=GRANT&sort=old, (accessed on: 23.11.2020)

[77] ibid.

[78] **Shemtov**, p. 12

3. Inventive Step (Non-Obviousness)

EPC defines inventive step as "An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art."[79] in Article 56. Turkish Industrial Property Code also accepts a similar definition.80 According to Yusufoğlu, the term "expert" that is used instead of "skilled person" in Turkish IPC defines a more skilled person.81 "Expert" points out an inventor from her point of view while "skilled person" is an ordinary engineer or a person that has basic ordinary information in science.82 As the person that will examine whether an invention contains an inventive step or not has crucial importance in patent application, there is still a discussion going in literature on about which skills does an examiner have to have.83

When it comes to obviousness feature of inventive step, in the Examination Guidelines of the EPO, it is described as: "*Thus the question to consider, in relation to any claim defining the invention, is whether before the filing or priority date valid for that claim, having regard to the art known at the time, it would have been obvious to the person skilled in the art to arrive at something falling within the terms of the claim. If so, the*

---

[79] European Patent Office, European Patent Convention, p. 114, http://documents.epo.org/projects/babylon/eponet.nsf/0/158C4E1A5C4BD54EC125859700523F0A/$File/EPC_16th_edition_2016_en.pdf, (accessed on: 23.11.2020)

[80] **IPC,** *Artcile 83/5*

[81] **Yusufoğlu, Fülürya**, "Patent Verilebilirlik Şartları", İstanbul 2014, p. 278

[82] ibid.

[83] **Öztürk, Özgür**, "Türk Hukukunda Patent Verilebilirlik Şartları", Arıkan, İstanbul 2008, p. 267

claim is not allowable for lack of inventive step. The term 'obvious' means that which does not go beyond the normal progress of technology but merely follows plainly or logically from the prior art."[84]

As a result, while considering the inventive step in European system, the important thing is to determine if it is obvious for a skilled person in art to get the same result by using existing methods.[85]

In United States, the term of "non-obviousness" is used for inventive step in Unites States Code Title 35 – Patents.[86]

The standard in determining obviousness is: *"what would a person of ordinary skill in the relevant scientific discipline know and do with the information available to him? A simplified way to look at it involves three steps. First, were all of the pieces of an invention present? Second, was there is a reason to put those pieces together? Third, could a person of ordinary skill put those pieces together to make the patented invention? If these steps are all met, the patent is invalid for obviousness."* [87]

---

[84] **European Patent Office, Guidelines for Examination in the European Patent Office**, 2019, p. Part G – Chapter VII-2

[85] **Kur, Annette; Dreier, Thomas**, p. 113

[86] **United States Code Title 35 – Patents ("US Patent Act")**, https://www.wipo.int/edocs/lexdocs/laws/en/us/us176en.pdf, (accessed on: 23.11.2020)

[87] **Greenspan, David**, "Mastering the Game Business and Legal Issues for Video Game Developers", WIPO Publication No. 959E, 2013, p. 99-100 https://www.wipo.int/edocs/pubdocs/en/copyright/959/wipo_pub_959.pdf, (accessed on: 23.11.2020)

4. Industrial Applicability (Utility)

The notion of industrial applicability is defined as being *"susceptible of industrial application if it can be made or used in any kind of industry, including agriculture"*.[88] As an example, idea of using logo of *Audi* as a resistance to demist the vapor on rear window cannot be considered as applicable to industry since designing logo of *Audi* like a resistance has an aesthetic reason that has no technical effect.[89] Technical effect in this example is demisting the vapor and it is already a part of state of art.[90]

Any kind of industry also contains service industries like advocacy, banking or insurance since equipment used in these industries are also produced by industrial enterprises.[91] Usage of these equipment in service industry does not affect the patentability.[92]

In United States, term of "utility" is being used instead of "industrial applicability" which is defined as "the essential characteristics of the subject matter" and so, key to patentability is the production of a "useful, concrete and tangible result"[93].

---

[88] **Kur; Dreier**, p. 113-114

[89] **Suluk; Karasu; Nal,** p. 246

[90] ibid.

[91] ibid.

[92] **Ortan, A. Necip**, "Avrupa Patent Sistemi", vol.1, Ankara, 1991, p. 30

[93] **Hart, Robert**, "European Union Initiatives On Patents and Utility Models Which Will Impact Computer Programs", International Intellectual Property Law & Policy, 2001, p. 68-10

To comply with the utility requirement, an invention must meet three tests.[94] *"First, it must be operable and capable of use. It must operate to perform the functions and secure the result intended. Second, it must operate to achieve some minimum human purpose. Third, it must achieve a human purpose that is not illegal, immoral or contrary to public policy."* [95]

As a result, even though it is possible to protect codes of mobile applications through patent since every mobile application has a computer program that runs in a mobile device formed of codes, it may not be the most practical way. Firstly, programs have a structure that changes and evolves continuously and new versions are presented to the market with an extreme speed but one has to reveal all the consent of the program in registration process which can be considered as very long when compared to speed of technology makes patent protection not that suitable with the structure of computer programs.[96]

C. Trade Secret

According to TRIPS agreement, an information is protectable if such information:

> *"(a) is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question;*
>
> *(b) has commercial value because it is secret; and*

[94] **Kreiss, Robert A.**, "Patent Protection for Computer Programs and Mathematical Algorithms: The Constitutional Limitations on Patentable Subject Matter", New Mexico Law Review, 1999, p. 75

[95] ibid.

[96] **Akdemir Kamalı,** p. 102

(c) has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret."[97]

Trade secret or undisclosed information has a special importance in the case of technology. When a product is released and made available for public, it also becomes available for competitors to inspect and uncover the technology underlies the product.[98] The operation called "reverse engineering" which makes this inspection and uncovering available can be prohibited by a license agreement although in other jurisdictions like EU considers those type of clauses in an agreement as unenforceable.[99]

As trade secret protection is indefinite, a developer may protect his/her product indefinitely by meeting the criteria of trade secret as long as he/she wants which is not possible under any other intellectual property right.[100] By this way, a software owner may strengthen his or her positing in the market since his/her product is considered as proprietary information.[101]

---

[97] **World Trade Organization, Trade Related Aspects of Intellectual Property Rights (TRIPS Agreement)**, Part II, Article 39, https://www.wto.org/english/docs_e/legal_e/27-trips_04d_e.htm#7, (accessed on: 23.11.2020)

[98] **Shemtov,** p. 17

[99] ibid.

[100] **Rodau, Andrew G.**, "Protecting Computer Software: After Apple Computer, Inc. v. FranklinComputer Corp.", 714 F.2d 1240 (3d Cir. 1983), Does Copyright Provide the Best Protection", Temple Law Quarterly, vol. 57, 1984, p. 533-534

[101] ibid.

In Turkish legislation, protection of trade secrets is interpreted with unfair competition regulations.[102] Article 55 regulates the termless acts against rule of honesty in trade which contains: *"aiming labours, attorneys or other assistants to reveal or collect production or business secrets of employers or clients"* and *"taking over business products that are ready to commercialize by using technical copying methods without any proper contribution and benefit from them"*[103] which may be relatable with mobile application developers.

As it can be understood, although these rules may be considered relatable with computer programs, unfair competition rules in Turkish system are more related with manufacturing acts.[104] In fact, as these rules regulates the relationship between competitors rather than producer and consumer, again its effect will be little in these circumstances.[105]

Trade secret protection on computer programs and software is generally related with decompilation or reverse engineering. Achieving source code by copying object code for the purpose of obtaining the required information to provide interoperability of a

[102] **Akdemir Kamalı,** p. 102

[103] **Turkish Code of Trade No. 6102**, dated 13.01.2011, published in Official Gazette dated 14.02.2011 numbered 27846.

[104] **Eroğlu, Sevilay**, "Rekabet Hukukunda Bilgisayar Programlarının Korunması", Beta Yayınları, İstanbul 2000, p.26

[105] **Akdemir Kamalı,** p. 103

computer program with another independent computer program is called decompilation or reverse engineering.[106]

To qualify as a trade secret, *"software must not be widely known outside of the owner's business and the software must be an information that enhances the owner's business. Knowledge of the software should be restricted to employees who require access to the software for legitimate business reasons. Such employees should be subject to a secrecy agreement that legally obligates them not to disclose the software."*[107] Further, software owner also has to rake precautions such as preventing or restricting the access to software with secrecy agreements.[108] Employer has to explain his /her employees clearly the importance of the trade secret and which features of the company are considered as trade secret.[109] An agreement of confidentiality has to be signed between owner of the software and the third party to regulate the sale or usage of the software protected as a trade secret by a third party.[110] Finally, software being a trade secret also needs to be clearly indicated in such agreement to protect it under trade secret laws and disclosing to anyone other than authorized people has to be prohibited.[111]

---

[106] **Arıkan, Ayşe Saadet**, "Bilgisayar Programlarının Korunması AB ve Türkiye", Türkiye Barolar Birliği Dergisi, 1996, p. 362

[107] **Rodau,** p. 533

[108] ibid.

[109] ibid.

[110] ibid.

[111] ibid.

Whereas, trade secret regulations are one of the most efficient wways to protect rights when it comes to computer codes.[112] In some conditions, it can even be more efficient than the protection provided by all other intellectual property rights.[113]

First of all, as computer programs become available to be uncovered after the launch, trade secrecy provide a protection before the launch of a mobile application.[114] Furthermore, by adding certain clauses to agreements like confidentiality clauses or signing non-disclosure agreements with third parties also possible to protect the trade secrets before making the product available for public use.[115] Some aspects of a mobile application like specifications or new methods for delivering content are not available for reverse engineering but still these aspects are also available for protection under trade secret rules.[116]

In EU, a "Directive on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure"[117] is released on

[112] **Shemtov,** p. 25

[113] ibid.

[114] ibid.

[115] ibid.

[116] ibid.

[117] **European Union, Directive 2016/943 of the European Parliament and of the Council of 8 June 2016 On The Protection Of Undisclosed Know-How and Business Information (Trade Secrets) Against Their Unlawful Acquisition**, ("EU Trade Secret Directive"), Official Journal of the European Union, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L0943&from=EN (accessed on: 24.11.2020)

2016 to regulate this issue while in US, "Defend Trade Secrets Act"[118] came into force in the same year.

Under *US Trade Secret Act,* it is stated that: *"In a civil action brought under this sub-section with respect to the misappropriation of a trade secret, the term 'misappropriation' means— ''(A) acquisition of a trade secret of another by a person who knows or has reason to know that the trade secret was acquired by improper mean (6) the term 'improper means'— ''(A) includes theft, bribery, misrepresentation, breach or inducement of a breach of a duty to maintain secrecy, or espionage through electronic or other means; and ''(B) does not include reverse engineering, independent derivation, or any other lawful means of acquisition".* Reverse engineering is clearly permitted under US legislation by not defining it as an "improper mean".

Likewise, under *EU Trade Secret Directive* regulates the issue as: *"In the interest of innovation and to foster competition, the provisions of this Directive should not create any exclusive right to know-how or information protected as trade secrets. Thus, the independent discovery of the same know-how or information should remain possible. Reverse engineering of a lawfully acquired product should be considered as a lawful means of acquiring information, except when otherwise contractually agreed. The freedom to enter into such contractual arrangements can, however, be limited by law."*

[118] **United States,** "Defend Trade Secrets Act of 2016" **("*US Trade Secret Act*")**, https://www.congress.gov/114/plaws/publ153/PLAW-114publ153.pdf, (accessed on: 24.11.2020)

Distinctly from US, EU clearly regulated that even if reverse engineering is not infringing trade secret of a party as general rule, it can be prohibited or limited by non-disclosure agreements. In this case, trade secret law can be very effective against ex-employees.[119]

II. Intellectual Property Rights in Outer Aspects of Mobile Applications

A. Copyright

It is explained above in this work that outer aspects of a mobile application are graphical user interfaces that include desktop, individual components and animated features.

In Turkish *CIAW,* interface is defined as the parts of the program that makes the mutual effects and contact between features of computer hardware and software.[120] A computer program interacts with the user through user interface and communication between menu commands and certain commands in keyboard and buttons is considered as a part of user interface.121

To explain in a simpler way, the one with which users generally are most familiar is the actual output produced by the software -the "user interface."[122] This output ranges from the queries that a ticketing agent answers on an airline terminal, to the prismatic displays on a child's video game, to the final work product of a word processor, to the periodic activation and deactivation of robots in an automated assembly plant.[123]

---

[119] **Shemtov,** p. 26

[120] **CIAW***,* Article 1/B-h

[121] **Barrett, Margreth,** "Intellectual Property", New York: Wolters Kluwer Law & Business, 2012, p. 125

[122] **Kretschmer, Marc T.,** "Copyright protection for software architecture: Just say no", Columbia Business Law Review, 1988, p. 824

[123] ibid.

When it comes to the issue about mobile applications, it is examined above that coding of a mobile application is protectable under various ways of intellectual property rights. However, when a similar visual effect is created without using the codes of the original work or even accessing those codes, protection on codes will not be useful for the infringement.[124] At this point, it is obvious that a protection on graphical user interface of the mobile application is needed independently from the internal structure of the application.

Case between Apple Inc. and Microsoft Corporation in 1994 is a key lawsuit regarding the scope of copyright protection for graphical user interface. US Court of Appeals stated that:

"In any event, unlike purely artistic works such as novels and plays, graphical user interfaces generated by computer programs are partly artistic and partly functional. (...) Thus, the delete function is engaged by moving an icon on top of a trash can instead of hitting a 'delete' key. In Apple's GUI, the ability to move icons to any part of the screen exemplifies an essentially functional process, indispensable to the idea of manipulating icons by a mouse."[125]

In this regard, graphical user interfaces are considered as partially functional and partially artistic works, which provides them a partial protection since functionality is not protected under copyright law. Artistic part of a graphical user interface is protectable

[124] See: **Shemtov,** p. 40

[125] **Apple, Inc. v. Microsoft,** US Courts of Appeals for the Ninth Circuit, 35 F.3d 1435, 1994, ("Apple v. Microsoft"), https://law.justia.com/cases/federal/appellate-courts/F3/35/1435/605245/, (accessed on: 24.11.2020)

without any doubt like traditional artistic works like novels or plays.[126] In court decision, engaging delete function by moving an icon on top of a trash can is considered as an essentially functional process[127] which brings out the difficulty of proving a graphical user interface is both original and non-functional.

Similar to the issue examined in this case, generally, screen layouts of a mobile application is designed not only with aesthetic means but also aims to be a user friendly design which makes the application easier to be understanded or used by the user. Therefore, a GUI may be both functional and aesthetic at the same time.[128]

As there is no discussion in protecting artistic aspects of graphical user interfaces of a mobile application is possible, another issue is the scope of the protection. In same decision it is stated that:

"To the extent that GUIs are artistic, there is no dispute that creativity in user interfaces is constrained by the power and speed of the computer. (...)

For example, hardware constraints limit the number of ways to depict visually the movement of a window on the screen; because many computers do not have enough power to show the entire contents of the window as it is being moved, the illusion of movement must be shown by using the outline of a window or some similar feature. (...) These, and similar environmental and ergonomic factors which limit the range of possible expression in GUIs, properly inform the scope of copyright protection.

Originality is another doctrine which limits the scope of protection. As the Supreme Court recently made clear, protection extends only to those components of a work that are

---

[126] ibid.

[127] ibid.

[128] **Shemtov**, p.41

original to the author, although original selection and arrangement of otherwise uncopyrightable components may be protectable. (...)"[129]

When considering the scope of copyright protection in graphical user interfaces, the consensus for a finding of infringement requires not only some similarity in the works, but that a virtual identity, or very significant similarity, exist in the interface of the two works in order.[130] This flows from a judgment that many graphical user interfaces are not highly artistic or fanciful, but rather are executed in a relatively constrained environment.[131] The goal is to enable copyright protection, but to narrow the scope of protection in a manner that enables others to use similar approaches in an environment where there is narrow room for effective expression.[132]

To summarize, scope of the protection is limited technically with the technical capability of the device and legally with originality.[133] It seems that aim of the court is to prevent duplication and marketing of an original copyrighted work by other developers in the market rather than focusing on the coding or other internal aspects.[134]

---

[129] ibid.

[130] **Nimmer, Raymond T.; Towle, Holly K.,** "Intellectual Property Basis", The Law of Electronic Commercial Transactions, Lexis Nexis, 2011

[131] ibid.

[132] ibid.

[133] See: **Apple v Microsoft**

[134] **Lunney, Jr, Glynn S.**, "Lotus v. Borland: Copyright and Computer Programs", Tulane Law Review, 1995-1996, p. 2406

Some thoughts in literature also states that graphical user interfaces may be able to transfer of thoughts and feelings like traditional art works, which makes them considered and protected as "art works" as well.[135]

Before the case between Apple and Google in 1994, extending copyright protection to overall structure of a computer program was mentioned in 1986, in another key lawsuit for copyright protection of computer programs, between *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*[136] In this case, The Court of Appeals for the Third Circuit stated that protection of computer programs under Copyright Act does not only cover the language codes but also the general structure, sequence and organization as well.[137]

In today's world, also the main objective of this work, mobile application programs are considered as one of the most valuable computer programs and protecting them under copyright law seems like the most agile way. Since it does not need any registration process[138], it can be accepted as the fastest protection which is a certain need when the speed of improvement in technology is considered.

Snapchat is one of the most famous mobile applications with millions of users around the world. What Snapchat application does is to send photos that are only available to view only for a specified time period and has the function to add some filters like entertaining make ups or animal ears.[139] This concept of filtered photos that can only be viewed once

---

[135] **Topaloğlu**, p. 91; **Dalyan**, p. 90

[136] **Menell, Peter S.**, "An Analysis of the Scope of Copyright Protection for Application Programs", Stanford Law Review, 1989, p. 1048

[137] **Kramer, Karen J.**, p. 473

[138] **Kılıçoğlu, Ahmet M.**, "Sınai Haklarla Karşılaştırmalı Fikri Haklar", Turhan Kitabevi, 6th edition, Ankara 2020, p. 97

[139] **Shemtov**, p. 53

for a specified period of time is the function of this application and can be considered as the idea part of this applications which is not protected under copyright law.[140] However, specific filters that allows to add particular type of a rainbow or an animal ear design which includes an expression of the designer or combination of both , may be considered as a protectable graphical user interface even if the filter of rainbow or animal ears are not considered as "protectable" individually.[141] Such combinations of different filters that are not protected as individuals may fulfill the requirements of copyright as a combination and considered as an original expression of an idea which makes it protected under copyright.

B. Design

Commercializing technologic products that are developed through research and development process with an original outlook (design) will increase the success of that product in the market.[142] For example, Apple owes its success to its original designs as much as its technical features. [143]

According to Article 55/1 of Turkish *IPC,* A 'design' means *"the appearance of the whole or a part of a product resulting from the features of, in particular, the lines, contours,*

[140] ibid.

[141] ibid.

[142] **Suluk; Karasu; Nal,** p. 313

[143] ibid.

colors, shape, texture and/or materials of the product itself and/or its ornamentation."[144] Which is identical with the definitions contained in EU legislation.[145]

However, design law regulations are not uniform internationally and significantly varies in every jurisdiction. For that reason, design protection that may be eligible for mobile applications will be examined under two titles by distinguishing EU system and US system.

On the other hand, even these jurisdictions differ in design law regulations, Hague Agreement has to be mentioned at this point, which is an international agreement that allows designers to obtain protection for their designs in member states by filing a single application through World Intellectual Property Organization ("*WIPO*").[146] As design regulations differ in each jurisdiction, although US was one of the original signatories to

---

[144] **Turkish IPC,** *Article 55/1*

[145] See: **European Union Directive 98/71/Ec of the European Parliament and of the Council of 13 October 1998 on the legal protection of designs**, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31998L0071 (accessed on: 25.11.2020); also see: **European Union Council Regulation (EC) No 6/2002 of 12 December 2001 on Community designs**, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32002R0006 (accessed on: 25.11.2020)

[146] **Mahmood, Tiffany**, "Design Law in the United States as Compared to the European Community Design System: What Do We Need to Fix?", Fordham Intellectual Property, Media and Entertainment Law Journal, vol. 24, 2015, https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=1567&context=iplj, (accessed on: 25.11.2020)

the Geneva Act of 1999, US Senate did not ratify the treaty until 2007 and therefore, US did not implement the final legislation to its jurisdiction until December 2012.[147]

1. European Union System

EU regulates the design law with "Directive 98/71/Ec of the European Parliament and of the Council of 13 October 1998 on the legal protection of designs" ("*EU Design Directive*" or "*EDD*") and "Council Regulation (EC) No 6/2002 of 12 December 2001 on Community designs" ("*EU Community Design Regulation"* or "*ECDR"*).[148]

In both of these regulations and also in Turkish *IPC*, "product" as the context of design protection is defined as: *"'product' means any industrial or handicraft item, including inter alia parts intended to be assembled into a complex product, packaging, get-up, graphic symbols and typographic typefaces, but excluding computer programs".*[149]

Clearly, EU and Turkish legislation clearly excluded computer programs out of design protection. However, since requirements for design protection in *EU* system are *novelty and individuality*[150] and computer program is only the basis of mobile applications, graphical user interface features of mobile applications (like menus and icons) that are considered independent from the internal structure and computer program inside it may be included in design protection if it meets novelty and individuality criteria.[151]

---

[147] ibid.

[148] **Kur; Dreier,** p. 354

[149] **EDD**, Article 1; **ECDR**, Article 3; **ICC**, Article 55/2

[150] ibid.

[151] **Suluk; Karasu; Nal,** p. 315

As a result of the difference between graphical user interfaces of a mobile application and the computer program underlies in it, it becomes possible to protect visual designs under design law.

Novelty, as a requirement for design protection *"refers to the identity or quasi-identity of the design with what is already available to the public."*[152] In Article 5 of *ECDR,* a design is accepted as novel if an identical design was not made available to the public before.[153] This definition is identical with the one exists in *EDD.*[154] However, in *ECDR*, an additional regulation is implemented to this rule and a distinguishment is made between registered and unregistered designs in scope of the date that will be based on while determining the date range of the term "before" .[155]

While this range indicates the time period before the date of filing of the application for registration of the design or the date of priority in registered community designs, first publication of the design for which protection is claimed is important for unregistered community designs.[156]

Additionally, in both regulations, it is stated that immaterial designs of a product will not be considered while examining the novelty of an application for design registration.[157]

---

[152] **Kur; Dreier,** p. 356

[153] See: **ECDR**, Article 5

[154] See: **EDD**, Article 4

[155] ibid.; also see: **ECDR**, Article 5

[156] ibid.

[157] ibid.

When it comes to examination of individual character, to determine whether design of a mobile application has individual character or not, it is important that overall impression of the design produced on the informed user should differ from the overall impression of the design in comparison that is produced on such a user.[158]

Same distinguishment is made here as well, about the beginning of time period that will be examined while comparing prior designs and the design application in question, between registered community designs and unregistered community designs in *ECDR* although such distinguishment does not exist in *EDD.*[159]

The term "informed user" can be briefly defined as *"who may know more than the average consumer but is not an expert nor skilled in the art."*[160] Determining the informed user has a key role in design law as he or she is the one will be the basis of examining the similarity between design in question and earlier designs.

In respect to this issue, case between PepsiCo, Inc. and Grupo Promer Mon Graphic SA concluded by Court of Justice of the European Union is an important case while defining the informed issuer because *ECDR* does not include any definition about it. Therefore, Court of Justice of the European Union declared an explanation about this issue through this case. It is stated in the decision that: *"informed user may be understood as referring,*

[158] ibid.

[159] ibid.

[160] **Mahmood**, p. 576

not to a user of average attention, but to a particularly observant one, either because of his personal experience or his extensive knowledge of the sector in question."[161]

Continuously, the court rules that informed user's comparison cannot be ruled out because of the specific circumstances or characteristics of the devices and lastly, informed user cannot be considered as an expert that is expected to make a detailed examination between two designs even is he is also not an average consumer.[162]

As these are the main requirements of providing a protection to a design, one of the most important challenges that a developer may face against is the functionality. Design law, as a general rule, protects the visual look of a product and excludes the technical features, which are interests of patent and utility model regulations.[163] It is clearly stated in Article 7 of *EDD* that features of appearances that are mandatory because of the technical reasons will not be protected under EU design regime.[164] When it comes to consideration of graphical user interfaces, this exclusion is not being interpreted broadly in relevant cases.[165] If a developer has choices other than creating the interface in question while developing an app and his/her motivation in creating that interface is not only about

---

[161] See: **PepsiCo, Inc. v. Grupo Promer Mon Graphic SA,** Court of Juctice of the European Union, Case C-281/10 P, 20.10.2011, http://curia.europa.eu/juris/document/document.jsf;jsessionid=3122876A3EA607180150A0EBAC0036F1?text=&docid=111581&pageIndex=0&doclang=en&mode=lst&dir=&occ=first&part=1&cid=14867060, (accessed on: 25.11.2020)

[162] ibid.

[163] **Suluk; Karasu; Nal,** p. 325

[164] See: **EDD**, Article 7

[165] **Shemtov**, p. 43

functional necessities, the design generally excludes from the limitation mentioned in Article 7 of *EDD.*[166]

Lastly, as *EU* distinguishes designs as registered and unregistered designs, this provides broader protection to designers which did not register its design. This can be considered as a similar type of protection with copyright which is considered as one of the most suitable intellectual property protections provided to mobile applications above, according to its compatibility with the speed of technological development.

2. United States System

Unites States intellectual property law system includes various ways to protect designs.[167] For example, certain designs are protected under patent law as design patens.[168] Under copyright regulations, designs may be protected as architectural works and there are also different kinds like vessel designs and trade dress which recognizes designs that have formed somewhat of a brand by themselves.[169]

As copyright protection of mobile application is already examined above in this work, we will focus on the design patents.

Patent law is regulated in United States under US Patent Act which also includes design patents.[170] As it seems, there is no individual regulation for "designs" unlike EU system.

---

[166] ibid.

[167] **Mahmood**, p. 559

[168] ibid.

[169] ibid.

[170] See: **US Patent Act**, Article 171, https://www.wipo.int/edocs/lexdocs/laws/en/us/us176en.pdf, (accessed on: 25.11.2020)

In this regulation, requirements for being eligible for design patent protection is counted in the Article 171, which are being *"new, original and ornamental for an article of manufacture"*[171]. In addition to this, as design patents are also "patents" as a basis, non-obviousness is also accepted as a requirement for design patent protection.[172]

Starting from the last, while determining whether a design is ornamental or not, US courts are considering if the appearance of the article is a "matter of concern" either to the manufacturer or the purchasing public.[173] In another words, if it is apparent that the designer's purpose was to ornament or stylize an article of manufacture in an aesthetically pleasing manner, the design probably will be eligible for design patent protection.[174] From this point of view, it is fair to state that ornamentality requirement in design patents can be considered as similar to functionality limitation in EU community design regime.

Second requirement is originality. For the purpose regulating the examination of this act in US system, United States publishes a Manual of Patent Examining Procedure

[171] ibid.

[172] **Mahmood**, p. 560

[173] **McAllister, Douglas M.**, "The Ornamentality Standard of Design Patents: Evolution and Rejection of the Hidden in Use Test.", Bridgeport Law Review, vol. 13:419, 1993, p.450

[174] **Gaspar, Christopher J.**, "The Federal Circuit Locks down the Ornamentality Requirement: Best Lock v. Ilco Unican", Journal of Corporation Law, vol. 23, 1997, p.191

("*MPEP")*, which is lastly revised on June 2020.[175] Chapter 1500 of the MPEP regulates the procedure of design patents.[176] According to regulation no. 1504.01 (d) of this manual, originality can be briefly explained as not simulating an existing object or a person.[177]

As determination of non-obviousness is examined above in this work, similar point of view also eligible for design patents. For a design to be non-obvious there should be a 'distance' between design in question and previous ones.[178]

Lastly, being new (or novelty) is the requirement that preventing an ordinary observer (unlike non-obviousness which requires a person skilled in art) to be deceived between prior article and the design in question.[179]

USPTO is granting design patents for graphical user interface for years, in which the first issuance is thought to be for Xerox Corp. in May and June 1988.[180] Some examples of patented designs are icons for wastebasket, telephone, and "softkey" menu display.[181]

As a result, in both legislations, graphical user interfaces of mobile applications can be protected under community design or design patent regulations if they meet the criteria of these jurisdictions. While EU regulations seem less complicated and agile since they

---

[175] See: **Manual of Patent Examining Procedure ("*MPEP")*,** Chapter 1500 – Design Patents, https://mpep.uspto.gov/RDMS/MPEP/current#/current/d0e150114.html, (accessed on: 25.11.2020)

[176] ibid.

[177] ibid.

[178] **Shemtov**, p. 49

[179] **Mahmood**, p. 560

[180] **Menell**, p. 1091

[181] ibid., p. 1092

are even protecting unregistered designs in a similar way with copyright, USPTO is already granting design patents for more than thirty years which also provides solutions for developers even if the requirements for protection seems much harder to fulfill.

C. Trademark

Trademark is the sign that allows distinguishing one's goods and services from others.[182] In Europe, similar to design, there is a directive and a regulation for trademark legislation. Trade Mark Directive ("*EU Trademark Directive")*[183] and Community Trade Mark Regulation ("*Trademark Regulation")*[184] sets the basis of this issue. As the term "community trade mark" is used in these regulations, European trademark regime will be referred as "community trademark regime" ("*CTM*") hereinafter.

[182] **Uzunallı, Sevilay**, "Marka Hukuku", Adalet Yayınevi, Ankara 2019, p. 19

[183] **European Union Directive 2015/2436/EC of the European Parliament and of the Council of 16 December 2015 to Approximate the Laws of the Member States Relating to Trade Marks**, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015L2436, (accessed on: 26.11.2020)

[184] **European Union Regulation (EC) No 2015/2424 of the European Parliament and of the Council of 16 December 2015**, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32015R2424, (accessed on: 26.11.2020)

On the other hand, in some other legislations like United States, there is a different regime is going on for trademarks. Trademark Act[185] is the code of United States that regulates the trademark issue.

Even if United States have a different legislation, there are international treaties like Madrid Protocol and Paris Convention in which United States is also member state and that creates a common place for both jurisdictions.

Main difference between two jurisdictions is CTM has a register-based system on trademarks while US regulation is a use-based system.[186] CTM confers an absolute monopoly upon the owner of a trademark started from the registration and allows the registrant alone to sell the goods or offer the services claimed in the registration under that trademark.[187] In other words, one that wishes to create a trademark in CTM will make a proper application for trademark registration and after that trademark is granted to registrant, it becomes eligible for usage in market. However, in United States, to register a trademark it has to be shown by the registrant that the trademark is already in use in the market first.[188]

Even if these regimes differ when it comes to the beginning of protection and process of registration, basic principles of trademark law is substantially similar. As a general rule, a mark has to involve some distinctive character and must not be descriptive to be

---

[185] **USPTO,** "Trademark Act of 1946, as amended", 25.11.2013, https://www.uspto.gov/sites/default/files/trademarks/law/Trademark_Statutes.pdf, (accessed on: 26.11.2020)

[186] **Aaron, Tara M.**, "The Concepts of Use of a Trademark under European Union and United States Trademark Law", The Trademark Reporter, vol. 104, 2014, p. 1193

[187] ibid.

[188] ibid., p. 1202

considered as a trademark.[189] The term "mark" used in here may be in many different forms like name and surname of registrar, words, letters, numbers, shapes, colors, voices, smells or tastes, three dimensional structures, positions or motions. [190] As a result, graphical user interface of a mobile application may also be protected under trademark laws since its features of desktop, individual component or animation are all consist of various types of shapes, words, letters, colors or motions.

One of the most specific examples of a graphical user interface registered as a motion mark is the famous mark of Microsoft that is used during the opening of Windows operating system, which is formed of a four-cornered, window lookalike shape that moves toward the screen.[191] While applying for a motion mark, it is important to clearly mention registrant is applying for a motion mark and submit drawings and pictures that follows each other while also indicating the direction of the move and its duration.[192]

As moving marks is more likely to indicate a source of origin in consumer's mind, it is harder for individual components of a graphical user interface to achieve that even if they are unique as a design. Since one of the main functions of trademark is to indicate the enterprise that manufactures or distributes the product or provides the service[193], achieving such function with an overall layout and components like scroll bars or menus that vast majority of them are commonplace or functional is not simple. For example, Apple and Samsung had a dispute about trademark infringement arising from graphical user interface of Apple, in which US court decided that these graphical user interfaces

[189] **Shemtov**, p. 45

[190] **Uzunallı**, p. 24-30

[191] ibid., p. 30

[192] ibid.

[193] **Suluk; Karasu; Nal**, p. 158

cannot be protected under trademark law since they consist a functionality.[194] On the other hand, court did not consider same interfaces as "functional" under design patent regime.[195]

[194] **Shemtov**, p. 46

[195] ibid.

THIRD CHAPTER

OWNERSHIP AND TRANSFER OF INTELLECTUAL PROPERTY RIGHTS IN MOBILE APPLICATIONS

I. Ownership

A. Ownership in General

In second chapter of this work, it is explained that various types of intellectual property rights may be included in a mobile application. Starting from the coding and software architecture of a mobile application, logo, name, animated features, menus, scroll bars and other visual or technical components are available for intellectual property protection. A group of these rights may also exist at the same time while you are protecting the inventive function of a mobile application with patents, register its name and application logo as a trademark and protect its overall layout under copyright.

At this part of the work, ownership and transfer of these rights will be examined. Since it is possible that more than one type of intellectual property right may exist in an application, there is also different types of legal ownerships and ways of transferring these rights. In each case, licensing or somehow permitting any other person to use these rights cause different results which will be examined below.

In practice, mobile application developers generally have relationships with three types of third parties; operating system platform providers (Apple iOS, Google Play Store, etc.), publishers and consumers. Developer's legal relationship with consumers mostly determines with end-user licenses that will be examined further in this work which are not for transfer of the ownership of the work but make consumers use all aspects of a software without buying or renting it. Other than this, when it comes to relationship between platform providers and developers, operating system platform providers have fixed conditions in their agreement which are not negotiable since platform providers

mostly be in a stronger position in the market when compared to developers (these conditions and exceptions will be examined). Relationship between developer and publisher has the highest possibility among these relationships to have specific and individual circumstances in which conditions and clauses of the agreement varies depending on the position of the parties in the market, value of the application and many other circumstances.

At this point it is necessary to state that the term "Digital Rights Management" ("*DRM")* has to be differed from intellectual property ownership.[196] Although DRM is also a tool that is being used for protection intellectual property in digital content, it provides the protection through technical features, codes and software rather than law.[197]

A. Scope of Ownership

Basically, ownership of a literary or artistic work belongs to its creator.[198] In some circumstances, ownership may also belong to legal entities, employers or other individuals other than creator.[199] As it is stated above, computer programs are considered as literary and artistic works that may be protected under copyright law. Although protecting computer programs under copyright law is not arguable, issues such as determining the right holder of such rights, exclusive rights of the right holder, limited

[196] **Wilson, Arlene**, "Digital Rights Management: An Overview", Business Law Review, vol.1, 2010, p. 2

[197] ibid.

[198] **Evrensel, H. Alperen**, "Telif Hakkı Sözleşmesi ve Hakların Devri", Seçkin Yayıncılık, 2019, p. 58

[199] **Gökyayla, Emre**, "Telif Hakkı ve Telif Hakkının Devri Sözleşmesi", Yetkin Yayınları, 2000, p. 199

rights and exceptions of these rights and also conditions that allow computer program users to reverse the program to its source code was regulated in *EU Directive.*[200]

In this directive, individuals that may be considered as right holders are counted in Article 2.[201] According to this, if a sole creator has created a work, right holder of that work may be; the creator who is a natural person or legal entity and a legal entity that is licensed by the legislation of the member state; if there are more than one natural person creators, then they will own the work together.[202]

Continuously, about the authorization of the right holder, it is distinctly stated that right to load, display, run, transmit, store, translate, adapt, arrange, alter, rent, reproduce, distributing to public a computer program can be used by third parties only in case of authorization of the right holder.[203]

Alteration in sense of mobile applications especially for games has to be examined individually. In video games, modifications or shortly "mods" have a huge impact on gamers and trade success of games.[204] Mods means adding new contents to the game that is generally done by fans and users of the game by using tools provided by the original developer for the purpose of that specific operation.[205] One of the main example for this

---

[200] **Yazıcı,** p. 52

[201] See**: EU Computer Directive**, Article 2

[202] ibid.

[203] ibid., see: Article 4

[204] **Lindstrom, Carl**, "Mod Money, Mod Problems: A Critique of Copyright Restrictions on Video Game Modifications and an Evaluation of Associated Monetization Regimes", William and Mary Business Law Review, 2020, p. 813

[205] ibid.

issue is the case between game console company Xbox and a 22 years old man. In that case, the defendant man was selling Xbox consoles that he modified after purchasing it by adding extra hard drive and vast of games.[206] Caerphilly Magistrates' Court in that case decided that what defendant did is infringing the copyrights of Xbox by means of alteration without authorization of the right holder.[207]

Reproducing a computer program protected under copyright, but as an addition to the traditional hard copy works, this reproduction also includes acts such as downloading, running, saving it to a flash drive.[208] Similarly in United States, reproducing a copyrighted work without authorization from the copyright holder, irrelevant of gaining profit out of it, is prohibited with the point of view that a "copyright" simply is "right to copy" which prevents third parties from copying the work.[209] Exception of private use, which excludes users that reproduce a work for private use, is the main issue about reproduction. Some jurisdictions cancelled this freedom of user since there is high possibility of bad faith arising from this right.[210]

Distribution to public must be interpreted wisely since no definition exists in the EU Computer Directive and any sort of distribution to public is considered as distribution

---

206 http://news.bbc.co.uk/2/hi/technology/4650225.stm#:~:text=A%2022%2Dyear%2Dold%20man,hard%20drive%20containing%2080%20games., (accessed on: 28.11.2020)

207 ibid.

208 **Arıkan**, p. 60

209 **Roznovsky, Taylor**, "Pleasing to All and Helpful to None: Software Licensing from the Berne Convention to the Strange Case of UsedSoft v. Oracle", International Trade Law Journal, 2013, p. 57

210 **Topaloğlu**, p. 51

under Article 4, other than traditional distribution methods applied to cinematographic works.[211] Additionally, distribution of mobile applications has a unique characteristic that digital distribution is the only way to distribute a mobile app.[212] Another difference is that distribution of these applications also varies depending on the device for which it is developed, developer of the product and terms and conditions of the agreement between developer and operating system platform provider.[213] These agreements will be examined below.

However, on June 2012, European Court of Justice ("*ECJ")* defined a new doctrine in the case between Oracle International Corp. and UsedSoft GmbH.[214] ECJ decided that a licensee of a computer program also grants the right to sell that license to another licensee without any permission needed from the original licensor.[215] Court referred the Article 4/2 of the EU Computer Directive which accepts the first-sale doctrine, which means sale means transferring of the ownership of a product and buyer becomes the new owner and seller's every right on that product must be considered as exhausted after the first sell.[216]

---

[211] **Czarnota, Bridget; Hart, Robert J.**, "Legal Protection of Computer Programs in Europe: A Guide to the EC Directive", UK: Butterworths Law, 1991, p. 59

[212] **Cheatly, James**; **Australian Copyright Council**, "Interactive Games & Copyright", Australian Copyright Council, 2014, p. 43

[213] ibid.

[214] **Roznovsky,** p. 55

[215] ibid. p. 55; also see: **Oracle International Corp. v. UsedSoft GmbH**, European Court of Justice, ECLI:EU:C:2012:407, http://curia.europa.eu/juris/document/document.jsf?docid=124564&doclang=EN, (accessed on: 27.11.2020)

[216] ibid.

This point of view of ECJ is completely different from the interpretation of US Courts. In US case law, it is clearly restricted for a licensee to sell a software to a third party.[217]

B. Ownership of More Than One Creator

Helping the right holder by giving advices, sharing information or giving idea during the process of creation of a computer program is not enough to own a right on the work.[218] Because the aspect that grants a right on an artistic or literary work is the creativity and individual character of the right owner.[219] Helping the creator who has creativity and actually creates the work does not consist any creativity or the product does not include any individual character of the helper.

Creating a computer program solely but getting help from others needs to be distinguished with products that are produced by more than one creator. In this case, when more than one person has contributed to the creation of the work and put novelty and individual character on it, there is a teamwork on the program which grants every team member an ownership right on the work.[220]

Today, many computer programs are being produced by companies that employs thousands of engineers within their structure, which leads to the acceptance of "work for hire"[221] doctrine for ownership of copyrights in these works.[222] In Article 2 of EU Directive stated above, it seems that ownership regulation is regulated in consideration

---

[217] **Roznovsky**, p. 56

[218] **Yazıcı,** p. 77

[219] **Yazıcı**, p. 77

[220] ibid., p. 78

[221] See: **Tekinalp**, p. 144

[222] **Ateş, Mustafa**, "Fikri Hukukta Eser Sahipliği", Adalet Yayınevi, 2012, p. 238-239

with the possibility of more than one creator being included in a work, however it sets member states a freedom on how to regulate this issue in their own legislation.[223] It is also stated that if a work is created by employees under employer legal entity's instructions, financial rights of the work shall be granted to legal entity.[224]

In Turkish doctrine, a legal entity is not considered as the owner of the work but it is authorized to use the financial rights of the work because of the difference between being author and right holder.[225] Author reflects his/her intellectual capacity and creativity on the work but a "legal entity" has no mind or creativity even if it holds financial rights. On the other hand, according to opposing view, leaving moral rights of the work to the employee while granting financial rights to employer includes the risk of preventing employer to use its financial rights by worker with the moral rights, so this issue has to be examined case by case.[226] Moral rights of the "author" in European system can be counted as; disclosure (only author can decide making his/her work public or keeping it private), paternity (whether to keep his/her name in the work) and integrity (protecting the work from any kind of modification).[227] These rights cannot be licensed to third parties because they are considered as directly linked with the personality of the author.[228] In United States, moral rights are not regulated independently like in Europe and

[223] **Akdemir Kamalı**, p. 120

[224] ibid.

[225] **Erel, Şafak N.**, "Fikri Hukukta Bilgisayar Programlarının Korunması", Ankara Üniversitesi SBF Dergisi, 1994, p. 146

[226] **Ateş,** p. 360

[227] **Schere, Elizabeth**, "Where Is the Morality: Moral Rights in International Intellectual Property and Trade Law", Fordham International Law Journal, 2018, p. 775-776

[228] ibid.

interpretation is not as broad as it is in Europe.[229] In contrast, moral rights are protected under general rules such as trademarks, breach of contract or unfair competition.[230]

In case of a computer program created with contribution of more than one creator without any instruction from an employer, although there are different theories on ownership of works like that for more traditional works, the most suitable one for computer programs is the joint ownership of creators because their effort and intellectual contribution on the work is not separatable from each other.[231] In addition, while US Courts were examining this issue in one of the key cases which is about the movie Malcolm X, court stated that the requirement for a copyrightable work created by more than one author to be considered as a "joint work" is that "*the authors must intend their contributions be merged into inseparable or interdependent parts of a unitary whole."*[232] As it seems, to be considered as a co-author and make the work accepted as a joint work, an "intention" between authors is seeked by US Courts.

Most famous example of this type of intellectual property right on a computer program is the famous game "DotA" (previously known as "Defence of the Ancients"), a popular tower defending game developed with the same idea of another popular game "Warcraft" which is Blizzard's property.[233] "Defence of the Ancients" is developed by developers

---

[229] ibid., p. 776-777

[230] ibid.

[231] **Dalyan**, p. 98; also see: **Akdemir Kamalı**, p. 122-123

[232] **Jefri Aalmuhammed v. Spike Lee**, US Court of Appeals for the Ninth Circuit, Case Number: 202 F.3d 1227 (9th Cir. 2000), https://law.justia.com/cases/federal/appellate-courts/F3/202/1227/592674/, (accessed on: 28.11.2020)

[233] **Caguioa, Isabel Assunta C.**, "Recent Copyright Issues in Video Games, Esports, and Streaming.", Ateneo Law Journal, vol. 63, 2019, p. 898-899

who are not employers of any company but work on the game on their free times without any payment.[234] Therefore, this game with more than one independent creator achieved a huge success and one of these developers created first version of the current popular game "DotA – All Stars".[235] However, in following years, two of the main designers of "Defence of the Ancients" assigned their rights on the game to the company called Valve while the third one assigned his rights to Riot Games.[236] The issue of ownership started at this point. Blizzard is the developer of "Warcraft" which is the creator of custom tools of tower defensing game while three main developers are the individual authors of the game "DotA" and Riot and Epic are the right holders that are assigned by different developers.[237] Unfortunately, case did not ended with a court decision but the agreement of the parties where Valve kept the right of the name "Dota" (dropping the capital "A") but changed all aspects of graphical user interfaces and Riot and Blizzard released their own similar games without using name of Dota.[238]

However, in 2014, another intellectual property issue arised again relatively to this game. Companies uCool Inc. and Lilith Games released mobile games that includes very similar graphical user interfaces with original "DotA".[239] While Blizzard and Valve filed a lawsuit immediately, uCool stated that Valve only holds an ownership on the name of "Dota" and does not have any rights on the original game of "DotA".[240] The case is still

[234] ibid.

[235] ibid.

[236] ibid. p. 900

[237] ibid.

[238] ibid.

[239] ibid.

[240] ibid., p. 901

being heard before US Courts, which has an important role on deciding the intellectual property ownership on mobile games.

Independently from this very specific case of "DotA", especially in mobile games or applications, vast majority of the right holders are companies. Therefore, in case of an infringement claim, lawsuits are held between legal entities but not authors themselves. For example, Riot Games (generally known as the developer of the popular game called "League of Legends") filed a lawsuit against Shanghai Moontoon Technology Co. Ltd. which developed a game called "Mobile Legends: Bang Bang".[241] In this case, Riot Games claimed that Shangai Moontoon has copied some of the graphical user interfaces of the game "League of Legends" such as map, logo, characters and used it on their work called "Mobile Legends: Bang Bang".[242] Case between two developers is still being heard before US Courts. Lawsuit between PUBG Corporation and Epic Games Ltd. was another similar case about intellectual property rights in graphical user interfaces of mobile games.[243] PUBG Corporation is the developer of the game called "PlayerUnknown's Battlegorunds (PUBG) and Epic Games Ltd. is known for the game "Fortnite" developed by them.[244] In contrast with the Riot v. Shanghai Moontoon case, this lawsuit was not about the graphical user interfaces of the game such as characters, maps or other visual designs but it was about the idea of a "Battle Royale" game.[245] Ownership on a mobile application is limited with the intellectual property rights in it and as it is explained in first and second chapter of this work, an "idea" is not protectable under any intellectual

[241] ibid., p. 893-894

[242] ibid.

[243] ibid.

[244] ibid.

[245] ibid. p. 896

property right. Even if PUBG Corporation claimed that they are the first to come up with the idea of a "Battle Royale" game, Epic Games developed a completely different game with different characters, game play, overall look and other graphical user interfaces which led to PUBG Corporation to drop the suit.[246]

II. Transfer of Rights

It is stated that two types of rights arise from a a copyrightable work: financial rights and moral rights. Moral rights are not available for transfer because they are seemed as a part of the author's personality so author always keeps those right indefinitely and always use them against an infringement even by his/her licensee.

In contrast, financial rights are always assignable for third parties. These rights are generally used by companies in different ways. When mobile applications are in consideration, in some cases, companies develop applications or games inside with their employers and monetize such product by publishing it through operating system platform providers while sometimes publishes the application or game as a publisher developed by an independent developer.

After publishment of the product to market, end-users buy or downloads without any costs these applications which triggers the "first-sale" doctrine explained above. For that reason, end-user agreements become crucial especially for European jurisdiction. Since operating system platform providers makes the product available for downloading or sale around the world, different regulations in various jurisdictions apply to these cases.

[246] ibid. p. 897

A. End-User License Agreements

In general, an end-user agreement ("*EULA*") is a *"legal agreement between the manufacturer and purchaser of software that stipulates the terms of usage."*[247] These agreements are generally prepared by one party and they are non-negotiable since they are offered through a device which is called "clickwrap format" and two parties do not come together and discuss on the agreement.[248] Additionally, not signing the agreement means not achieving the software that you need so it has a compulsory part which is still being discussed in doctrine. It is presented by the manufacturer to the user by a message appear on screen and user is required to click on the button "I agree" to declare he/she has read the agreement and accepted it.[249]

Provisions of these agreements are simply about giving license, or in another words licensing, the user for the usage of the software in question.[250] It is important that it does not mean transferring the ownership of the software but just a license given to user only for purposes of using the software and financial rights explained above are not issue of these agreements.[251] Additionally, some copyright clauses to protect the developer or the

---

[247] **Terasaki, Michael**, "Do End User Agreements Bind Normal People", Western State University Law Review, 2014, p. 468

[248] ibid.

[249] See: **Specht, Gibson, Fagan, Kelly, Gruber, Weindorf v. Netscape Communications Corporation, America Online, Inc.** ("Specht v. Netscape"), United States Court of Appeals For The Second Circuit, Case Number: 01-7860(L), 01-7870(CON), 01-7872(CON), https://cyber.harvard.edu/stjohns/Specht_v_Netscape.pdf, (accessed on: 28.11.2020)

[250] **Terasaki**, p. 469

[251] ibid.

right owner of the software also exist in such contracts in case of laws or regulations not being enough for protection.[252]

When it comes to interpretation of these agreements by courts, US Courts are also interpret these agreements as not a sale but just licensing and does not relate these agreements with the ownership of the software which provides developers or right holders of software a high level of protection which is not possible under copyright law because of the "first-sale doctrine" explained above.[253]

One of the first cases about these type of non-negotiable agreements before US courts is the case between ProCd, Incorporated versus Matthew Zeidenberg and Silken Mountain Web Services.[254] In this case, court stated that whether user actually reads the EULA or not is not important for the agreement to be considered valid but the important point is that right holder of the software has to make the EULA available for user to read it.[255] In other words, reading the agreement or not is user's choice and has no effect on the validity of the agreement.

---

[252] ibid.

[253] ibid.

[254] **King, Chelsea**, "Forcing Players to Walk the Plank: Why End User License Agreements Improperly Control Players' Rights regarding Microtransactions in Video Games", William & Mary Law Review, vol. 58, 2017, p. 1374

[255] ibid.; also see: **ProCd, Incorporated v. Matthew Zeidenberg and Silken Mountain Web Services**, US Court of Appeals for the Seventh Circuit, 86 F.3d 1447, https://law.justia.com/cases/federal/appellate-courts/F3/86/1447/538242/**,** (accessed on: 28.11.2020)

In furtherance, in case between Specht and Netscape, the issue of the case was while downloading the software of Netscape to users' devices, EULA is not required by Netscape for users to read it and accept it but there is only a button on the screen below that offers users to read the EULA if they want.[256] Court decided that users can only be considered as bound with the EULA if they clearly accept it by clicking "I agree" or "I accept" buttons but Netscape does not offer any box to click on to users which made its EULA invalid.[257]

As it seems, EULA is one of the most important tools for companies to get around the first-sale system since they make users access to all features of the mobile application but not selling or renting the product. As EULAs are prepared solely by companies and users cannot negotiate on the clauses, companies are able to hold a great power on their hand because courts are also considering these EULAs valid as long as companies make users obliged to click on "I agree" button.

EULAs are also one of the main reasons that mobile applications or computer software in general needs to be certainly separated from traditional literary or artistic work with their ability to keep the ownership of the work while making available to for public use e

B. License Agreements Between Developer and Platform Providers

It is important for a mobile application developer that on which operating system platform his/her application will run. Even if mobile application market is not the only market that is able to work with a platform when monetizing a computer program (platforms such as Steam for PC or PS Store for PlayStation game console are also working similarly), it is the only market that developers must work with them. Even if there are vast of platforms

[256] See: **Specht v. Netscape**

[257] ibid.

around the world, three of them are most popular and major ones which are: iOS of Apple, Android of Google and Windows of Microsoft.

When it becomes an obligation, naturally major platform providers provide a stronger position in the market compared to developers. This leads to non-negotiable standard type of agreements similar to EULAs. Further in this work, a current case between Apple Inc. and Epic Games will be examined which has a high potential to shake the strong place of platform providers in the market.

This type of a license is called "simple license" in Turkish CIAW[258] which does not grant to licensee any exclusive right to use the license. In other words, licensor has the right to license as many licensees as he/she wants without any permission needed from other licensees. As an example, Apple's App Store now hosts approximately 1.3 million different mobile application in which all of these application developers signed the same standard type license agreement with Apple.[259] License agreements are considered as bilateral debt contracts.[260] In case of Apple, Apple's obligation is to provide a distribution opportunity to developer's application and in return it gets paid by developer and also takes commission from the revenue of the paid applications.[261] From this point of view, there is no license being granted to any party of the agreement. In fact, developer has to

[258] See: CIAW Article 56

[259] **Tukre, Zachary M., Sheppard Mullin Richter & Hampton LLP.**, "Bargaining with Apple: Understanding the iOS Developer Program License Agreement", National Law Review, vol. 5, 2020, p. 1, https://www.natlawreview.com/article/bargaining-apple-understanding-ios-developer-program-license-agreement, (accessed on: 28.11.2020)

[260] **Uğur, Cibrail**, "Fikir ve Sanat Eserlerine İlişkin Lisans Sözleşmesi", Adalet Yayınevi, 2020, Ankara, p. 144; also see: **Evrensel**, p. 167

[261] **Tukre**, p. 1

license Apple to use its distribution platform with a non-exclusive and royalty-free license agreement.[262]

In this type of a license agreement, application developer licenses the operating system platform provider to host, display, make copies and even excerpt of the application. Apple also licenses developers with a limited, non-exclusive and royalty-free software license to let developer use Apple's software to develop and test the application before marketing it.[263] One of the main rights that is granted to Apple under this agreement is that even if the developer wishes to delete his/her app, it is possible for him/her to delete it from App Store any time he/she wishes but Apple keeps the right to delete it from devices that an application is already downloaded.[264]

At this point, it is discussable that even if developer has various rights on his/her work that are examined above in this work like trademark, copyright, design or maybe even patent, preventing his/her right to be deleted and prevent users from using the application with a license agreement is a legal issue. As it is stated, license agreements are different than sale agreements and neither operating system platform provider nor the end-user grants the ownership on the work. An application's logo and name that appears on the screen may be a registered trademark and codes and software of it is copyrightable like the graphical user interface that interacts with end-user. Those visuals may also be protected under design law. While this is the situation, especially for trademark rights, the trademark owner has the right to prevent third parties from unfair usage of his /her trademark.[265] Developer's notice to Apple stating that he/she does not wishes Apple to

[262] ibid.

[263] ibid.

[264] ibid., p. 2

[265] **Uzunallı**, p. 23

use his/her trademark and copyright, it may be considered as a moral right of the author depends on the case. Since global or territorial moral values are changing everyday through internet, an application that is distributed to public ten years ago may be in a condition that harms integrity and respectability of the author and deleting it from devices may be considered as the moral right of the author. It can also be considered in unfair competition rules since application developer may have a different commercial program that includes the necessity of deleting the program from devices.

Issue of deleting the application from application store is topic of one of the biggest lawsuits going on recently. Epic Games filed a lawsuit against Apple and Samsung after its famous game Fortnite is deleted unilaterally by Apple and Google from their platforms.[266]

The reason is that Fortnite created an in-app purchase system that allows users to buy coins to use in the game by paying directly to Fortnite which blocks Apple's and Samsung's ability to take commission from in-app sales.[267]

Similarly to the discussion stated above, while Epic Games is claiming that platform providers are controlling the market, blocking the competition and stifling the innovation, Apple on the other side states that Fortnite has a license agreement that is signed before distributing the game through Apple's operating system and what Fortnite did is a breach

[266] **Cuthbertson, Anthony**, "Iphones With Fortnite Installed Selling For Thousands on Ebay", 20.08.2020, https://www.independent.co.uk/life-style/gadgets-and-tech/news/iphone-fortnite-apple-download-.install-ebay-a9679316.html, (accessed on: 29.11.2020)

[267] ibid.

of contract.[268] The final decision for this case is able to bring a new interpretation to mobile game market and may be available to shake the strong position of platform providers against developers.

[268] ibid.

CONCLUSION

Mobile application market is already one of the biggest markets today and it continues developing. However, technology develops faster than laws and regulations and here in this work, laws and regulations that may be applied for mobile applications in different jurisdictions such as European Union, United States and Turkey are examined in scope of intellectual property law. To summarize this work, it is possible to protect each aspect of a mobile application with different types of intellectual property rights even if it is a technical aspect or audiovisual artistic work. In addition, it is also important licensing these rights to third parties although they are generally prepared by one party and non-negotiable for other party of the agreement.

As mobile applications are used by consumers all around the world living in different legislations, vast majority of these applications use three major platform providers in United States which makes US court decisions crucial for interpreting the relationship between platform providers. On the other hand, local jurisdictions also have a control mechanism over trade rules in its country that explains the non-existence of some mobile applications in some countries that are available for downloading in others.

Other than these exceptions, both intellectual property rights and mobile application market have some common principles that are applicable in each state. For this reason, it can be said that a mobile application developer has tools to protect his/her trademark, design, copyright, patent and trade secret rights.

Copyright protects both inner aspects like object code and source code of the application and outer aspects that are graphical user interface that consists of the overall look, individual component and animated features of the application. Trademark is vital for the icon and name of the application which is the main aspect of an application to distinguish one application in a mobile application market form other. Design protection is also

available for graphical user interface of an application but it differs significantly in European Union jurisdiction and US jurisdictions since US regulates design under patent regulations but in European Union design rights are regulated independently. Patent may apply to specific applications as long as it is proved that the application involves an inventive step. However, mobile applications are technically limited with the technical capacity of the device so patentability in mobile applications is much harder when compared to others.

When all of these regulations considered, copyright seems to be the most efficient way to protect a mobile application for many reasons. First of all, it does not need any registration and when speed of the technologic development is considered it is important to gain a right as fast as possible. Registration processes may take months or years that may result gaining a protection after the application loses its popularity or falls behind the new technology. Secondly, it is applicable to both inner and outer aspects of an application while coding is considered as a literary work and graphical user interface is the artistic work that involves individual character of the artist/developer.

Lastly, ownership and transfer of intellectual property rights in mobile applications are examined in the third chapter. According to regulations and court decisions, licensing is the most proper way to transfer these rights. Main reason of this is the "first sale" or "exhaustion" rule of intellectual property rights which leads to losing these rights after the first sell of the product. In such situation, buyer gains the ownership and becomes able to use all financial rights which is not suitable for mobile applications. For that reason, developers assign licenses to both operating system platform providers and end-users in which they keep the ownership and not sell the product but transfers only the right to use it. However, such license agreements may also contain clauses that may cause licensing result in as transfer of the ownership even for moral rights which are not transferable. Consideration of such situation seems to be deepened in the future relatively to the

decision of current case between Apple and Epic Games in which a developer tries to weaken the strength of an operating system platform provider which are obviously in a stronger position against developers in market. If parties do not solve the issue out of the court, a decision in support of Epic Games has the possibility to change the legal situation of license agreements.

ABSTRACT

In this work, legal protection of mobile applications under different jurisdictions is examined in consideration with legislation and case laws. To understand the issue, in first chapter, mobile applications in general and characteristics of its aspects are explained. Continuously, in second chapter, these aspects are analyzed in a legal basis. Intellectual property rights that arise form an application and protecting that product by using these rights are explained. While doing so, European Union directives, other regulations and case laws of European Union courts, Turkish legislation and case law examples used and compared it with the regulations and case laws of United States. In last chapter, issue of ownership and transfer of rights in mobile applications examined according to legal basis of these rights that analyzed before in second chapter. Both European Union and United States regulations' point of views are considered in determining the owner and right holder of the intellectual property right. Transfer of these rights through licensing is the last part of this part which is also discussed relating to a current case going on in United States courts.

Key Words: *Mobile Applications, Computer Programs, Copyright, Graphical User Interface, Source Code, Object Code, End-User License Agreements, Operating System Platform Providers*

ÖZET

Bu çalışmada, mobil uygulamaların farklı hukuk sistemlerinde korunma şekilleri mevzuat ve içtihatlarla birlikte incelenmektedir. Konunun anlaşılabilmesi için birinci bölümde genel olarak mobil uygulamalar ve içeriklerinin özellikleri anlatılmaktadır. Devamında, ikinci bölümde bu içeriklerin hukuki nitelikleri incelenmiştir. Bir uygulamadan doğan fikri mülkiyet hakları ve uygulamanın bu haklar çerçevesinde korunması bu bölümde anlatılmıştır. Bu inceleme, Avrupa Birliği direktifleri, diğer kuralları ve Avrupa Birliği yargı mercilerinin kararları, Türk mevzuatı ve içtihatları ve Amerika Birleşik Devletleri'nin hukuki düzenlemeleri ve içtihatları ile karşılaştırmalı olarak incelenmiştir. Son bölümde, mobil uygulamaların hak sahipliği ve hakların devri konusu, ikinci bölümde açıklanan hukuki temel baz alınarak açıklanmıştır. Hem Avrupa Birliği hem de Amerika Birleşik Devletleri sistemlerinin bakış açıları eser sahipliğinin belirlenmesi konusunda dikkate alınmıştır. Lisanslama yoluyla hakların devri de çalışmanın son başlığı altında incelenmiş ve konuya ilişkin halen Amerikan mahkemelerinde devam eden güncel bir dava üzerinden konu tartışılmıştır.

Anahtar Kelimeler: *Mobil Uygulamalar, Bilgisayar Programları, Telif, Görsel Kullanıcı Arayüzü, Kaynak Kodu, Nesne Kodu, Son Kullanıcı Lisans Sözleşmeleri, İşletim Sistemi Platform Sağlayıcıları*

BIBLIOGRAPHY

BOOKS, JOURNALS AND ARTICLES

Aaron, Tara M., "The Concepts of Use of a Trademark under European Union and United States Trademark Law", The Trademark Reporter, vol. 104, 2014

Akdemir Kamalı, Tuğba, "Fikri Hukuk Kapsamında Bilgisayar Programlarındaki Değişikliklerin Sonuçları", Seçkin Yayıncılık, Ankara 2019

Arıkan, Ayşe Saadet, "Bilgisayar Programlarının Korunması AB ve Türkiye", Türkiye Barolar Birliği Dergisi, 1996

Ateş, Mustafa, "Fikri Hukukta Eser Sahipliği", Adalet Yayınevi, 2012

Bainbridge, David; Howell, Claire, "Intellectual Property Law", Pearson Education Limited, 4th edition, 2015

Barnaby Jr., Howard B., "Patent Law – Computer Programs – Unpatentable Mental Process – Gottschalk v. Benson", Boston College Law Review, Vol.14, 1973, available at: https://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=1395&context=bclr, (accessed on: 22.11.2020)

Barrett, Margreth, "Intellectual Property", New York: Wolters Kluwer Law & Business, 2012

Caguioa, Isabel Assunta C., "Recent Copyright Issues in Video Games, Esports, and Streaming.", Ateneo Law Journal, vol. 63, 2019

Cheatly, James; **Australian Copyright Council**, "Interactive Games & Copyright", Australian Copyright Council, 2014

Christie, Andrew & Gare, Stephen: "Intellectual Property", Oxford University Press, 12th ed., Oxford 2014

Cole, Paul, "Patentability of Computer Software As Such", Patently-O Patent Law Journal, 2008, available at: https://patentlyo.com/media/docs/2008/10/cole.pdf, p.3, (accessed on: 23.11.2020)

Czarnota, Bridget; Hart, Robert J., "Legal Protection of Computer Programs in Europe: A Guide to the EC Directive", UK: Butterworths Law, 1991

Dalyan, Şener, "Bilgisayar Programlarının Fikri Hukukta Korunması", Seçkin Yayıncılık, Ankara 2009

Erdil, Engin, "Fikri Mülkiyet Hukuku Pratik Çalışmaları", Vedat Kitapçılık, İstanbul 2018

Erel, Prof. Dr. Şafak N., "Fikri Hukukta Bilgisayar Programlarının Korunması", Ankara Üniversitesi SBF Dergisi, 1994

Eroğlu, Sevilay, "Rekabet Hukukunda Bilgisayar Programlarının Korunması", Beta Yayınları, İstanbul 2000

Evrensel, H. Alperen, "Telif Hakkı Sözleşmesi ve Hakların Devri", Seçkin Yayıncılık, 2019

Gaspar, Christopher J., "The Federal Circuit Locks down the Ornamentality Requirement: Best Lock v. Ilco Unican", Journal of Corporation Law, vol. 23, 1997

Gökyayla, Emre, "Telif Hakkı ve Telif Hakkının Devri Sözleşmesi", Yetkin Yayınları, 2000

Greenspan, David, "Mastering the Game Business and Legal Issues for Video Game Developers", WIPO Publication No. 959E, 2013, available at: https://www.wipo.int/edocs/pubdocs/en/copyright/959/wipo_pub_959.pdf, (accessed on: 23.11.2020)

Hart, Robert, "European Union Initiatives On Patents and Utility Models Which Will Impact Computer Programs", International Intellectual Property Law & Policy, 2001

James, Steven; Arkley, Ruth, "Intellectual Property in Mobile Applications: The Practicalities", E-Commerce Law & Policy, 2012, available at: https://www.lw.com/thoughtLeadership/ip-in-mobile-applications (accessed on:22.11.2020)

Kılıçoğlu, Prof. Dr. Ahmet M., "Sınai Haklarla Karşılaştırmalı Fikri Haklar", Turhan Kitabevi, 6th edition, Ankara 2020

King, Chelsea, "Forcing Players to Walk the Plank: Why End User License Agreements Improperly Control Players' Rights regarding Microtransactions in Video Games", William & Mary Law Review, vol. 58, 2017

Kramer, Karen J., "Extending Copyright Protection to a Computer Program's Structure. Whelan Associates, Inc. v. Jaslow Dental Laboratory, 797 F.2d 1222 (3d Cir. 1986) Inc. 797 F.2d 1222 (3d Cir. 1986)", Washington University Law Review, vol. 65, issue 2, 1987

Kreiss, Robert A., "Patent Protection for Computer Programs and Mathematical Algorithms: The Constitutional Limitations on Patentable Subject Matter", New Mexico Law Review, 1999

Kretschmer, Marc T., "Copyright protection for software architecture: Just say no", Columbia Business Law Review, 1988

Kur, Anette; Dreier, Thomas, "European Intellectual Property Law", Edward Elgar Publishing, 2013

Lim, Tze Ping, "Beyond Copyright: Applying a Radical Idea-Expression Dichotomy to the Ownership of Fictional Characters", Vanderbilt Journal of Entertainment & Technology Law, Vol. 21, Issue 1, Tennessee 2018

Lin, Daniel; Sag, Matthew; Laurie, Ronald S., "Source Code versus Object Code: Patent Implications for the Open Source Community", Santa Clara Computer & High Technology Law Journal, 2002

Lindstrom, Carl, "Mod Money, Mod Problems: A Critique of Copyright Restrictions on Video Game Modifications and an Evaluation of Associated Monetization Regimes", William and Mary Business Law Review, 2020

Lunney, Jr, Glynn S., “Lotus v. Borland: Copyright and Computer Programs”, Tulane Law Review, 1995-1996

Mahmood, Tiffany, “Design Law in the United States as Compared to the European Community Design System: What Do We Need to Fix?”, Fordham Intellectual Property, Media and Entertainment Law Journal, vol. 24, 2015, available at: https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=1567&context=iplj, (accessed on: 25.11.2020)

McAllister, Douglas M., "The Ornamentality Standard of Design Patents: Evolution and Rejection of the Hidden in Use Test.", Bridgeport Law Review, vol. 13:419, 1993

McJohn, Stephen, “Intellectual Property”, New York: Wolters Kluwer, 2015

Menell, Peter S., “An Analysis of the Scope of Copyright Protection for Application Programs”, Stanford Law Review, 1989

Nimmer, Raymond T.; Towle, Holly K., “Intellectual Property Basis”, The Law of Electronic Commercial Transactions, Lexis Nexis, 2011

Ortan, A. Necip, “Avrupa Patent Sistemi”, vol.1, Ankara 1991

Öztürk, Özgür, "Türk Hukukunda Patent Verilebilirlik Şartları", Arıkan, İstanbul 2008

Rodau, Andrew G., "Protecting Computer Software: After Apple Computer, Inc. v. Franklin Computer Corp.", 714 F.2d 1240 (3d Cir. 1983), Does Copyright Provide the Best Protection", Temple Law Quarterly, vol. 57, 1984

Roznovsky, Taylor, "Pleasing to All and Helpful to None: Software Licensing from the Berne Convention to the Strange Case of UsedSoft v. Oracle", International Trade Law Journal, 2013

Sakman, Samed, "Arayüz Tasarımları İçin Prototip Kullanımı", Sanat ve Tasarım Dergisi, 2017

Schere, Elizabeth, "Where Is the Morality: Moral Rights in International Intellectual Property and Trade Law", Fordham International Law Journal, 2018

Shemtov. Dr. Noam, "Intellectual Property and Mobile Applications", January 2018, available at: https://www.wipo.int/export/sites/www/ip-development/en/agenda/pdf/ip_and_mobile_applications_study.pdf (accessed on: 20.11.2020)

Suluk, Cahit; Karasu, Rauf; Nal, Temel, "Fikri Mülkiyet Hukuku", Seçkin Yayıncılık, Ankara 2020

Tekinalp, Ünal, "Fikri Mülkiyet Hukuku", İstanbul 2012

Terasaki, Michael, "Do End User Agreements Bind Normal People", Western State University Law Review, 2014

Topaloğlu, Mustafa, "Bilgisayar Programları Üzerindeki Haklar ve Bu Hakların Korunması", Türkiye Bilişim Vakfı Yayınları, İstanbul 1997

Uğur, Cibrail, "Fikir ve Sanat Eserlerine İlişkin Lisans Sözleşmesi", Adalet Yayınevi, 2020, Ankara, p. 144

Uzunallı, Prof. Dr. Sevilay, "Marka Hukuku", Adalet Yayınevi, Ankara 2019

Wilson, Arlene, "Digital Rights Management: An Overview", Business Law Review, vol.1, 2010

Yazıcı, E. Sena, "Bilgisayar Programlarının Fikri Mülkiyet Hukuku Çerçevesinde Korunması", On İki Levha Yayıncılık, İstanbul 2019

Yıldırım, Mustafa Fadıl, "Bilgisayar Programlarında İkinci El İşlemler", Fikri Mülkiyet Yıllığı, On İki Levha Yayıncılık, 2011

Yusufoğlu, Fülürya, "Patent Verilebilirlik Şartları", İstanbul 2014

CODES AND REGULATIONS

European Patent Office, European Patent Convention, available at: http://documents.epo.org/projects/babylon/eponet.nsf/0/158C4E1A5C4BD54EC125859700523F0A/$File/EPC_16th_edition_2016_en.pdf, (accessed on: 22.11.2020)

European Patent Office, Guidelines for Examination in the European Patent Office, 2019

European Union Council Regulation (EC) No 6/2002 of 12 December 2001 on Community designs, available at: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32002R0006 (accessed on: 25.11.2020)

European Union Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 On The Legal Protection Of Computer Programs, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0024&from=EN (accessed on: 21.11.2020)

European Union Directive 2015/2436/EC of the European Parliament and of the Council of 16 December 2015 to Approximate the Laws of the Member States

Relating to Trade Marks, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015L2436, (accessed on: 26.11.2020)

European Union Regulation (EC) No 2015/2424 of the European Parliament and of the Council of 16 December 2015, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32015R2424, (accessed on: 26.11.2020)

European Union Directive 2016/943 of the European Parliament and of the Council of 8 June 2016 On The Protection Of Undisclosed Know-How and Business Information (Trade Secrets) Against Their Unlawful Acquisition, Use and Disclosure, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L0943&from=EN (accessed on: 24.11.2020)

European Union Directive 98/71/Ec of the European Parliament and of the Council of 13 October 1998 on the legal protection of designs, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31998L0071 (accessed on: 25.11.2020)

European Union Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions, available at: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2002:0092:FIN:EN:PDF, (accessed on: 22.11.2020)

Manual of Patent Examining Procedure , available at: https://mpep.uspto.gov/RDMS/MPEP/current#/current/d0e150114.html, (accessed on: 25.11.2020)

Turkish Code of Intellectual and Artistic Works No. 5846, dated 05.12.1951, published in Official Gazette dated 13.12.1951 numbered 7981

Turkish Industrial Property Code No. 6769, dated 22.12.2016, published in Official Gazette dated 10.01.2017 numbered 29944.

Turkish Code of Trade No. 6102, dated 13.01.2011, published in Official Gazette dated 14.02.2011 numbered 27846.

United States Code Title 35 – Patents, available at: https://www.wipo.int/edocs/lexdocs/laws/en/us/us176en.pdf, (accessed on: 23.11.2020)

United States Defend Trade Secrets Act of 2016, available at: https://www.congress.gov/114/plaws/publ153/PLAW-114publ153.pdf, (accessed on: 24.11.2020)

USPTO Trademark Act of 1946, as amended, 25.11.2013, available at: https://www.uspto.gov/sites/default/files/trademarks/law/Trademark_Statutes.pdf, (accessed on: 26.11.2020)

World Trade Organization, Trade Related Aspects of Intellectual Property Rights (TRIPS Agreement), available at: https://www.wto.org/english/docs_e/legal_e/27-trips_04d_e.htm#7, (accessed on: 23.11.2020)

CASES

Apple, Inc. v. Microsoft, US Courts of Appeals for the Ninth Circuit, 35 F.3d 1435, 1994, https://law.justia.com/cases/federal/appellate-courts/F3/35/1435/605245/, (accessed on: 24.11.2020)

Diamond v. Chakrabarty, US Supreme Court**,** 447 U.S. 303**,** 1980, https://supreme.justia.com/cases/federal/us/447/303/**,** (accessed on: 23.11.2020)

Jefri Aalmuhammed v. Spike Lee, US Court of Appeals for the Ninth Circuit, Case Number: 202 F.3d 1227 (9th Cir. 2000), available at: https://law.justia.com/cases/federal/appellate-courts/F3/202/1227/592674/, (accessed on: 28.11.2020)

Lotus Development Corporation v. Borland International, Inc., United States Court of Appeals, First Circuit, Heard 06.10.1994, Decided 09.03.1995, available at: https://h2o.law.harvard.edu/collages/40204, (accessed on 21.11.2020)

Navitaire Inc. v. Easyjet Airline Company and Bulletproof Technologies, High Court Of England And Wales, [2004] EWHC 1725 (Ch), available at: https://www.bailii.org/ew/cases/EWHC/Ch/2004/1725.html, (accessed on 21.11.2020)

Oracle America, Inc. v. Google LLC, United States Court of Appeals for the Federal Circuit, 2017-1118, 2017-1202, March 2018, available at: https://cases.justia.com/federal/appellate-courts/cafc/17-1118/17-1118-2018-03-27.pdf?ts=1522162917 (accessed on:22.11.2020)

Oracle International Corp. v. UsedSoft GmbH, European Court of Justice, ECLI:EU:C:2012:407, available at: http://curia.europa.eu/juris/document/document.jsf?docid=124564&doclang=EN, (accessed on: 27.11.2020)

Specht, Gibson, Fagan, Kelly, Gruber, Weindorf v. Netscape Communications Corporation, America Online, Inc. ("Specht v. Netscape"), United States Court of Appeals For The Second Circuit, Case Number: 01-7860(L), 01-7870(CON), 01-7872(CON), https://cyber.harvard.edu/stjohns/Specht_v_Netscape.pdf, (accessed on: 28.11.2020)

PepsiCo, Inc. v. Grupo Promer Mon Graphic SA, Court of Juctice of the European Union, Case C-281/10 P, 20.10.2011, available at: http://curia.europa.eu/juris/document/document.jsf;jsessionid=3122876A3EA607180150A0EBAC0036F1?text=&docid=111581&pageIndex=0&doclang=en&mode=lst&dir=&occ=first&part=1&cid=14867060, (accessed on: 25.11.2020)

ProCd, Incorporated v. Matthew Zeidenberg and Silken Mountain Web Services, US Court of Appeals for the Seventh Circuit, 86 F.3d 1447, available at:

https://law.justia.com/cases/federal/appellate-courts/F3/86/1447/538242/, (accessed on: 28.11.2020)

SAS Institute Inc. v. World Programming Limited, High Court of England and Wales, [2013] EWHC 69 (Ch), available at: https://www.bailii.org/ew/cases/EWHC/Ch/2013/69.html, (accessed on: 22.11.2020)

VICOM Systems application, European Patent Office, T 1173/97 (Computer program product/IBM), 01.07.1998, available at: https://www.epo.org/law-practice/case-law-appeals/recent/t971173ex1.html, (accessed on: 22.11.2020)

Yargıtay 11th Civil Chamber, Case Number: 2018/3856, Decision Number: 2019/5148, dated 09.09.2019

WEBSITES AND DATABASES

Ankara Üniversitesi Kütüphane ve Dökümantasyon Daire Başkanlığı Database: SyndiGate Media Inc., "Protection of IP rights for Mobile Apps." Law Update, 20.05.2015, Gale General OneFile, accessed through http://kutuphane.ankara.edu.tr/?page_id=792 (accessed on 23.11.2020)

Apple, Inc.'s Official Website: https://www.apple.com/newsroom/2008/07/10iPhone-3G-on-Sale-Tomorrow/

Apple, Inc.'s Official Website: https://www.apple.com/newsroom/2008/07/14iPhone-App-Store-Downloads-Top-10-Million-in-First-Weekend/

BBC News Official Website: http://news.bbc.co.uk/2/hi/technology/4650225.stm#:~:text=A%2022%2Dyear%2Dold%20man,hard%20drive%20containing%2080%20games., (accessed on: 28.11.2020)

Clement, J: "Number of apps in the Apple App Store from 2008 to 2020", 17.08.2020, https://www.statista.com/statistics/268251/number-of-apps-in-the-itunes-app-store-since-2008/, (accessed on: 19.11.2020)

Cambridge Business English Dictionary, Cambridge University Press, 2020, https://dictionary.cambridge.org/us/dictionary/english/mobile-application, (accessed: 20.11.2020)

Heinonline Database: https://home.heinonline.org/

Independent Official Website: Cuthbertson, Anthony, "Iphones With Fortnite Installed Selling For Thousands on Ebay", 20.08.2020, https://www.independent.co.uk/life-style/gadgets-and-tech/news/iphone-fortnite-apple-download-.install-ebay-a9679316.html, (accessed on: 29.11.2020)

Kazancı Hukuk Veritabanı: https://www.kazancihukuk.com/

Lanier, **Liz,** "Epic Games Pushes Back Against Lawsuit: 'No One Can Own a Dance Step'", 13.02.2019, https://variety.com/2019/gaming/news/epic-games-no-one-can-own-a-dance-step-1203138304/, (accessed on 21.11.2020)

Longman Dictionary's Official Website: https://www.ldoceonline.com/dictionary/smartphone

Martin, **Liam**, "Fortnite dance emote lawsuits: Can you really copyright a DANCE MOVE?", 26.03.2019, available at: https://www.express.co.uk/entertainment/gaming/1104934/Fortnite-dances-Carlton-law-suit-legal, (accessed on 21.11.2020)

Tukre, Zachary M., Sheppard Mullin Richter & Hampton LLP., "Bargaining with Apple: Understanding the iOS Developer Program License Agreement", National Law Review, vol. 5, 2020, p. 1, https://www.natlawreview.com/article/bargaining-apple-understanding-ios-developer-program-license-agreement, (accessed on: 28.11.2020)

USPTO Patent Database: USPTO, "Intelligent automated assistant", US9318108B2, granted on: 19.04.2016, available at: https://patents.google.com/patent/US9318108B2/en?q=%22Intelligent+automated+assistant%22&assignee=Apple+Inc.&status=GRANT&sort=old, (accessed on: 23.11.2020)

WIPO's Official Website: ,https://wipolex.wipo.int/en/treaties/ShowResults?start_year=ANY&end_year=ANY&search_what=C&code=ALL&treaty_id=15, (accessed on: 19.11.2020)