

UKRAINIAN CATHOLIC UNIVERSITY

BACHELOR THESIS

Development of a mobile application user interface for photographers' search based on user experience

Author:
Roksoliana LEBEDENKO

Supervisor:
Oleg-Petro BABII

*A thesis submitted in fulfillment of the requirements
for the degree of Bachelor of Science*

in the

Department of Computer Sciences
Faculty of Applied Sciences



APPLIED
SCIENCES
FACULTY ●

Lviv 2019

Declaration of Authorship

I, Roksoliana LEBEDENKO, declare that this thesis titled, “Development of a mobile application user interface for photographers’ search based on user experience” and the work presented in it are my own. I confirm that:

- This work was done wholly or mainly while in candidature for a research degree at this University.
- Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated.
- Where I have consulted the published work of others, this is always clearly attributed.
- Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work.
- I have acknowledged all main sources of help.
- Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself.

Signed:

Date:

UKRAINIAN CATHOLIC UNIVERSITY

Faculty of Applied Sciences

Bachelor of Science

**Development of a mobile application user interface for photographers' search
based on user experience**

by Roksoliana LEBEDENKO

Abstract

In our time, people are accustomed to storing all the moments of life with the help of a photo. And more and more people prefer a professional photo. The problem is the speed and convenience of finding photographers. We tried to understand the problem deeper, based on UX research methods such as interview, survey, competitor analysis, persona, and others. The proposed solution is a service for searching photographers. We analyzed this solution using research methods such as business model canvas, lean canvas, user flow, wireframe, and prototype. As a result of the research, it was decided to create a mobile application that will solve our problem. Therefore, we developed the design of such an application, a prototype of which can be found **here** - <http://bit.ly/2vQnPk9>. The application is designed for two types of users - the photographer and the user who is looking for a photographer.

Acknowledgements

I would like to thank my supervisor Oleg-Petro Babii, who supported me during the work on this thesis.

I also would like to thank Ukrainian Catholic University and Faculty of Applied sciences for special environment and the opportunity to feel the true spirit of learning.

Contents

Declaration of Authorship	ii
Abstract	iii
Acknowledgements	iv
1 Introduction	1
1.1 Motivation	1
1.2 Problem statement	2
1.3 Structure of the thesis	2
2 Background and related work	3
2.1 User experience	3
2.2 Interview	3
2.3 Competitor analysis	4
2.4 Business model canvas	4
2.5 Lean canvas	4
2.6 Persona	4
2.7 User flow	5
2.8 Wireframe	5
2.9 Prototype	6
2.10 Existing solutions	6
3 Research approach	7
3.1 Research	7
3.1.1 Survey	7
3.1.2 Interviews	10
3.1.3 Competitor analysis	10
3.2 Strategy	11
3.2.1 Business model canvas	12
3.2.2 Lean canvas	14
3.2.3 Persona	15
First type	15
Second type	16
3.2.4 User Flow	17
4 Design	18
4.1 Wireframing	18
4.2 Prototype	19
4.3 Visual design	19
5 Conclusion	23
5.1 Results	23
5.2 Next steps	23

List of Figures

3.1	Survey result on question - "How often do you take pictures?"	8
3.2	Survey result on question - "How often do you use the services of photographers? Rate on a scale from 1 to 5, where 1 - I do not use it at all, 5 - most photos are made by professionals"	8
3.3	Survey result on question - "What are you using when you are looking for a photographer?"	9
3.4	Survey result on question - "Which are the most important criteria for choosing a photographer?"	9
3.5	Competitive analysis table with attributes	11
3.6	Competitive analysis results	12
3.7	Priority matrix of features	13
3.8	Business model canvas	14
3.9	Lean canvas	15
3.10	Persona: first type of users - http://bit.ly/2JrvtcS	16
3.11	Persona: second type of users - http://bit.ly/2JrvtcS	16
3.12	User flow: login and sign up process - http://bit.ly/2LARljm	17
4.1	First variant of design	19
4.2	Second variant of design	20
4.3	Third variant of design	20
4.4	Results of voting for the best design	21
4.5	Colors and fonts that were used in the design	21

List of Abbreviations

UX	User Experience
UI	User Interface
BMC	Business Model Canvas

Dedicated to my mother

Chapter 1

Introduction

Photo is a whole cult. Nowadays a large number of people can not imagine a single day without a pair of photos in interesting and beautiful places. That's why there was appeared a term such as a photographer. This is a person who makes photographs. Photographers are shared on professionals and amateurs. Professionals make money on this, and lovers see hobby in photography. The photographer can work alone, but often it can be a big team - assistant, makeup artist, hairdresser, model, stylist and others - works at shooting. Photography is divided into species and their number does not stand still. Such types of shooting, as a portrait or a landscape, have been existing for a long time. But there are new directions: food-photography, advertisement photo session - photos made for the purpose of selling a certain product, and many others.

1.1 Motivation

In general, it's hard to find a person who does not have any photos. But, in fact, people really are divided into those who love to take pictures, and those who do not. The greatest admirers of photography are, of course, actors, performers and others from the world of show business who almost every day work with professional photographers. Bloggers are also actively moving from taking photos on their own phone to professional photo sessions. There are also many people who love professional photographs and have photos exclusively from photographers. But the rest do it not so often because they have certain problems and fears. First of all, it is a complicated search for the right person. Usually, photographers have pages in several social networks, the most popular of them is Instagram and Facebook. But the photographer's search is impossible there and the only criterion that distinguishes the profile of the photographer from the ordinary user is just that in the description of the profile is written "photographer." Also, some photographers have their own site, where the contacts and examples of works are posted, and sometimes even prices. But the personal sites can only be found in the browser search, they are often obsolete and do not contain honest reviews. Another search source for this is the groups on Facebook and Vkontakte. The majority of photographers and models are present in these communities and post messages about searching. But the problem remains the same - it's impossible to quickly find someone because you have not a possibility to search, you can only scroll hundreds of publications. And the most successful search option is specialized sites and apps for finding photographers, but there is also some difficulty here. Most of them are aimed only at wedding shooting, and therefore profiles on such sites contain only wedding photos and prices. Therefore it is difficult to change several dozen pages in order to find some information or just a review. Another problem is trust. After all, you need to pay to the photographer and

wait a few weeks for the photo. The photographer may appear to be unscrupulous and send a poor result or don't send at all.

1.2 Problem statement

The photograph has long been an integral part of the life of any person. For this, we have phones, cameras, polaroid camera, tablets, and computers. But there is another way - a professional photographer who is less popular in the middle of previous shooting methods because there are several problems:

- The difficulty of finding a person and information about her. People have to get around a few sites to find at least one review.
- Problems with filtering. Most resources do not have filtering and possibility to determine location.
- Trust and Security. There is no guarantee that after paying for the services, you will receive a qualitative result. Furthermore, you may not get at all.

1.3 Structure of the thesis

So, the work is aimed at research with help of UX methods and creating UI design of service for photo search. And contains the following sections.

Chapter 1. Introductory part, which describes the essence of the problem we will solve.

Chapter 2 talks about existing works of those methods and methodologies that will help solve the problem.

Chapter 3 describes the research approach and description of the proposed solution.

Chapter 4 contains the description and results of the design process.

Chapter 5. Conclusion, which summarizes the work done, contains results and next steps,

Chapter 2

Background and related work

2.1 User experience

Design of any product is not only its appearance. A nice and comfortable design is a long process of exploring the users of this product, market, and ready-made solutions. You need to have an understanding of for whom and what we are creating. The term "user experience" corresponds exactly to this. It is a set of methods and rules that are aimed at understanding the user and solving his problems. Don Norman started this term in 1990. User experience is not about the good look of the interface, but about its convenience. How fast a new person can navigate in an unfamiliar for her product or service. So, user experience introduces new rules in the development - not think as a designer, think like a user. [Don Norman, 2013]

2.2 Interview

The first step is to research a potential user or person who is knowledgeable in a particular area. This allows you to get new information, which will help you to form key points on the basis of the received information that you need to consider in further development. And one of the most popular UX research methods is user interview. The essence of the method is that the interviewer asks questions the respondent about a particular area to learn more about this topic. The interview is conducted one-to-one. Interviews are usually a quick and easy way to collect user data.

Interviews help you to get information about how people think about a particular product. Allows you to learn what is memorable and user-friendly and what is annoying and uninteresting. Through interviews, you can improve any product. There are several stages when an interview is most relevant: [Pernice, 2018]

- Before proceeding to design, in order to have an idea about your persona and the most needed functions.
- To expand knowledge about the subject.
- After the usability test, in order to collect reviews and wishes.

The main rules for a successful interview: have the goal of the interview and ask questions addressed to this goal, do everything that the respondent felt comfortable and trusted the interviewer, prepare a list of all questions before the interview. For full answers, it's better to ask open questions that can't only be answered "yes" or "no".

2.3 Competitor analysis

The next step is research of market and available solutions. This is required in order to analyze the pros and cons of existing solutions or to find that there are no analogs. Competitor analysis is a universal method for researching a domain in the field of user experience. Allows you to compare how this or that function is implemented in similar projects, to understand the pros and cons, to improve the design and to avoid mistakes in your own project.

The method itself is divided into two parts - the definition of competitors and their analysis. [Mark Bergen, 2002] The first stage of identifying the potential competitors of a project is identification. A project is considered a competitor if it fulfills the same functions or directly satisfies the needs of our user. The next stage of the comparison involves assessing how well these competitors have implemented certain functions.

2.4 Business model canvas

After researching the user and similar products, it is worth analyzing the actual solution in order to understand the success of the product. And one of the most common methods for such tasks is the business model canvas. This is a tool for defining and describing the key moments of your project. One of the main objectives of the business model is to identify and provide insight into how the project will make money. [Alexander Osterwalder, 2010] The business model consists of nine units that are responsible for the main 4 business areas - clients, our offer, the infrastructure, and our own financial capabilities and needs.

2.5 Lean canvas

Another method for describing the project is the lean canvas. This is one of the versions of the business model canvas, but in lean canvas, all attention is attached to the user's problems and solutions. Maurya, 2012 added four new blocks, namely:

- The block is devoted to the problem, which describes 3 main problems. This allows you to understand the headache or its absence and save resources and time on unnecessary developments.
- The block of solutions allows you to immediately concentrate on the solutions after determining the problem. It also provides a framework for a minimal, viable product.
- The Key metrics block is a measure of project success. Having identified it at the beginning of the project, it is easy to track success at any stage.
- Unfair Advantage is an advantage or feature that does not allow competitors to quickly take it into their own projects. That is, it's impossible to repeat easily.

2.6 Persona

The next step is to draw conclusions from all previous research methods and determine the type of user who will use the product. At this stage, a list of functions is formed which must necessarily be and the persona. The persona method is a

fictional character created to represent a general type of user who use sites or any product. This kind of research is used in working on IT products, but now in design people also actively use this method.

Nielsen, 2015 think that the personality description feature is that you do not look at a specific person, but use a focus group from a particular field in which you work to highlight certain aspects and specific context related to the area of work.

2.7 User flow

Then on the basis of the list with the necessary functions written out, the path of the user, which he needs to pass, is formed to solve the problem or to satisfy a certain need. This way is called User flow. Consists of sequential user steps. Based on this path, designers are able to see all product flaws and unnecessary steps you can take away.

In order to build a user flow, you need to know well who is the user of the product. That is why before you start working on the user flow, you need to create the personas of this product. In Bowers, 2017 was mentioned that only when you understand the goals, needs, frustrations and pain points of a persona, you can create a user flow that fully matches the reality.

User flow displays user actions with a product. And in order for designers to be easily guided in the product they work on, they create a list of pages, features, and possible actions. This structure of the project is called information architecture. It has a branched-out appearance, where blocks are connected by lines. Each block serves as a section or site element. The information architecture makes it easy to navigate and understand what and where it is because it describes all navigation and specifics.

IA has no values for users of the product because they don't even see it. However, they use the result of it, so in fact, IA plays a very important role. Morville Peter, 2007 - the information architecture allows you to assess how many steps are needed to do for achieving a specific goal. Also, information architecture shows how far this goal is from the starting interaction with the product. So, at this stage of the process, you can simplify the user's path and make it more convenient and accessible for all members of development team.

2.8 Wireframe

After completing the research and forming an idea of the product and its work, you can already begin work on the design. But before choosing colors and fonts, it's worth to think about how to properly implement the design using all the research that was done. For this purpose, wireframe is a very good tool. This is essentially a project schema. With the help of them, designers have an idea of the structure and content of the site before the start of the design. Composed of blocks in gray shades. No need for detailing. Wireframes help focus on filling and structuring the site, avoid distraction on fonts and colors. [Kelway, 2009] In this way, we focus on achieving maximum convenience and product availability.

2.9 Prototype

The last but not the least important step is to create a prototype. Wireframes give an idea of the look, but not of work, which is why it is important to use and test the product. And the prototype itself allows it to do this. A striking example of prototyping is the development of cars. Designers make a prototype of a new car in order to understand if it will be attractive and comfortable. The design prototype can be a simple sketch, which will give an idea of how the project looks. But the interactive prototypes are more useful, with their help you can see how the product will work, test its convenience and identify shortcomings.

2.10 Existing solutions

Solutions that partially meet the need or solve the problem are direct and not direct. Among the direct - sites for searching of wedding photographers. Such sites are many, but they are all focused on one area and have limited functionality. Among the indirect ones is the Google search engine, it is not aimed at finding photographers but quite fulfills such a function. Also, social networks such as Facebook, Instagram, and Vkontakte. Photographers actively conduct their portfolio on networks and advertise their pages. The OLX purchase/sale platform also contains many announcements about photographic services.

Chapter 3

Research approach

3.1 Research

3.1.1 Survey

The first step to understanding the problem and its effective solution is the survey of a certain number of people. This method of data collection is widespread and simple. The survey allows you to get acquainted with the general public opinion, position, needs of respondents and to determine if there is actually this problem. This research method helps to understand the actual attitude to a particular problem or product. Regarding the process of conducting - a small number of questions is made up, which have answer variants or the opportunity to answer independently. Amount of questions should not be too much for respondents to not be tired of answering them.

Thus, we created seven questions with several variants of answers, including the option of an independent answer. A total of 106 people were interviewed. The first item was the question of how often a person is photographed. The purpose was to find out if there is a general demand among the audience. In Figure 3.1, we can see that about 63 percent of respondents deal with photography much more often than once every few months. This suggests that the target audience is quite broad and the demand exists for products related to this topic.

Then it was necessary to find out whether people use the services of a photographer and if so, how often. Therefore, we asked about the frequency of the use of such services. The result of the answers is in Figure 3.2, where 1 - I do not use at all, and 5 - most photos are made by professionals.

So, we see that more than half of respondents are actively having a professional photo session, which means that there is a need for a quality and fast search of the photographer.

The next question was formed in order to find out by what device people usually search the photographer.

In Figure 3.3, we see that about 60 percent of the audience uses a mobile phone to search for a photographer. So, this suggests that when creating a solution, you should focus on the mobile application.

The next important issue was what people are paying attention to when searching and what criteria are important when choosing. This will help us understand what information should be on the photographer's page. Consequently, in Figure 3.4 we can see the result, which shows that the most important selection criterion is a qualitative portfolio.

Then the next criteria there are reviews, prices, and recommendations from friends. Another important indicator is also the date and the ability to choose the day that

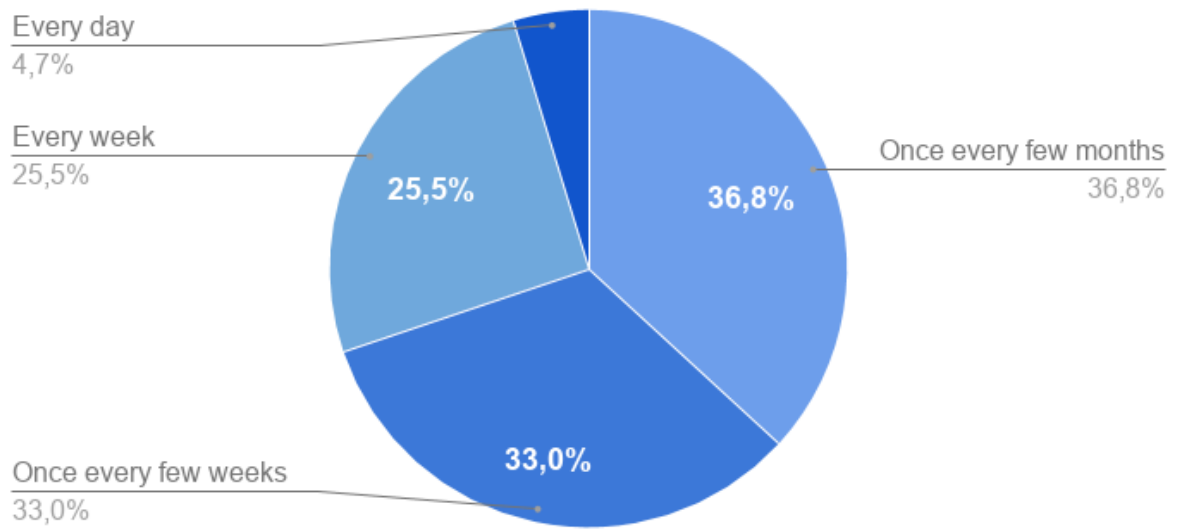


FIGURE 3.1: Survey result on question - "How often do you take pictures?"

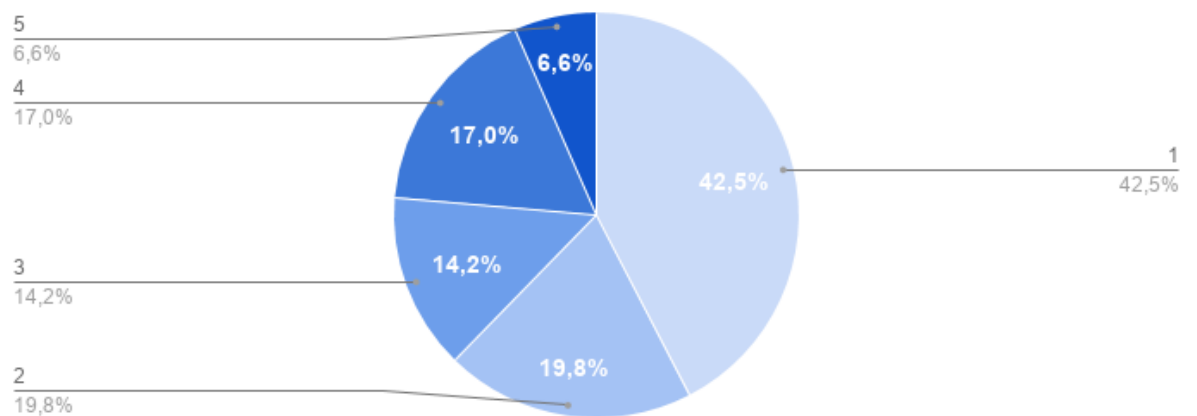


FIGURE 3.2: Survey result on question - "How often do you use the services of photographers? Rate on a scale from 1 to 5, where 1 - I do not use it at all, 5 - most photos are made by professionals"

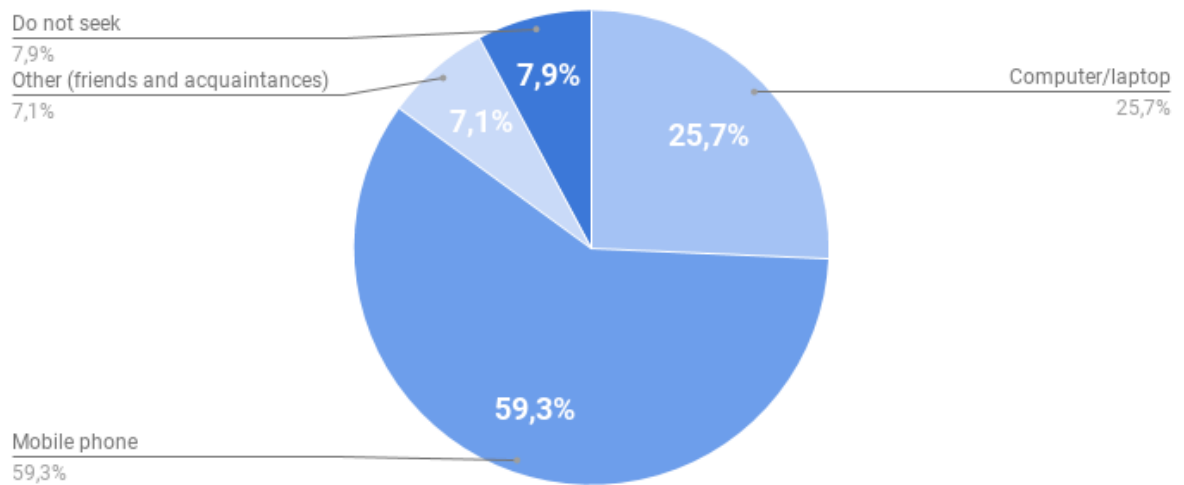


FIGURE 3.3: Survey result on question - "What are you using when you are looking for a photographer?"

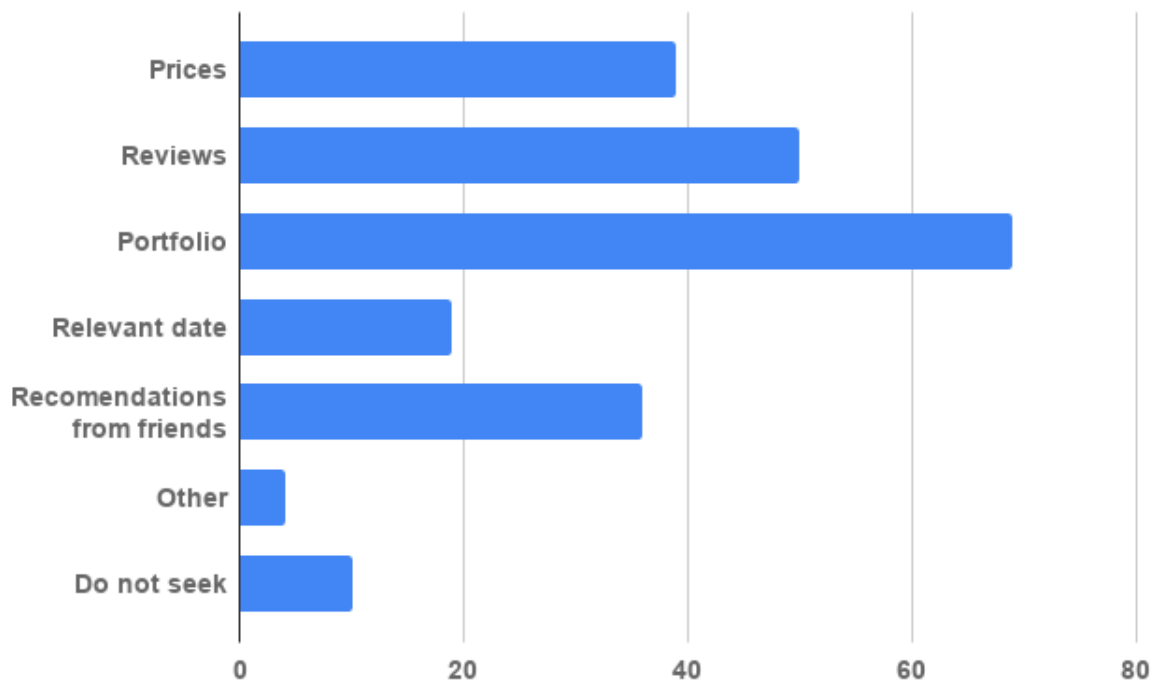


FIGURE 3.4: Survey result on question - "Which are the most important criteria for choosing a photographer?"

suits most. Among other responses were also people who already have a regular photographer, and therefore do not look for a new one.

3.1.2 Interviews

After the survey, we got quantitative results, but in order to understand the details and subtleties of the problems we decided to conduct interviews. This research method allows you to immerse yourself deeper in problem and get the maximum of new information. First, we put together a list of open questions that can not be answered "yes" or "no", so we gave the respondents the opportunity to express their direct thoughts. There were also created more questions than was actually planned if there will be time for additional questions.

As a result, six interviews were conducted. Three of them with photographers who make money on photography, and three with people who have ever ordered a photo shoot. Next, we analyzed in detail all the answers and got a list of key points that should be taken into account for further development. Both types of respondents (photographers and users) have expressed fears about trust. That is, both parties want to have a confirmation of the fulfillment of their obligations, namely the contract on the provision of services. This will avoid misunderstandings and conflicts. There are many cases when the client simply forgets about the photo session or does not come and answer calls at all. On the other hand, photographers do not always stick to their promises and often delay the photos or send poor-quality shooting results. The next thing that interests us most is the mandatory criteria for a quick and high-quality search. That is exactly what the respondents need when they search. The first priority function is to view the portfolio of the photographer. And the more works there are, the better. For respondents are not enough to see the 5 best photos. Next among the requested functions is the opportunity to view the photographer's free dates. In order to schedule a photo session, users and photographers have to pick a common date that is relevant for both. The calendar with available dates and hours would greatly simplify the negotiation process. Many respondents also expressed their desire to reserve a photographer for themselves on a certain date and added that they have not yet found such a feature in other services. The next criterion is the availability of prices for all types of services and their conditions. That is, the client wants to know how long the photo session lasts, how much the photo will get as a result and the final price. Reviews - this is something that also affects the choice of the photographer. It's important for users to know that they can trust reviews. It's fairly difficult to find honest comments because, on personal pages or sites, the photographer can filter and delete negative messages. And the last thing that is interesting for our respondents, as well as the people from our survey, is the choice of location. Some are interested in finding a photographer within a radius of one kilometer to quickly arrange and hold a photo session for an hour. Others are interested in a global change in search location when traveling to another city or even a country. So, thanks to interviews, we got a detailed picture of the problems and needs of users. Due to this, we already know things to focus on and what we need to consider in solving.

3.1.3 Competitor analysis

The next step in the study of the problem is the analysis of available solutions and direct competitors. Identifying the obvious advantages and disadvantages of such products will help to avoid repetition of errors. To begin with, we have collected

Attribute	Platforms						
	Girko	mywed	best wedding	hot wedding	phototo	Photographer	Photographer Central
Search (Name)	3	3	3	1	3	1	1
Filters	2	1	3	1	2	2	3
Choose location	2	3	2	2	2	2	3
Portfolio (> 20 photos)	3	3	3	3	3	3	1
Prices	2	2	2	2	3	3	1
Available dates	1	1	1	1	3	1	1
Information about photographer	2	2	3	3	2	3	1
Opportunity to book	1	1	1	2	1	3	1
Opportunity to pay	1	1	1	1	1	1	1
Reviews	1	2	1	3	3	1	3
Mobile application	1	1	1	1	1	1	1
Mobile version	3	1	3	3	3	3	3
Security (service agreement)	1	1	1	1	1	1	1
Information about camera	1	3	1	1	1	1	1
Interview with photographer	1	3	1	1	3	1	1
Forum (conversations, events)	1	3	1	1	3	1	1
Not only for wedding	1	1	1	1	3	3	3

FIGURE 3.5: Competitive analysis table with attributes

a list of platforms that solve our problem. Next, we compiled a list of attributes, which, according to our survey data and interview, are important and necessary. Then we created a table that can be seen in Figure 3.5.

Attributes were evaluated using a gradation of 1 to 3 that meets the following criteria: 1 - not implemented 2 - there is a possibility to do this, but it does not satisfy the need 3 - implemented

Thus, each of the platforms received its score for each of the attributes. Summarized the total number of points, we got the following result. (Figure 3.6) The obvious leader is the "Phototo". But he also has big disadvantages such as absence a possibility to book and pay. And accordingly, no guarantee of the provision and receipt of services.

Consequently, all selected platforms have their pros and cons, but a product that fully meets the needs of respondents was not found.

3.2 Strategy

By survey and interviews, we determined that users are more likely to search for photographers by phone. That is why we have decided that the solution to our problem will be a mobile application. We have two types of users and therefore the problems in them are different, about them we will find out in more detail later. We have identified the main functions that should be in our application and prioritized them (Figure 3.7):

- Authorization (registration). For a user, this feature is not critical, but the photographer needs to have access to his own profile with all information about him.
- Booking of photographer. This feature is absent in all available solutions to our problem. Reservation will allow users to choose the day they want from the photographer's available days.
- Payment for service. The issue of trust is of mutual concern. After all, everyone can neglect the arrangements and not receive money or a photo. Through the application and online payment, we can be sure of receiving services and

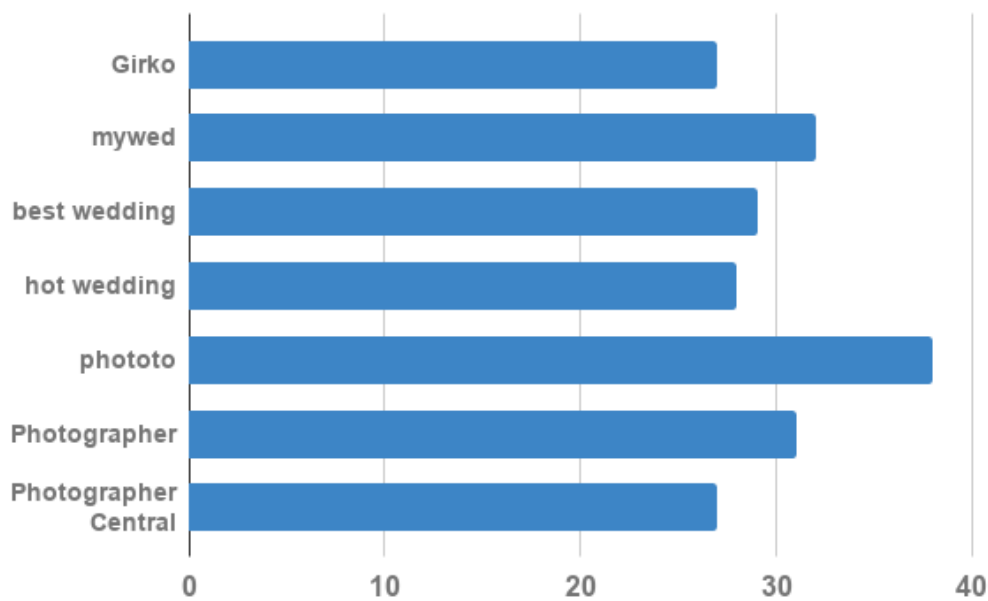


FIGURE 3.6: Competitive analysis results

payment. If the user pays for the photo session online, the photographer receives a notification that the services are paid. However, he will receive the money only when the user confirms the receipt of qualitative photos.

- Search with filters (price, location, type of shooting). This is the main function that solves our problem. Thanks to the filters, the search will become even more top-quality and quicker.
- Saving to your favorites. This will help you to save favorite photographers and quickly book them without the additional search.
- Reviews. In the second place, among the factors by which users chose photographers, were honest feedback. Therefore, we decided that only those users who had a photo shoot with the photographer (confirmed booking and received results) will have the ability to leave their reviews.
- Messages (ability to write to users). This function will help users to communicate with photographers.
- Confirmation and refusal of reservations. If the photographer confirms the booking, it means that everything is relevant. Photographer will have the ability to refuse the reservation if he can not do this photo session.
- Profile with full information (about yourself, prices, available dates, portfolio, reviews). The user profile must contain all information that interests users. We identified needed information from interviews and interviews.

3.2.1 Business model canvas

Once we have received data from users and experts in a particular area, analyzed the market and identified competitors, we already have the first thoughts of a solution.

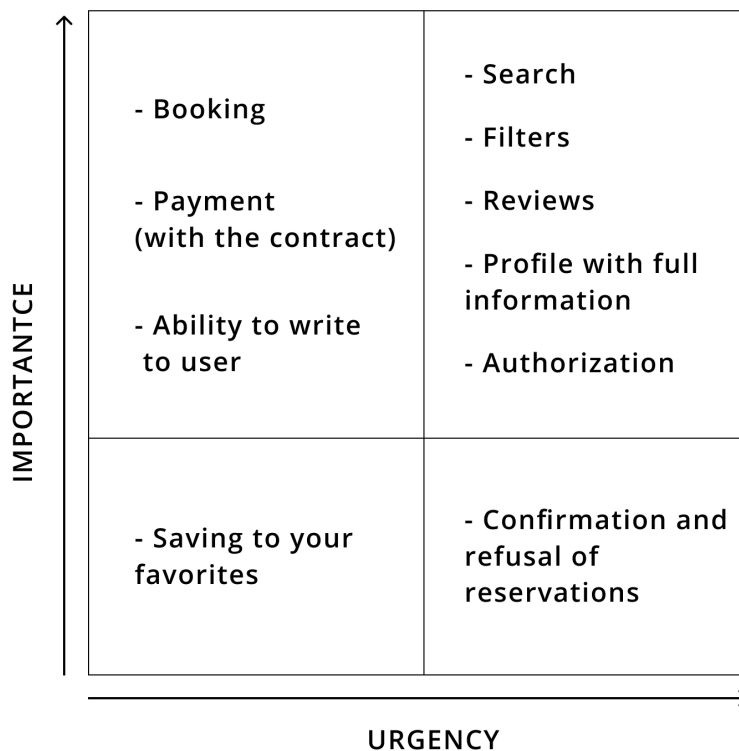


FIGURE 3.7: Priority matrix of features

But then we need to understand is it valid and can exist. And for this, we used the business model canvas. It allows you to identify the key moments of the project. The business model canvas contains 9 blocks, which we can see in Figure 3.8. Each one is responsible for a certain direction of the product:

- *Customer segments* is a block that describes product users. In our case, we have two types of user. The first is people who are interested in finding a photographer. And the second one is photographers who want to receive new clients.
- *Value Propositions* describes values for the user and product benefits that make it better than competitors. Our solution has such a value to the user as a quick and easy search for a photographer. The advantage over competitors is the ability to book a photographer for a certain date and pay online.
- *Channels* show the resources through which our customers can get a product. We are developing a mobile application, so our channels are stores for the purchase of applications.
- *Customer Relationships* is a block about communication with your potential users. We will interact through a survey on the application and its updates, according to feedback and suggestions.
- *Revenue Streams* is a revenue block. It is about things, which will make money in your product. Our product includes the possibility of outdoor advertising in the application. And also the opportunity to purchase a premium account.

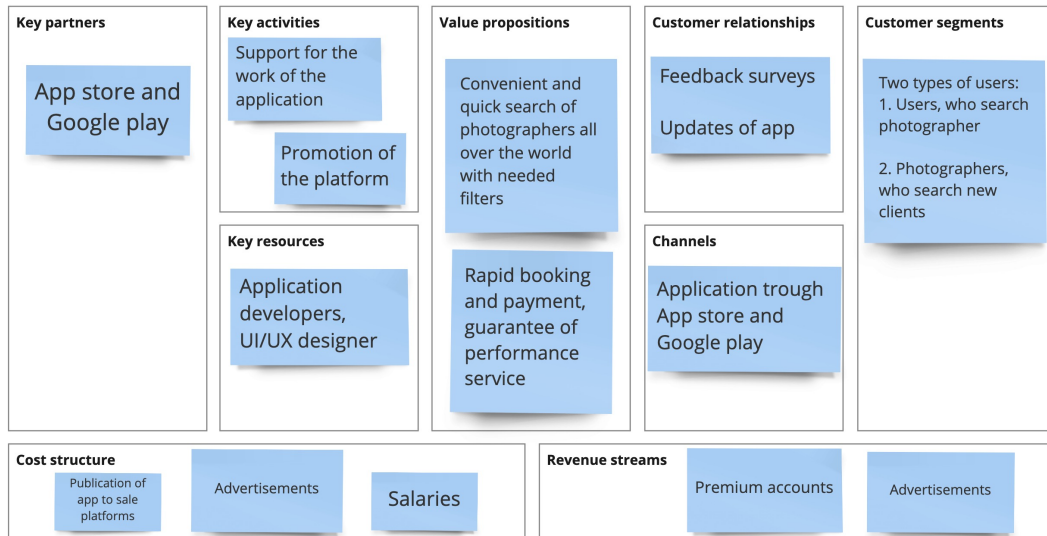


FIGURE 3.8: Business model canvas

- *Key Activities* describes the main steps that must be taken to provide the value of the product to the user. Our main activities are to support the application, as well as the advancement of the platform.
- *Key Resources* contains those key points without which it is impossible to create a platform. In our case, this is the designer who will draw the application and the developers who will write the code.
- *Key Partners* is a block of product partners. These are the things that are better not to create on their own, but to attract from the outside. It would be too difficult and wasteful to create a platform from which users could get our app. So we will use existing stores to sell apps.
- *Cost Structure* describes all product costs. In our mobile application, the main costs are the salaries of employees, the placement of the mobile application in the shops for sale and advertising on other resources.

3.2.2 Lean canvas

Another effective analyzing method of solution is lean canvas. The main difference between this method and the previous one is that the first one is focused on the business component, and the lean canvas describes the user's problems and needs. (Figure 3.9) It also contains 9 blocks, but some of them are different from those that were in the business model canvas:

- *Problem* describes the problem that the product must solve. This is primarily a long process of finding a photographer, namely information about him. Also, it's not possible to quickly find a photographer abroad or to find out who's nearby. And the biggest problem is the lack of confidence in the implementation of the agreements of both parties.
- *Solution* is a solution block that contains answers to problems from the previous block. In our case, it is a quick and convenient search with filters, the ability to search by location and control over the implementation of the arrangements.

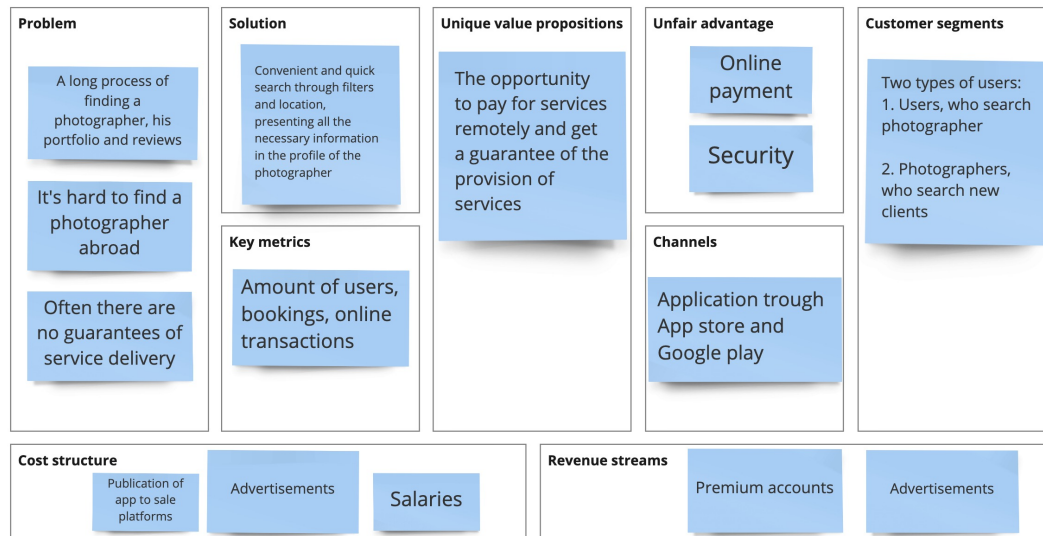


FIGURE 3.9: Lean canvas

- *Unique value propositions* reflects the unique value that competitors can not provide. It is an online booking and payment option, as well as control over the implementation of the arrangements.
- *Key metrics* is a block of project success control. Here are certain criteria that will reflect the success or failure of the product. In our case, this is the number of users, bookings, and transactions. They will determine how successful the application is.
- *Unfair advantage* is such a thing, which is difficult to copy quickly. This can be a large customer base or very expensive function. Thanks to the control of the implementation of agreements and ease of search, online booking and payment, we expect that in our application, such a thing will be a trust in the service.

3.2.3 Persona

After we have analyzed the solution, we can conclude that the product can exist. And so it's worth identifying potential users to answer the main question - who we are creating a product for. To do this, we will create personas - hypothetical users. Profiles are hypothetical, but information about them is real, which is based on our research.

First type

So, our first user is Andrew. (Figure 3.10) Andrew is a *photographer*. He is 37 years old, has two children and lives in Lviv. Earns in photography for over 10 years. He also wants to expand his own skills and learn to shoot video. But his *main goals* are:

- *Increase the customer base*, because one of the disappointments is the lack of experience.
- *Effectively advertising myself*, because the competition is always growing and it's important to be popular.

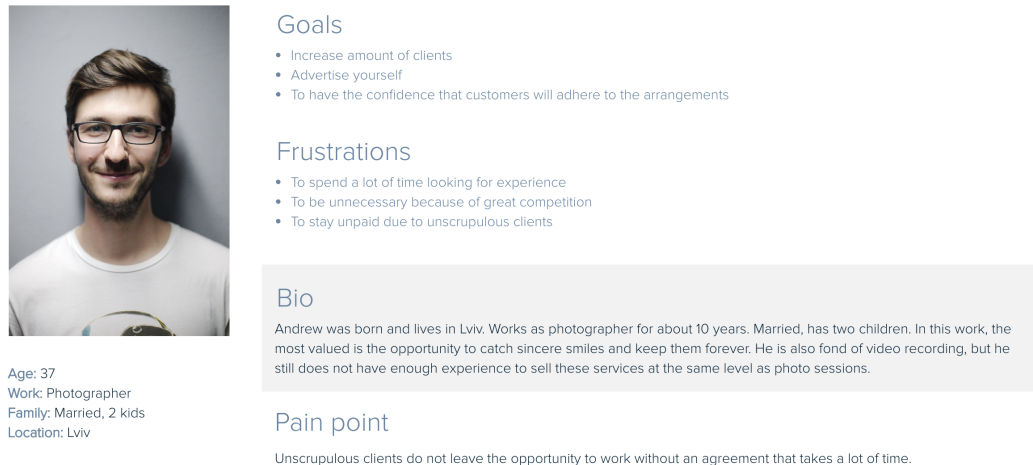


FIGURE 3.10: Persona: first type of users - <http://bit.ly/2JrvtcS>

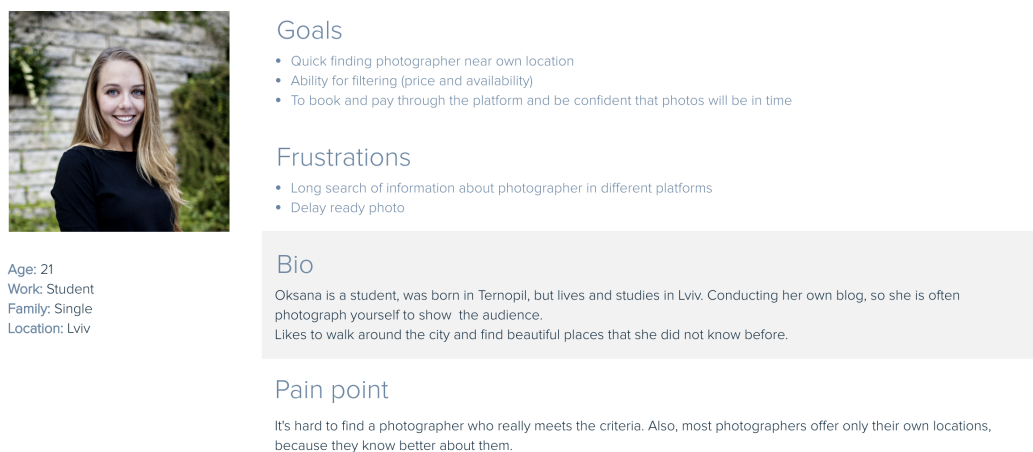


FIGURE 3.11: Persona: second type of users - <http://bit.ly/2JrvtcS>

- He wants to be confident that the customers who have agreed on the photo session will be present at it and pay on time. This is the point of the pain of our photographer. He often had affairs with unscrupulous clients who were late or did not come to the photo session.

Second type

The second persona and archetype is the user of the platform who is interested in a quick search for the photographer. (Figure 3.11)

Oksana is a student and she is 21 years old. She was born in Ternopil, but now she is living in Lviv. She has her own blog in popular social network and makes a lot of photos every day. She wants to have more professional photos in her blog but has difficulties with searching for photographers. Her *main goals* are:

- *Quick finding photograph near own location*, because the main frustration is a long search. When she is looking for some information about a photographer, she needs to change different platforms.

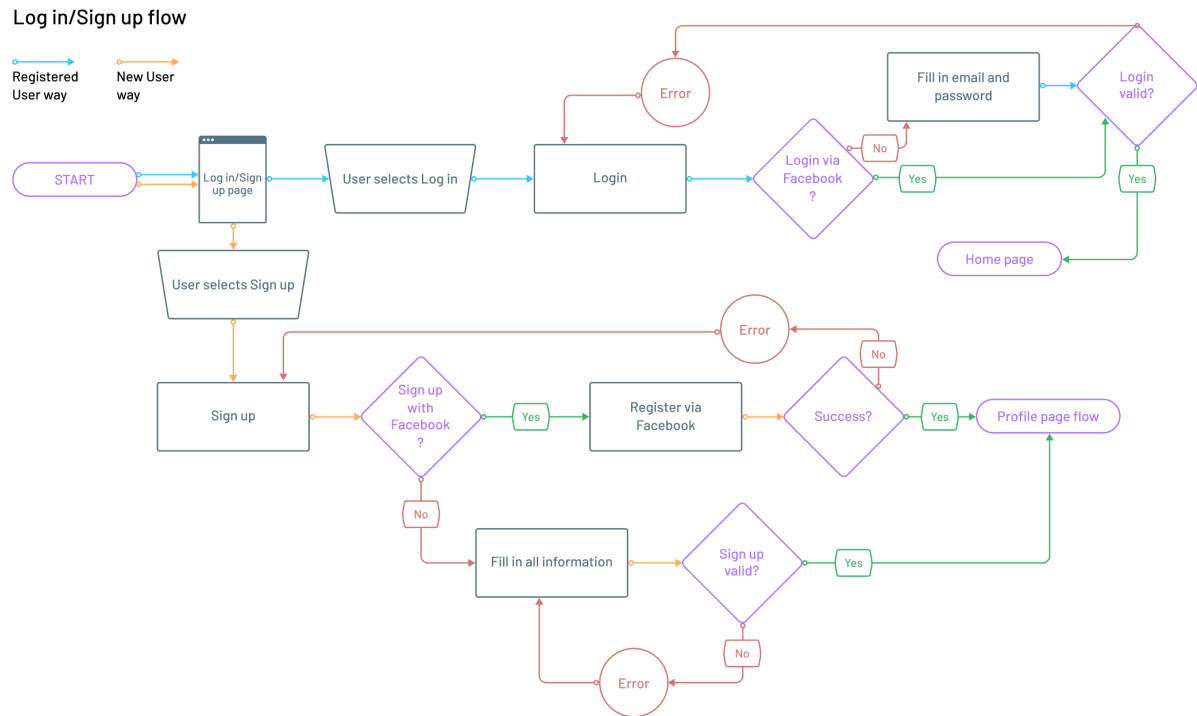


FIGURE 3.12: User flow: login and sign up process - <http://bit.ly/2LARIjm>

- *Ability for filtering*, especially price and available dates for photo session. This is the point of the pain of this girl. She wants to find photographer, who will meet her criteria.
- *Ability to book and pay through the platform.*

3.2.4 User Flow

We have profiles of our typical users, their desires, disappointments, and pain points. Therefore, the next step is to consider the steps of the way, which user do to resolving his problem. User Flow is that way which we do in a particular product or project to achieve our goal. We have developed a user flow for both user types (photographer and user). In Figure 3.12 we can see the flow of login and sign up. This and other flows you can find [here](http://bit.ly/2LARIjm) - <http://bit.ly/2LARIjm>. The main flow for the user is a photographer's search, and for the photographer - the process of confirmation of bookings.

Chapter 4

Design

We conducted a study to better understand the problem and solve it. Having archetypes of users and the desirable way of satisfying the needs of users (user flow), we also analyzed our proposed solution. Now we can begin to create a design.

4.1 Wireframing

First of all, we decided to create a structure for our service. In order not to get stuck in fonts and colors, there is a method like a wireframe. The main task is to determine the location of each element, rather than create a design. So, we have created wireframes for our mobile application, which you can see [here](http://bit.ly/2DZVP1X) - <http://bit.ly/2DZVP1X>.

The first screen that a user sees - the authorization page. It has two fields for filling up (a phone number, password) and the login button. At the bottom of the page, we have the opportunity to sign up. You can also log in and sign up with the help of Facebook. When registering, you need to provide your name, surname, phone number and password, and indicate who you are (the photographer or the user). This is necessary to determine which interface to display. For a user who searches for photographers, navigation at the bottom of the screen is made up of four pages:

- *The search page*, which is the main page. On this page, you can search by name, choose location and filters, as well as a list of the most popular categories of filming.
- *Order page*. It contains all bookings, their status, and details. After booking, you can also pay and leave feedback after the photo shoot or complain about non-compliance with the arrangements.
- *Messages page*. This page stores all dialogues with photographers.
- *Personal profile*. It includes the ability to change your location, the statistics of your bookings and reviews, and basic settings (where you can change your account to a photographer's account)

The photographer's interface is a little bit different, navigation contains five pages:

- *Home page* contains information about your work - portfolio, prices, and available dates. From here, you can add, edit, and delete them.
- *The order page* differs only in the ability to refuse a user who has booked a photo session from you.
- *Messages*

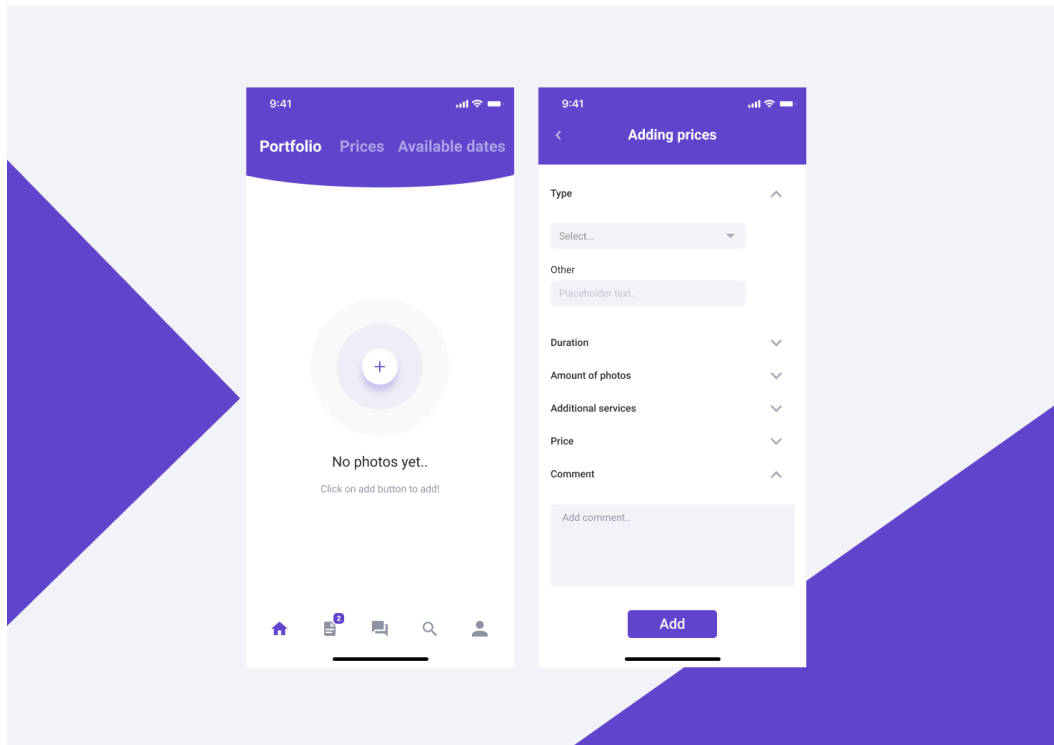


FIGURE 4.1: First variant of design

- *The search page* allows you to search for other photographers and get inspired by their work
- *The personal profile* displays information about the photographer (biography, experience, contacts and location, information about the technique, terms of cooperation and work)

On the photographer's page, which the user sees, there are two buttons (write a message and book the photo session) and 5 pages of information about the photographer (portfolio, prices, available dates, information about it and reviews).

4.2 Prototype

We already have schemes for our design and therefore we understand the location of all elements. But in order to understand the mechanics of the application, we decided to create the interactive prototype based on the wireframes. So we were able to test the paths of two types of user. We identified and corrected weaknesses in user interaction. The prototype can be found [here - http://bit.ly/2JfM83B](http://bit.ly/2JfM83B)

4.3 Visual design

The last stage of research and development of our platform is directly a design. To begin with, we decided to collect the reference - these are images that inspire us, the elements of which we would like to see in our own project. A reference is needed in order to better convey the details of a particular object. After that, we decided to create the first design options on two pages of the application. This will allow you to critically evaluate each design in comparison with others. So, our first version of

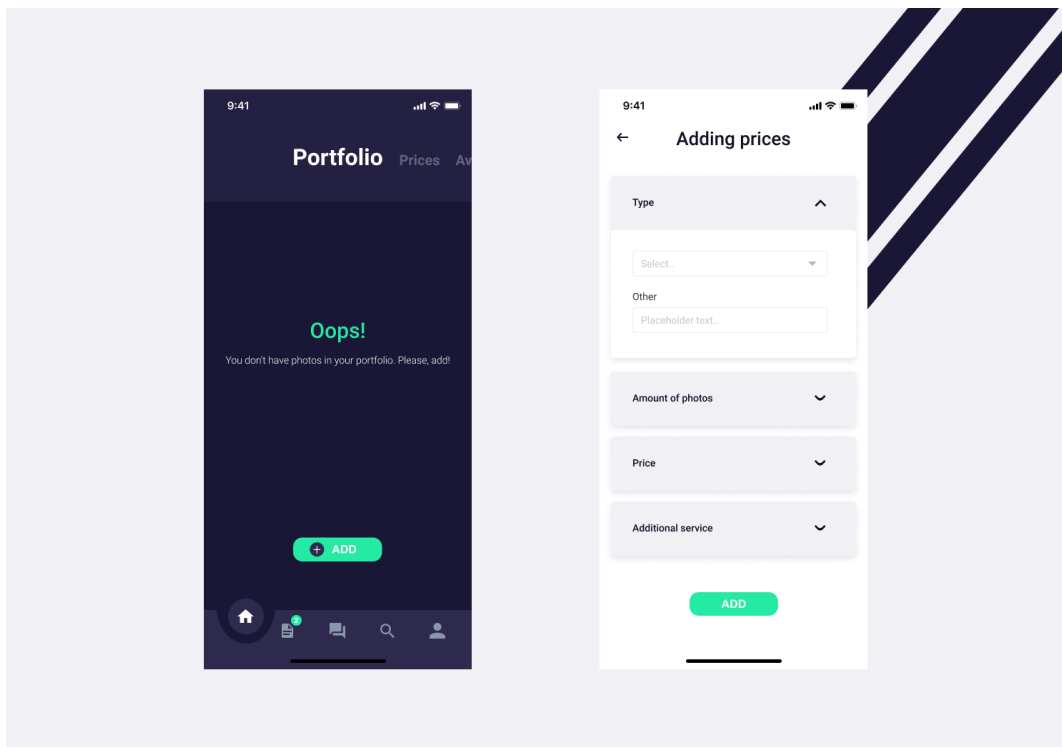


FIGURE 4.2: Second variant of design

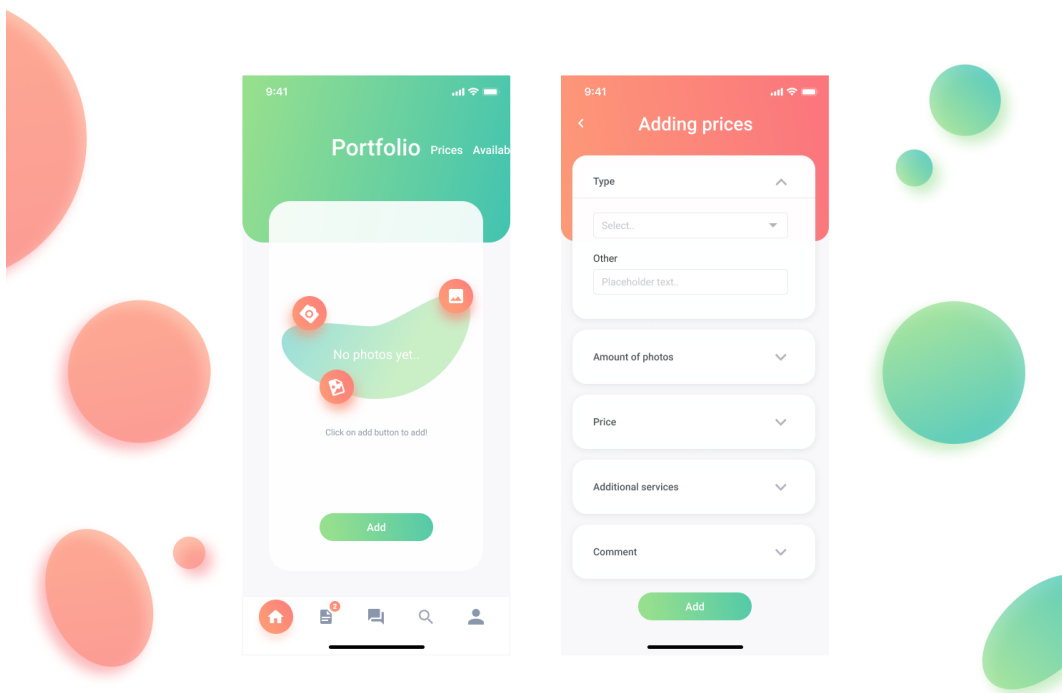


FIGURE 4.3: Third variant of design

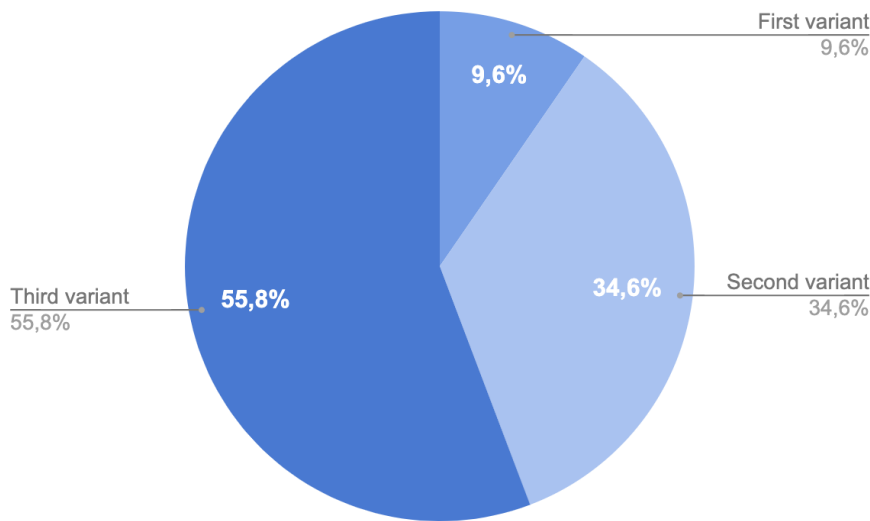


FIGURE 4.4: Results of voting for the best design



FIGURE 4.5: Colors and fonts that were used in the design

the design is somewhat strict. (Figure 4.1) By creating it in cold shades and without any unnecessary details, we wanted to emphasize the seriousness and reliability of the application.

The next option, which can be seen in Figure 4.2, is created in dark blue colors and shades with bright green accents. After all, most applications now have dark themes to make it more comfortable for users, when they use the application in low-light areas or at night. In addition, it is known that the dark themes of the applications have a positive effect on the battery of smartphones due to the features of their work - the black color consumes the least battery power. It was also decided that some pages, such as adding prices or changing the work schedule, should have a white background. In order to emphasize the importance of such actions and to attract as much attention and concentration as possible.

And our last option is the bright gradients of green and orange in combination with not less bright details and rounded shapes. (Figure 4.3) This design will be pleasing to the eyes of new users and will advertise itself. After all, most people pay attention to aesthetic things than practical ones. After a voting, which results you can see in Figure 4.4, and mentor's advice, it was decided that the most optimal design for this application is the third option.

So, in Figure 4.5 we see the main colors and fonts that were used in the design. The first 4 colors form our gradients, the following are basic.

For static pages, we used a gradient of green tints, and orange for pages where you need to add, edit, delete information or perform a particular operation. In this way, we will be able to catch the attention of the user by changing the color and increase the attentiveness.

Chapter 5

Conclusion

We have gone all the way of creating a product - from the formation of the problem to the finished solution that solves it.

5.1 Results

So, the first step was to research the problem. We conducted a survey where respondents provided answers to questions that had made us understand that the problem exists and needs to be addressed. Then we interviewed potential users and found out more about the needs and wishes. We analyzed the market of competitors and realized that the solution has not been developed yet. And we offered our own - a mobile application.

The next step we investigated the proposed solution using business model canvas and lean canvas. According to the results, it became clear that the project was viable, and therefore we created two types of users of our solution - personas. We developed the user flow according to the needs and problems and received a map of functions that an application should have.

And the last step was to develop the design of our solution. First, we created the frame of the application - wireframes. We created the interactive prototype on the basis of the wireframes and test it. We fixed inaccuracies and created a design that will not only solve the problem but also give users an aesthetic pleasure.

5.2 Next steps

The solution is ready and can function successfully, but each project has a place to improve. In our case, the first point in the to-do list is to find ways to monetize. The project should bring benefits not only to people but also to owners, who want to receive the income from the business. In the development of business model canvas, we have already indicated that the best ways to generate revenue will be external advertising in application and premium accounts that will allow you to turn off ads and provide additional features.

Another thing that will be needed if the app gets a lot of users is a site. An adaptive site with enhanced functionality will allow the audience to continue to grow. Investigating active users and their needs will help understand what additional features will be needed.

Bibliography

- Alexander Osterwalder, Yves Pigneur (2010). In: *Business Model Generation*.
- Bowers, Marek (2017). "Creating Perfect User Flows for Smooth UX". In: URL: <https://www.uxpin.com/studio/blog/creating-perfect-user-flows-for-smooth-ux/>.
- Don Norman, Jakob Nielsen (2013). "The Definition of User Experience (UX)". In: URL: <https://www.nngroup.com/articles/definition-user-experience>.
- Kelway, James (2009). "The what, when and why of wireframes". In: URL: <http://userpathways.com/2008/06/the-what-when-and-why-of-wireframes>.
- Mark Bergen, Margaret A. Peteraf (2002). "Competitor Identification and Competitor Analysis: A Broad-Based Managerial Approach". In: *Carlson School of Management, University of Minnesota, 321 19th Avenue South, Minneapolis, MN 55455, USA and Tuck School of Business at Dartmouth College, 100 Tuck Hall, Hanover, NH 03755, USA*.
- Maurya, Ash (2012). "Why Lean Canvas vs Business Model Canvas?" In: URL: <https://blog.leanstack.com/why-lean-canvas-vs-business-model-canvas-af62c0f250f0>.
- Morville Peter, Rosenfeld Louis (2007). "Information Architecture for the World Wide Web: Designing Large-Scale Web Sites". In:
- Nielsen, Lene (2015). "Personas". In: *The Encyclopedia of Human-Computer Interaction, 2nd Ed*. URL: <https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/personas>.
- Pernice, Kara (2018). "User Interviews: How, When, and Why to Conduct Them". In: URL: <https://www.nngroup.com/articles/user-interviews>.