UKRAINIAN CATHOLIC UNIVERSITY

BACHELOR THESIS

Razom: UI/UX concept of app for servicemen and their families

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

in the

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Declaration of Authorship

I, Halyna Koziak , declare that this thesis titled, “Razom: UI/UX concept of app for servicemen and their families” 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.
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by Halyna Koziak

Abstract

One of the consequences of russia's full-scale invasion of Ukraine in 2022 was an increase in military personnel. Unfortunately, many defenders of Ukraine are wounded, captured, go missing, or return "in scuto" (on the shield). They and their families need various types of assistance, and many organizations are ready to provide such a service. By creating the concept of an information application, I intended to facilitate obtaining help for those who need it.

Acknowledgements

I would like to thank Yuriy Haliuk for his guidance and help. His advice, patience and professionalism have been a key element in working on this project, which I believe is just beginning.

I want also to thank all of the respondents who agreed to help with the research and validation and spent their time to make this project truly valuable.

Last but not least, I'm grateful for having great friends and kind family who supported me on my learning path no matter what. Thank you all for being there for me all these years.

List of Abbreviations

LCPSC	**L**viv **C**enter (for) **P**roviding **S**ervices (to) **C**ombatants
UI	**U**ser **I**nterface
UX	**U**ser e**X**perience
CX	**C**ustomer e**X**perience
CJM	**C**ustomer **J**ourney **M**ap
SME	**S**ubject **M**atter **E**xpert
FAQ	**F**requently **A**sked **Q**uestions
WCAG	**W**eb **C**ontent **A**ccessibility **G**uidelines

This thesis is dedicated to the Armed Forces of Ukraine and all other structures that fight for our independence. And to my dear friend Tyhr, who died for our freedom.

Chapter 1

Introduction

1.1 Motivation

This thesis was written in collaboration with the "Lviv Center for Providing Services to Combatants" (mentioned as LCPSC further). This organization is unique in Ukraine (there is a similar center in Kyiv, but it has some differences) because it provides excellent service and helps with different areas of activity, including legal aid, psychological support, physiotherapy, various events for kids and families of combatants, and much more. Besides that, many public organizations and local businesses offer their services for free (or with a discount) to some combatants. At the same time, a lot of combatants need to learn about opportunities and offers they can get.

While Ukraine is in a state of war, and after our victory, the support of veterans, soldiers, and their families will be relevant and needed. Yuriy Haliuk, my supervisor, is helping LCPSC with the creation of a website, and he suggested creating an app for combatants to help navigate a variety of possibilities provided by LCPSC. After a closer look at the idea, it became clear that there is a need and an opportunity to solve a more global problem.

1.2 Problem statement

Though the number of injured and deceased Ukrainian combatants is unknown, unfortunately, it is undeniable that the rate of deaths and injuries among military personnel in 2022 is significantly more extensive than in any other year between 2014-2021. It created a massive flow of requests for support and a load on the governmental system, including military hospitals and local councils.

However, some kinds of assistance that people seek from governmental institutions can be obtained from public organizations and local businesses that are willing to support the Armed Forces of Ukraine on a volunteering basis. At the same time, because these kinds of support are done on a volunteering basis, they often need to be advertised more to be generally known. The combatants who are injured often find it difficult to seek support by themselves; at the same time, relatives, who have just lost their loved ones, usually are under a psychological burden and cannot seek help. As a result, two sides - the one with the offer and the receiver - often miss each other.

A great idea would be the creation of a mobile app that would:

- reduce the load from standard information requests to LCPSC and other centers of its type, which will be created;

- provide structured, updated information in one place to simplify getting assistance;
- allow partial regulation of the load on LCPSC, hospitals, and other structures;
- consolidate offers of local businesses and public organizations.

Breakdown by the detailed problems was obtained after the research and can be found in section **4.3**.

1.3 Goals of the bachelor's thesis

From the beginning of this project, it was meant to be implemented in real life. At the same time, it was clear that building such an app would be very time-consuming for one person, require integration with some of the governmental services, and need a constant maintenance. Such an app needs to be flexible, secure, and tested; the server must also withstand the load. Thus, I focused on gathering the information and creating and validating a prototype. Understanding the real needs of the users and realities of digitalization in different military structures in Ukraine is critical in order to develop an app that will indeed be useful and realistic to achieve. With this basis, getting funding and approval for this project will be much easier.

To sum up, while working on this thesis, I aim to:

1. Conduct research to find out the main needs and pains that occur for combatants and their families while looking for assistance;
2. Interview stakeholders to understand constraints and current logic;
3. Analyze apps of indirect competitors that can be used as references;
4. Create validation scenarios, wireframes, and prototype;
5. Validate the prototype with real end-users.

As a final result, a rationale for such a project will be backed up by research, breakdown of part of problems into categories, and validated design concept. Additionally, there will be some suggestions for marketing strategy mentioned.

Chapter 2

Background Information and Related works

2.1 General terms and methods

User Experience (UX) - "User experience" encompasses all aspects of the end-user's interaction with the company, its services, and its products (definition by D. Norman and J. Nielsen).

Customer Experience (CX) - is a broader term that includes how customers (in part, those who are getting services on behalf of the end-users) perceive the organization in general. When considering CX, we also consider brand reputability (in our case - trust in the governmental structures and public organizations), customer service, sales process, advertising, usability, etc. I am focusing both on the CX and UX during research because some parts of CX cannot be solved with our solution, and we have to be open and aware of these nuances. CX, in our case, is also helpful in predicting customers' expectations in general.

Accessibility - is the design of products, devices, services, vehicles, or environments so as to be usable by people with disabilities [Shawn Lawton Henry, 2014]. In our case, it means we should understand that injured combatants can have different types of disabilities or temporary problems. They include physical disabilities (limited range of motion, or for example, loss of a leading hand), deafness or hearing problems, vision impairments and cognitive impairments (that are likely to occur as a result of contusion, concussion, head trauma).

Stakeholder - a person with interest or concern in project, the ones who are affected by this project or interested in its success. Stakeholders include developers and designers who are working on the product, end-users, indirect users, governmental figures who set limitations, decision-makers inside of the organization and so on. In our case, by now, we will talk to the end-users, SMEs and worker of the LCPSC.

Proto-personas - a sketched user character, based on the assumptions, that is created to align the expectations of the stakeholders. Personas are verified and completed proto-personas after research of the user audience. The importance of personas and proto-personas cannot be overrated for the project, as it provides a number of benefits for user-centered design approach [Miaskiewicz and Kozar, 2011].

Personas, however, are realistic reflections of user groups, that are formed after the research. In this work we will use qualitative personas, based on data, collected during qualitative research. Due to small sample, we cannot though be absolutely

sure in its result to form statistical personas, but nevertheless, qualitative personas will work for our goals. They are divided into those that role-oriented, goal-oriented, or both (traditional personas). In our case, we will use traditional ones. Regarding the segment priority, we will only cover main personas, and somewhat minor (secondary) personas; additional personas, as well as negative personas will not be touched in this work.

In-depth interviews - one of the key research techniques, used in this work. An in-depth interview is a one-to-one user interview that includes the following stages: planning, creating an interview protocol, conducting an interview, data analysis, and gathering insights [Boyce and Neale, 2006]. It's used to check product-market fit, uncover "pains" of users, research behavioral patterns, and explore a subject from different points of view.

FIGURE 2.1: Process of interviewing

Design thinking, by the "Interaction Design Foundation", is a non-linear, iterative process that teams use to understand users, challenge assumptions, redefine problems and create innovative solutions to prototype and test. Involving five phases - Empathize, Define, Ideate, Prototype and Test—it is most useful to tackle problems that are ill-defined or unknown.

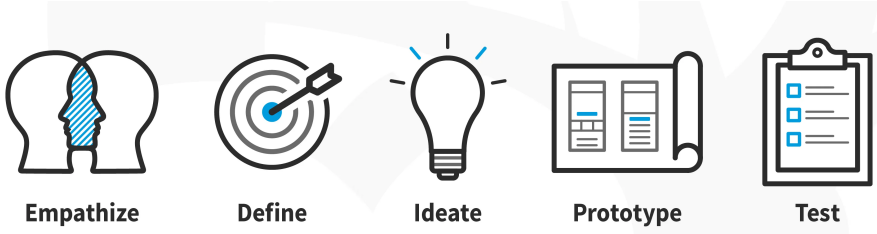


FIGURE 2.2: Design-thinking process - figure by Interaction Design foundation

Mental model represents a person's thoughts about how something works. Its formation is impacted by the user's previous experience, intuition, and incomplete information that the user receives from the environment. Understanding the mental model helps to understand users' subconscious expectations, behavior, and approach to solving problems. The product's conceptual model must be aligned with the user's mental model to facilitate the user's work with the product, reduce the number of development iterations, and improve position on the market. "Much

of our knowledge is hidden beneath the surface of our minds, inaccessible to conscious inspection. We discover our own knowledge primarily through our actions. We can also find out by testing our-selves, by trying to retrieve examples from memory—self-generated examples." [Norman, 1988]

Information architecture is a way of structuring, organizing, and marking content. It is meant to display logical interactions between elements, transitions, and sequences of actions. Information architecture is a part of the product's conceptual model.

2.2 App References

As a reference for this concept, the starting point was "Diia", an app by the Ministry of Digital Transformation of Ukraine. "Diia" allows to order various services, eliminates a few rounds of paperwork, contains information for different categories of needs, and was used by 8.6 million citizens in 2021 [Fedorov, 2021]. Given that this is a large state project, I assume that their approach is based on a preliminary study of the audience, so it is *partially* relevant in our case as well (since the user audience of "Diia" is significantly larger). Also, since "Diia" is already widely used in Ukraine, users of the application will better perceive the reproduced mental model of the interface.

For the same reason, "Helsi" is used as a reference. However, the app was also reviewed to see if it implemented tools to improve accessibility for people with disabilities. Though it had some common elements in the interface (in comparison to "Diia"), unfortunately, I did discover almost nothing that would indicate attempts of the developers to improve accessibility.

While conducting a series of in-depth interviews, one of the discovered insights was the existence of the discount program that offered partnerships and discounts for servicemen from businesses - "Ukrainians Together". After a further look at their website and app, it became clear that, though the program had a somewhat similar goal to ours, it lacked better UX research. Despite the presence of the application, its interface and functionality are very limited and inconvenient. Clearly, this product has problems with discoverability, and that results in a small number of users and lack of active development. Important to notice, that they offer benefits and opportunity to obtain their card (that is an essential step to use the offers) only to those, who took part in hostilities during particular phase - before the full-scale invasion (anti-terroristic operation). So, it's not covering such a big audience, as in our case (section **4.1**). However, the initiative itself is great and could be integrated with the "Razom" app in the future.

Finally, "IT Club" is a worthy example. Though it's focused on a different audience, its sole purpose - to inform users, as owners of the corresponding card, about partner companies' services and help them navigate among the offers - is executed almost flawlessly. It is comfortable, simple, intuitive, and modern.

Unfortunately, there is not a perfect example of an app from our domain, that would serve as a reference in terms of accessibility. However, there are two other apps, that deserve some attention: "Special features of Android" by Google" and "Accessibility scanner". The first one helps the end-users with usability of other apps

- for example, it has a feature of reading the text on the screen out loud, integrates control switches, allows interaction with facial gestures and so on. Of course, it doesn't cover all of the cases and doesn't instantly makes every other app accessible. However, it is a powerful tool it is worth to be aware of - maybe, if the design cannot cover all the issues, this app will be helpful. The "Accessibility scanner" is a testing app, that reviews your app and gives recommendation on improvements for it, in terms of accessibility. This app can also be helpful in the future.

FIGURE 2.3: App References

Chapter 3

Research Approach

This section is designed to help the reader understand the approach to solving the problem.

3.1 Audience analysis

When creating any product, a critical stage is the analysis of users. For example, an app that solves the same problem will look and function differently depending on whether its target audience is retirees, children, or students. User research allows:

- Identify who the end users are; to understand their problems, needs, fears, age and socio-cultural characteristics, etc.;
- Create a context for a better understanding of exactly how, for what goals, and under what conditions they will use the product;
- Create solutions that will actually be used.

The first step for audience analysis was studying information from open sources and forming assumptions. In our case, this is the most optimal approach to start work because, as it will be explained further, the audience of end users is vast, and there is practically no information or statistics in open sources because this information is a matter of national security.

Of course, it is unreasonable to form the entire work based on the assumptions themselves. Therefore, several subject matter experts *(mentioned as SME further)* were involved in the research - an employee of the LCPSC and several military personnel with many years of service experience. Based on assumptions, proto-personas were formed, based on which a sample of persons with whom in-depth interviews were conducted was formed. Thanks to the vision of SMEs and the results of communication with respondents, we have a more holistic picture. After acquiring this information, we can create personas - a realistic reproduction of users, and divide them into several categories.

3.2 In-depth interviews

For this case, the methodology of conducting in-depth interviews covers several needs at once. Thanks to this practice, for this work, we will be able to:

1. Validate product-market fit;
2. Identify and understand the needs and problems of users;
3. Learn holistic impressions about the lived experience from the first person;

4. Identify priorities and specific areas that we can fix with our solution;
5. Validate different points of view;
6. Research and understand user categories;
7. Test previous assumptions about the audience and develop personas.

Conducting an interview is an iterative process that doesn't have unique pattern for all cases. We are interested in the consumer experience of the respondent, sensitive moments, and general impressions. Based on the initial audience study (results can be reviewed in section **4.1**), I formed a few proto-personas; the sample was formed from people with the same characteristics, as proto-personas. Due to their background, some of the respondents also act as SMEs. Part of these same people will be involved in the validation of the prototype.

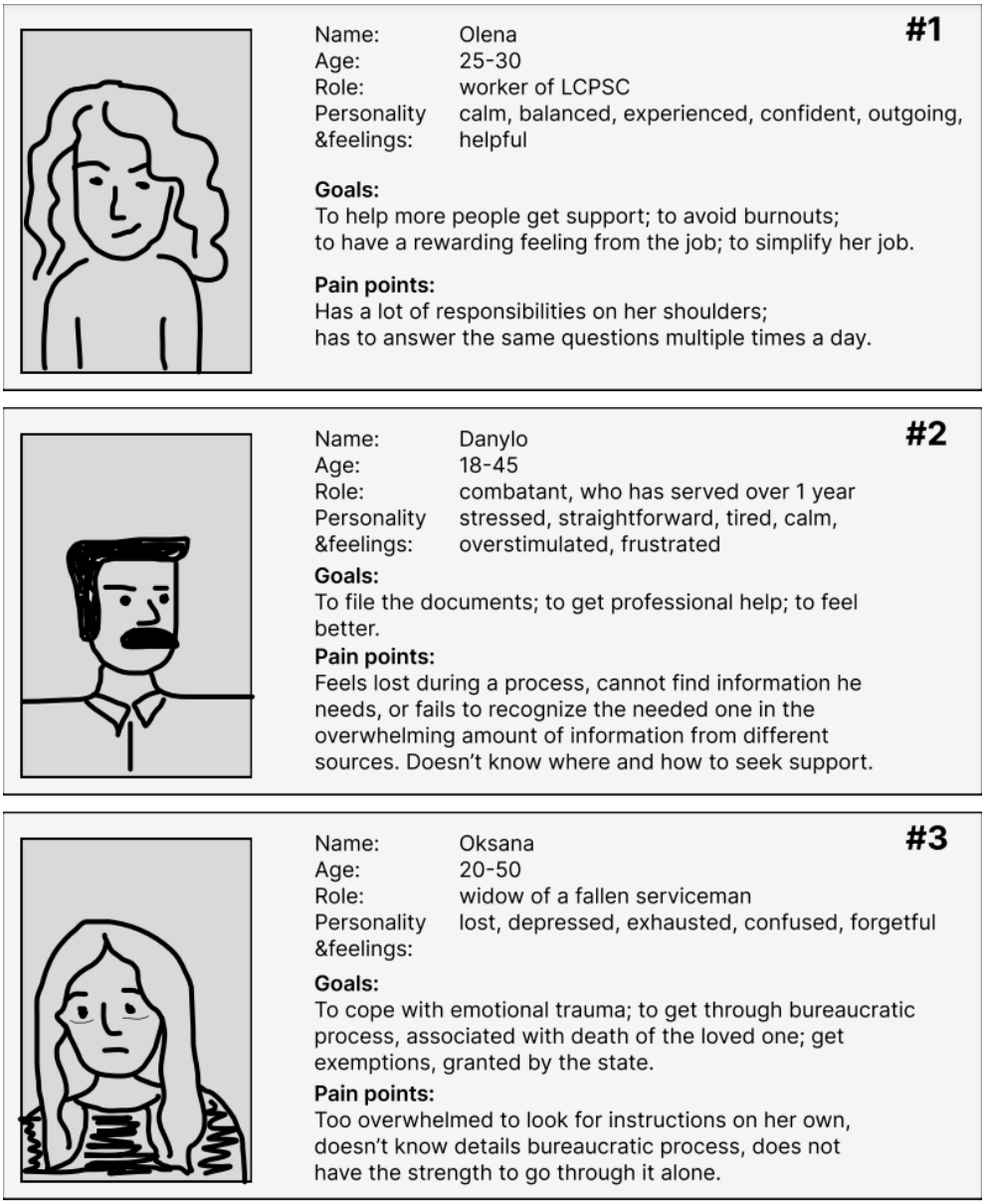


FIGURE 3.1: Proto-personas 1-3

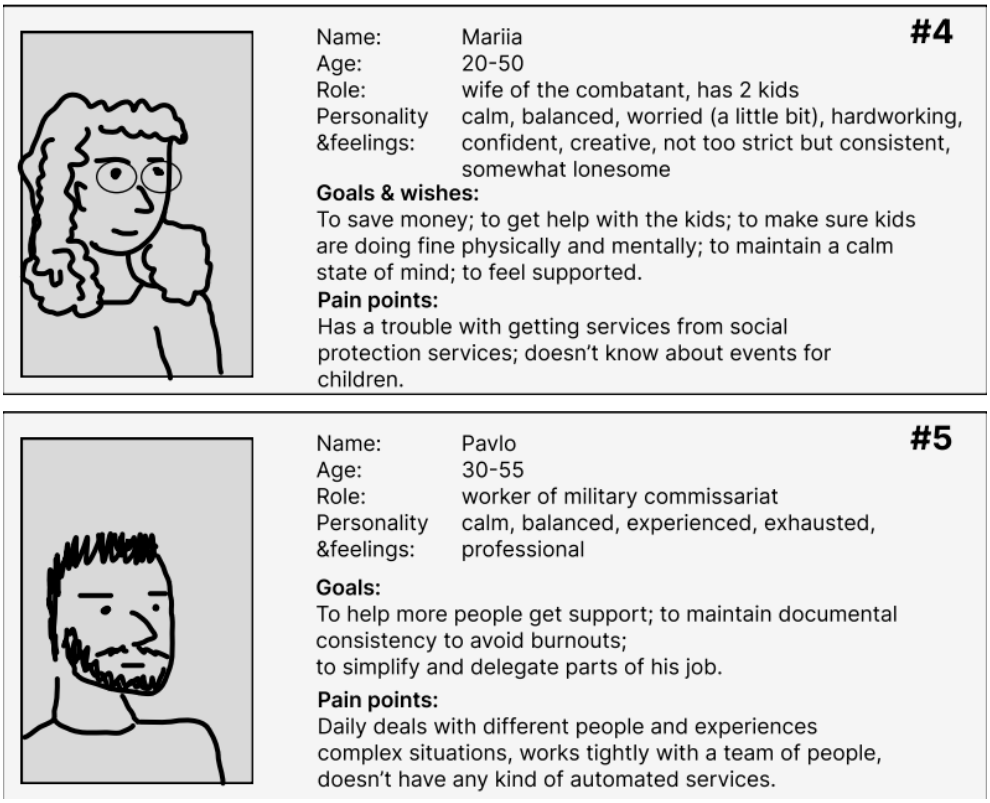


FIGURE 3.2: Proto-personas 4 and 5

During the research, nine interviews were conducted with ten people. Although the interview is designed for a one-to-one format, one of the interviews was conducted with two people at the same time. It was a kind of experiment, but considering that both respondents are of roughly the same status and are also married, their experiences are partly shared and also offer us a view of the situation from the perspective of a military family.

The full texts of the interviews and a more detailed description - about age, origin, experience, family status, etc. - can be found in the documentation for this work.

A short list of people from the sample:

1. A wounded military officer - also as SME;
2. A wounded soldier (without officer rank);
3. A family of border guards with many years of experience and two children, users of the center - Kyrylo also as SME;
4. Widow of a fallen serviceman;
5. Wife of a serviceman, two children;
6. Military paramedic at NGU, has a child;
7. The employee of the center - also as SME;
8. Employee of the territorial military commissariat;
9. Wife of a soldier, also a sister of a soldier in captivity.

Individual goals and a set of starting questions were formed for the interview with each person. Detailed questions can be found in documentation files of the

project. However, respondents, who fitted an image of the same proto-personas, had similar starting questions.

For the respondent corresponding to proto-persona Olena (№1), the questions were formulated to learn as much as possible about the internal processes in the organization, the flow of people, the most frequent problems that arise, as well as their vision of specific solutions (since the initiative to modernize the website came from employees of LCPSC, it means that they already had certain considerations in this direction). Methods of advertising and information about the availability of other electronic resources were also a subject of interest.

For respondents corresponding to proto-persona Danylo (№2), the questions were formulated to find out as much as possible about the general problems and complicated procedures faced by the military, about their individual experiences, for officers, information about organizational processes and information about the state of awareness of their subordinates was also valid. These matters were followed by questions designed to determine the attitude towards certain services and organizations, experience with various institutions, the level of awareness about available offers from public organizations and businesses, as well as about one's rights and benefits.

For all respondents who interacted with the LCPSC, additional questions were asked about their experience with the center, where they learned about their activities and wishes for improvement. All respondents, for whom it was relevant, were also asked about their experience with electronic resources.

For the respondent corresponding to proto-persona Oksana (№3), the questions were formulated to learn as much as possible about the general experience of processing documents and benefits after the death of a husband. This information was necessary for comparison with the data from proto-person Pavlo (№5); also, it helped to test assumptions about the capacity and actions of the person in a state of great stress.

For respondents corresponding to proto-persona Mariia (№4), the questions were formulated to learn as much as possible about the level of awareness of benefits and rights, sources of obtaining information, as well as experience with attending events and participating in social programs for children. All respondents in this category had some unique experience with the LCPSC, which also became the focus of the conversation.

For the respondent corresponding to proto-persona Pavlo (№5), the main goals of the conversation were as follows: to understand how the procedure of alerting and working with citizens by the Military Committee works (or should work); methods of providing psychological support for citizens in the event of death, disappearance, etc.; work protocol in various cases. This information allows you to form a more complete vision of CX.

3.3 Analysis of indirect competitors

After studying the audience and defining the problems and specific functions of the application, the next step should be the analysis of competitors and their usability testing. However, at this point, we run into several problems:

1. There are no direct competitors for our application: there are several applications of this profile in other countries (for helping veterans with psychological rehabilitation, for example), which, however, are very different both in terms of audience and functionality, so they are not even used as a reference; in Ukraine, there are no apps that are explicitly aimed at the specific needs of our defined user segment;
2. The consequence of the previous point is the impossibility of applying a traditional SWOT analysis technique and conducting a full-fledged usability testing of competitors since they do not exist;
3. We do not pursue any commercial goals and, therefore, cannot measure specific results and user values financially (for example, we cannot measure progress based on the number of sales through the application or the number of clicks on advertisements); thus, comparison with indirect competitors can only be based on an empirical assessment, the subjectivity of which increases due to the fact that the product is functionally and in general, different. However, we have information about number of requests to LCPSC, so this value may be used for tracking the progress and estimation of marketing strategy for the product itself.

As a result, another approach to analyzing indirect competitors was defined. By indirect competitors, I mean, first of all, "Diia" and "Ukrainians together" apps. However, the evaluation was applied to all the applications mentioned in section 2.2. The analysis was carried out by evaluating and comparing several parameters:

1. Commonalities and differences in the mental model;
2. Rough assumptions about the audience;
3. Accessibility features of applications;
4. Obvious design flaws;
5. Obvious advantages or utility design elements;
6. The main elements of information architecture and their connections.

Based on the received information, we can form our own information architecture and begin the initial modeling, namely, the creation of wireframes.

3.4 Wireframing, design and prototyping

Visualization of insights (storyboards, CJM) and creation of information architecture provides a basis for creating sketches and wireframes. Wireframes help to validate ideas and concepts in quick manner, by creating simplified versions without getting into details. Also, wireframes allow designers to experiment with the placement of elements on the page and graphical display of interaction with them without being tied to a specific design choice and details that can affect perception.

Based on wireframes, the design of the pages itself is created. Creating a design, especially in our case, requires some experiments - for example, with fonts, colors, and their change in size since I do not have any kinds of ready examples (except for my conclusions from the analysis of indirect competitors) and there is a desire to make the application as accessible as possible. Use of ready libraries is especially useful and convenient for this process. Use of available instruments allows to spend

less time designing, for example, our own icons, and experiment with the interface elements instead. Better ideas often emerge in the work process, so wireframing and designing are often iterative. However, in the end, we get (for starting and testing - one) design, which is transformed into a prototype.

Prototyping, in turn, helps to reveal better the UX part, as well as to test and validate the idea. Creation of prototype before development lowers the production costs, and this is important in case this project is applied for funding. The prototype does not require creating a full-fledged website because its task, again, is validating and testing the concept. In this case, the Figma functionality is fully suitable for these purposes.

3.5 Validation and Testing

No design is perfect, and no design is constant. Furthermore, if we are talking about first version of an app, that is overall first on the market. Validation and testing will be done in tw0 steps.

First, I will create validation scenarios (which should be different depending on the persona) and test it with respondents. It is important to mention, that between respondents are persons with visual impairments and recent injuries - it will help us to get some idea about accessibility from user's standpoint. Validation scenarios are setting similar tasks for users and allow to validate the idea of an app itself, experience and thoughts of users have the highest priority in our case.

Second, user feedback will be collected on the scale 1-10 about utility, and peronal impressions about different criteria, such as convenience, readibility, intelligibility etc.

Chapter 4

Research Results

4.1 Audience analysis

Approaching the question of the target segment, we will start from the generally available information and the target segment of the LCPSC. First of all, such a project can probably be implemented locally, and since there is a direct link to the LCPSC, we will consider the audience, slightly moving away from the region. People from Lviv, Rivne, and Ternopil regions were included in the group of respondents that were formed later. However, 70% of respondents represent the Lviv region.

In general, users can be divided into two groups: members of military families (most often - spouses, less often - parents) and military personnel themselves. Regarding the second category, there are no open statistical data. It complicates gathering a primary vision for both categories, since the first category depends on the second one (in terms of age, sex, education and so on). Let's try to form an assumption.

According to the presidential decree, due to martial law, all men between the ages of 18 and 60 are subject to conscription. Also, according to the law, conscripts during mobilization can serve only until the end of the maximum age of being in reserve, which for the absolute majority is 60 years (or +5 years, at the request of higher-ranking officers). Thus, we have an upper limit, which is 60 years, and a vast range - from 18 to 60. Let's improve the vision of the situation a little, using the available information about the Armed Forces of Ukraine - the most significant component of the Ukrainian army.

In 2013, the number of the Armed Forces was 168,000 people, including 125,000 service members; in 2015, a resolution was adopted that the size of the Armed Forces should not exceed 250,000. This continued until 2021, after which there were minor changes (the number was allowed to increase by 11,000 people). As of 2022, the number of military personnel has grown to approximately 700,000. Therefore, 440,000 military personnel were added during the last year. First of all, military personnel who had already participated in the anti-terrorist operation were drafted; the most significant number of young volunteers was in the first years, so the age of the men who made up the main part of the repulse at the beginning of 2022 can be estimated at 26 years+. Also, despite the fact that all men over the age of 18 can be mobilized, usually, most people who are mobilized are over the age of 27- on the one hand, this is due to the fact that at 18, the majority just begins to acquire a basic higher education, on the other - it is a kind of an unspoken rule since people before this age usually do not have experience or graduated from a military department. Since the final product must be in the format of an application, it will be logical to reduce the upper limit by 10-15 years. Therefore, we will roughly characterize the age of male

military servicemen from 18 to 55, with an emphasis on 27 years. Regarding female servicemen, their age should be approximately in the same range. As the number of women in the military increased every year, women were also involved in the interview process. Also, it is essential to remember that not only the Armed Forces of Ukraine but also the Border Service, the National Guard, the police, etc., take part in hostilities.

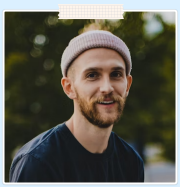
Regarding the first category, it is also challenging to make specific assessments. However, the lower limit of 20 years will be optimal, and the upper limit should be increased to 50 - to make an adjustment for the age of parents who can use such an application. We do not make assumptions about education, social status, or previous places of work for both categories since there is no such data, and this information should not affect the format of assistance or services either.

4.2 Personas

After interviews, we had to also test assumptions about audiences and proto-personas. Mostly they were correct. Now personas may be presented (though each persona is assigned a certain age, that is done for the better image of this particular persona; we keep in mind that overall our audience has a pretty big age gap). We will use three primary personas and one cumulative secondary persona. Each of the primary personas represent:

1. Oleh - represents combatants;
2. Hanna - family members (usually, wives) of active servicemen (important accent is, that this persona has kids - but those without them are also represented in this persona);
3. Kateryna - family members (usually widows) of fallen servicemen.

The secondary persona - "Petro" - is representing the workers of social services, military commissariat, LCPSC and so on. I will elaborate on the use of the secondary persona in section **5.1**. The result of modeling is on the next two pages.



Oleh

Serviceman

- 26 years
- is temporarily on vacation
- Lviv region
- recovers after injury

Story

Oleh needs to go through MMC in a few weeks. He is not sure about how the process will look. In the meanwhile, he tries to get any possible opportunity to have a rest and heal. He needs a rehabilitation and also feels pressured psychologically. He is interested in privileges he can get as a serviceman.

Gets information through:
other fellow servicemen, advertising, volunteer organizations, FB

Goals:
- to heal and rest
- to have a transparent and justifiable outcome of MMC
- get exemptions
- feel psychologically ok

Needs (to):
- communicate with MMC and potentially other social services
- get information about his rights
- research available offers
- get psychological support

Wants:
- to get straightforward instructions
- to get help when her rights are violated
- to avoid pointless waiting in queue
- get quality rehabilitation

Pains and fears:
- feels shame and uncertainty about getting psychological help
- feels limited by bureaucracy in the army
- cannot book an appointment on certain hour
- lack of standard interpretation of different procedures

Personality and feelings: stressed, straightforward, tired, calmly reacts, happy to return to civil life for a while, overstimulated, frustrated

Hanna

Wife of a combatant

- 32 years
- Works full-time
- Lviv region
- Has 2 kids

Story

Hanna's husband has been fighting and away from home for more than half a year. Due to the absence of a husband, Anna has a lot of childcare responsibilities, and she also tries to save money. Anna's parents help her, sometimes watching over their grandchildren. Hanna's children go to public school and kindergarten. Hanna worries about her husband, keeps constant contact with him, delivers parcels. However, this long-term absence still creates psychological pressure on Hanna and the children.

Gets information through:
Facebook, advertising, recommendations from friends

Goals:
- make children feel loved and cared about
- entertain and fulfill childrens' needs
- save money
- maintain work-life balance

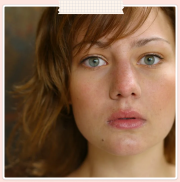
Needs (to):
- search and organize environment for kids
- communicate with public school, kindergarten, clinics, social services etc.
- plan her schedule and budget in advance
- have a social circle of acquaintances and get support
- have psychological support

Wants:
- to rest
- to reduce stress and anxiety
- to get help when her rights are violated
- the best possible opportunities for her children
- to minimize bureaucracy, conflict situations with public services
- to be sure about her plans

Pains and fears:
- not every organization and information is trustworthy
- sometimes feels powerless when dealing with conflicts in public domain
- worried about her husband and violation of *his* rights as well
- poor treatment by society and/or social services
- it's time consuming to search for solutions, events or opportunities, so she often misses some of them

Personality and feelings: tired, caring,calm, balanced, worried, hardworking, confident, creative, not too strict but consistent, somewhat lonesome

FIGURE 4.1: Primary personas - Oleh and Hanna



Kateryna

Widow of a fallen combatant

- 28 years
- Works full-time
- Lviv region
- May have kids

Story

Kateryna's husband has been in a hot spot and was killed a few days ago. Kateryna is absolutely overwhelmed, but she is trying her best to stay strong. She was contacted by military commissariat, and has to go through a process of recognition of the body, getting necessary documentation and a funeral. Probably, that is a first time she has to deal with death of her close family member. Her friend is there to help, but she doesn't have any kind of experience with matters like this one. She needs also to deal with social services later on to get exemptions and material compensation.

Gets information through:
random internet articles, military commissariat

Goals:
- put documents in order
- deal with grief
- get exemptions and material compensation

Needs (to):
- communicate with social services, city council military commissariat etc
- get information about her rights
- get a legal aid
- get psychological support

Wants:
- to feel supported and understood
- to get help when her rights are violated
- to minimize bureaucracy, conflict situations with public services

Pains and fears:
- she is dealing with it mostly alone
- hard to find an information
- psychological help is expensive and doesn't know how to find a good specialist
- appears in vulnerable position, not enough strength to search for help or research available options

Personality and feelings: lost, depressed, exhausted, confused, forgetful

Petro

Worker of MC, serviceman

- 34 years
- works from around 24/02/2022
- western region

Story

Petro is a worker of MC *(social services, LCPSC etc)* and deals with different cases on daily basis. Apart from dealing with huge load of work, he doesn't have almost none automated tools. Also, he has a problem with reaching out to people - both relatives and combatants. They often change a phone number without notifying appropriate parts, and search for them takes a lot of time. He also feels a need in psychological support; knows a lot of people from other organizations personally.

Gets information through:
direct protocols and connections;
is a source of information himself

Goals:
- to provide more people with up-to-date info;
- to simplify his job
- to maintain good psychological condition

Needs (to):
- find and notify people faster
- have an additional source of information

Wants:
- to spend less tim on search
- to delegate his job
- to avoid burnouts

Pains and fears:
- complexity of the job itself
- hard to find an information about certain people

Personality and feelings: calm, balanced, experienced, exhausted, professional

FIGURE 4.2: Primary persona - Kateryna, and secondary persona - Petro

4.3 Interview insights

The insights from the interviews, a complete list of which can be found in the project materials, allow us to highlight the following parts:

1. Main problems;
2. Attitude to various services;
3. Ways of obtaining information and experience with electronic resources;
4. Suggestions about possible improvements;
5. Experience with LCPSC;
6. Insights from the worker of LCPSC;
7. Other insights.

4.3.1 Main problems

Problems on the part of military personnel consist primarily of the presence of complex bureaucratic mechanisms and ambiguous interpretation of rules by various commands. Practically all respondents from the defense structures (Andriy, Oleksiy, Kyrylo, Solomiya) noted the difficulty of issuing different types of documents. All respondents from the defense structures also mentioned the extraordinary difficulty of dealing with the military medical commission; there was also a mention of the problem of arbitrary abandonment of the military unit, which arises when the commanders aren't appropriately informed, and the headquarters has no way to contact subordinates.

Another problem related to the difficulty of finding a person and establishing contact was mentioned by Igor - sometimes relatives of the dead or missing servicemen, war prisoners may change their address or phone number, or live abroad, etc. In such situations, only searching for relatives can take several days, and the territorial collection center has almost no electronic resources.

Relatives of military personnel face various problems, such as the refusal of state institutions to provide appropriate exemptions, the difficulty of obtaining certain exemptions (in particular, for lower payment of utilities), and changes in the rules for submitting documents and receiving payments. There was also a case where families were given instructions for completing documents that were not actually relevant. The experience of applying to a public organization for legal advice was also mentioned, which was so overloaded with applications that they could not even provide it to the respondent. Regarding the question about awareness of possible exemptions, the majority of respondents among family members answered that they felt a need for more knowledge on this topic.

There were also mentions of overcrowding in medical facilities and rude behavior in some hospitals.

From the side of SMEs (Kyrylo and Andriy), the problem of very poor awareness among the combatants of lower rank about their rights and the possibility of receiving benefits and other privileges was pointed out. They also noted the problem of the lack of assistance centers, such as LCPSC in other cities, and the absence of any volunteer or public organizations in the absolute majority of small settlements (villages, urban-type settlements, etc.).

4.3.2 Attitude to various services

In the course of the interview, the participants were asked questions aimed at revealing their attitudes toward various services from the state, public organizations, and businesses. The attitude towards services was divided, depending on the type of services.

The best attitude is observed towards various activities and programs for children. Most of them relate to proposals presented by the LCPSC - master classes, gifts for St. Mykolai Day, theater performances, etc. A positive attitude was also mentioned about various sports activities - competitions, hikes, and the possibility of recreational activities.

Also, the military respondents voiced a positive attitude towards the opportunity to undergo training and receive a grant for business or financial payments.

The possibility of free transportation received a positive-neutral attitude.

Almost all respondents emphasized the importance of various types of legal assistance.

Regarding psychological help, a positive attitude prevails. At the same time, some respondents expressed mistrust and doubt in the qualifications of specialists who provide such services on a volunteer basis. The reasons for such mistrust were based on the belief that there are few good specialists, most psychologists do not really understand military realities, and the absence of military psychologists in practice. All respondents (except Olena, who was not asked this question) either used psychological help or planned to do so in the future or if necessary.

As for physical rehabilitation, the general attitude can be characterized as "If it was, it would be good." Again, distrust was expressed about the qualifications of the persons offering such an opportunity. The lack of schedule for public initiatives and the heavy load on state institutions are the main reasons respondents did not apply for such a service.

Regarding the continuation of treatment, respondents mentioned the presence of restrictions for military personnel. Military polyclinics and a polyclinic for the Ministry of Internal Affairs structures were characterized as overcrowded, difficult to get a doctor appointment, etc. Despite the presence of restrictions, respondents would continue treatment, mostly with private clinics. They are also interested in the possibilities of general examinations from private clinics and expressed good impressions of such services. They do not actively look for offers from private medical facilities on their own, but when they learn about them, it is very relevant to them, and they try to use such an opportunity.

4.3.3 Ways of obtaining information and experience with electronic resources

First, the recommendations of acquaintances and general reviews stand out among the ways of obtaining information. In general, respondents recognize personal recommendations as the most credible source of information (about exemptions, public organizations, and so on). Respondents who expressed distrust, for example, in the services of psychologists or rehabilitators in public organizations would be ready to apply if there were good reviews.

In second place are social networks, mainly Facebook - from them, they learn about events, grants, and new offers from LCPSC (partly because this is nearly the center's only public and active resource).

When dealing with legal matters, respondents prefer consulting public organizations.

Regarding the registration of benefits and payments, respondents are trying to find the information on their own by googling and reading articles from different sources. It is challenging to filter such information and understand what is relevant; also, the rules change occasionally, and sometimes there needs to be more clarification.

Visual advertising (booklets and banners) was also mentioned.

Regarding business offers, there was clear interest from the respondents. Some of them took advantage of such offers when they knew about them. In general, the respondents did not search for such offers on their own, which is logical - since you do not know who and what exactly can offer, it is difficult and takes a long time to carry out such a search.

4.3.4 Suggestions about possible improvements

Regarding possible improvements, respondents mentioned:

1. Reform of passing the military medical commission;
2. Simplification of all possible bureaucratic procedures;
3. Electronic scheduling of appointments in the hospital and for various services related to rehabilitation from the public organizations;
4. Ability to know reviews in advance;
5. An initiative by the LCPSC or state institutions - to call the respondent and offer a rehabilitation, for example;
6. Creation of a website and an application for LCPSC;
7. Simplification of the procedure for obtaining exemptions;
8. Availability of step-by-step and correct instructions on various matters.

4.3.5 Experience with LCPSC

For the interview, people were selected separately, those with experience with LCPSC, and those with whom I contacted not through the center. However, in the process of interviewing, I found out that as many as three respondents from the second category (Andriy, Oleksiy, and Igor) had experience with the center. The only wish voiced from their side (by Oleksiy, to be more precise) was that the psychologist should have more understanding of the military topic, although he was generally satisfied. All reviews were very positive. The respondents noted that the center's activity is excellent and has no analogs.

They also wished for the center itself would be expanded and that more people would hear about them - in particular, Ihor added about the importance of visual advertising, such as posters, in places such as the city council and social protection service. He also proposed advertising the center on the radio and mentioned it would be great to invite a representative of the LCPSC to the city council.

4.3.6 Insights from the employee of LCPSC

The main insights of the interview with Olena:

1. Records about processed requests are kept in writing;

2. The center independently collected its internal database of combatants with information on those who applied for the financial payments program;
3. There are topics that can be described in the FAQ section; they include recommendations regarding obtaining a certificate of a participant in hostilities, passing a military medical commission, etc.;
4. The main page where you can find out about the center's activities is the Facebook page (there is also a Telegram channel, but the Facebook page remains the main means of public relations);
5. Confirmed, that here are only two official direct mentions of the LCPSC on websites - on the website of the Lviv City Council and on the website of the Office of Social Protection; the information displayed there is very short;
6. There is a need for a resource that will display static information, because new posts appear on Facebook, and information is lost;
7. The center increased the number of requests almost twice after the launch of social audio advertising in public transport. It means, there is a significant demand, but LCPSC struggles with discoverability.

4.3.7 Other insights

Other insights related to military procedures and other public organizations are listed in the corresponding document in the project. However, the existence of the "Ukrainians Together" initiative and their website turned out to be an essential insight. Even later, while researching their activities, I found their application which became part of the research and an indirect competitor.

Regarding the "Ukrainians together" program, one of the respondents used it when necessary, while the other used it actively in the past. I think a physical card makes it a little more challenging to use - since a person does not always have it with him; in addition, "Ukrainians Together" has a lot of partners who are presented only on the website, in a very inconvenient way. Due to the lack of filters, categorization, and sorting, even though the desired discount or offer may be among those offered, it may not be found - even if a user will still go to the site and search for it.

4.4 Evaluation of indirect competitors

The complete document with the evaluation of applications according to the method described in the section **3.3** is available in the project materials.

In conclusion, we can say the following:

1. The most similar audiences to our case are with the "Ukrainians Together" and "Diia" applications.
2. In terms of accessibility, "Diia" also showed itself to be the best
3. An example of how to make a FAQ can be taken from "Diia"
4. An example of working with partners looks best in the "IT Club"
5. All four applications have a shared mental model for navigation and content separation - a bottom panel that separates the main pages. Also common are clickable cards, the appearance of filter options (for “Helsi” and “IT Club”), clear button selection, dark text on a light background, one sans-serif font of different thicknesses and size for the entire application

6. All applications, except for "Ukrainians Together", have a fairly good information architecture. “IT Club” very nicely combines the same elements on different pages that appear in the right place, helping the user.

To sum up, now we have a complete list of pros and cons to help on the designing stage of the project.

4.5 Customer Journey Map and Storyboard

This section is summing up the knowledge we got through the research in concise visual manner.

4.5.1 Customer Journey Map

CJM is a technique for visualizing user interaction with a product. It is designed to illustrate the experience and stages the user goes through. This technique includes the persona, scenario, the phases the user goes through, expectations, and emotions. Based on such holistic information, we can highlight points for improvement.

For this work, we will reproduce the CJM for current state in the case of an application for assistance with the preparation of documents. We know, as insight from an interview with an SME, that requests for legal advice and help with the preparation of documents are currently the most frequent type of requests to the LCPSC.

Hanna (our primary persona) would like to receive exemptions for utility services since the heating season is quite expensive, and she wants to save money.

Customer Journey Map shows us the whole process our user goes through, pain points and opportunities. For example, now it’s obvious that there is an opportunity to optimize research and preparation phases. We can do this by improving discoverability of an app and LCPSC, and by providing FAQ section about getting exemptions for utility services. Though this scenario was about utility services, scenario for the Oleh, trying to get an ID card of a participant in hostilities would be quite similar.

4.5.2 Storyboard

CJM, used in a previous subsection, is still filled with a lots of details. However, there is another technique, even more straightforward than CJM.

The storyboard is a series of pictures that chronologically show the user’s actions and main events. Usually, storyboards have a scenario, visuals, and captions. Storyboards can be informal, though not always, and they visually depict a series of steps in a clear and easily comprehensible manner. Their main emphasis lies on imagery, placing less importance on accompanying text. While captions are significant for the overall artifact, they do not provide the reader with as much contextual information as a journey map.

Scenario: Oleh is having problems with his sleep, feels depressed and would like to talk to someone. At some point, he decides to ask for help.

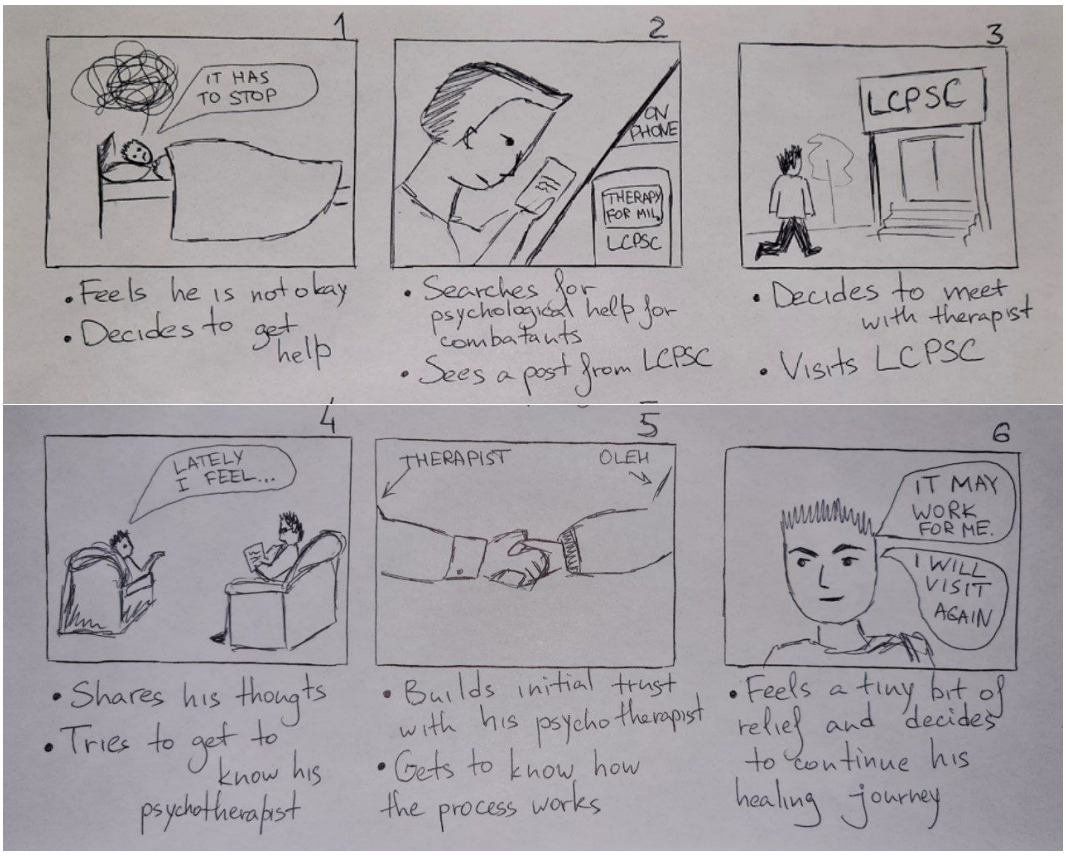


FIGURE 4.3: Storyboard

4.6 Summary

After careful analysis, I came to the conclusion that the application can consist of three parts, two of which will be aimed at end users. These two parts are also the ones I will focus on.

The first and central part of the application is informative. This part should include, first of all, a section with detailed instructions and FAQs, contact numbers and hotlines. It should also have information about the services provided by LCPSC - this will serve as a basis. Next, information about offers from public organizations and businesses that offer discounts and services for the military should be added. This same part should also include information on activities for members of military families. It is also clear from the insights that the ability to leave feedback is needed.

The second part of the application is the possibility of booking appointments. Booking applies to events and visits to a rehabilitator and a psychologist.

The third part of the application is the collection of data, namely the name, surname, and phone number of users. This data would be needed anyway to register for events or various services so this contact database will exist. At the same time, this data could be helpful for, e.g., employees of the territorial recruitment center when searching for relatives of fallen soldiers; also, when the command does not

know about the location of the soldier, and it is not possible to contact him, information about a new phone number, for example, can be in the saved data of the application.

However, such functionality requires careful control over privacy, access levels, and many other details. Therefore, this part can be postponed for the time being since solving the issues of arbitrary abandonment of the military unit and searching for relatives are not the goals of this work. Anyway, this possibility should be kept in mind - and this is the reason why I added a secondary persona - Petro.

Chapter 5

Proposed solution

This chapter provides a description, of how prototype was developed. It consisted of three stages:

1. Creation of information architecture;
2. Sketching of wireframes;
3. Prototyping in a few iterations.

We will review each of the stages.

5.1 Design of Information Architecture

The creation of a logical and consistent information architecture is part of the formation of the application concept in general. The study of indirect competitors was carried out to understand exactly which mental model, most likely, was formed in users when using these applications. The transitions and structure, in most cases, should coincide, as much as possible, with the user's usual order of actions. However, it is equally important to understand the interrelationship of the components. This feature affects not only the design of the solution but also the software that will be the basis of the application. The construction of the information architecture took place as follows:

1. To begin with, I divided all components into groups that have some relationship, depending on priorities;
2. The next step is a repeated breakdown into smaller, more detailed groups, and navigation is set - the order of transition from one part to another. For the most part, the closer two entities are to each other - by function or by place of use - the stronger they should have a connection compared to other elements. This process is repeated as many times as needed;
3. In the third step, when we already have a hierarchy of all entities, we add actions - it can be sending data or deleting them, calling additional actions or creating new entities, etc.

There is no universal standard for depicting informational architecture - it can be done with spreadsheets, mind maps, flowcharts, etc. As a result, we get an overview of every component in the app in its designated place.

Information Architecture Diagram can be reviewed here.

5.2 Wireframes

Having formed the information architecture, you can start creating the initial wireframes. This is an approximate initial sketch of the arrangement of elements - after the wireframes, the appearance of the prototype changed few more times, but still, the main components and their placement on the screen remain very similar to the initial idea.

1. **"Home"** - informational page; this will contain topics for FAQ. After clicking on a topic, another window will open with a list of questions and their answers. On the lower navigation panel, it will correspond to the leftmost position. After studying the app references, a bottom navigation bar with a few basic elements seems like the best default approach. The content on this page is divided into two parts - a section with questions for military personnel and a section for their families. The wireframe is designed to display topics in a list, however, during prototyping, the option of displaying tiles was also considered. If desired, in the future, this page can combine both options - as is done, for example, on the page with services in "Diia".

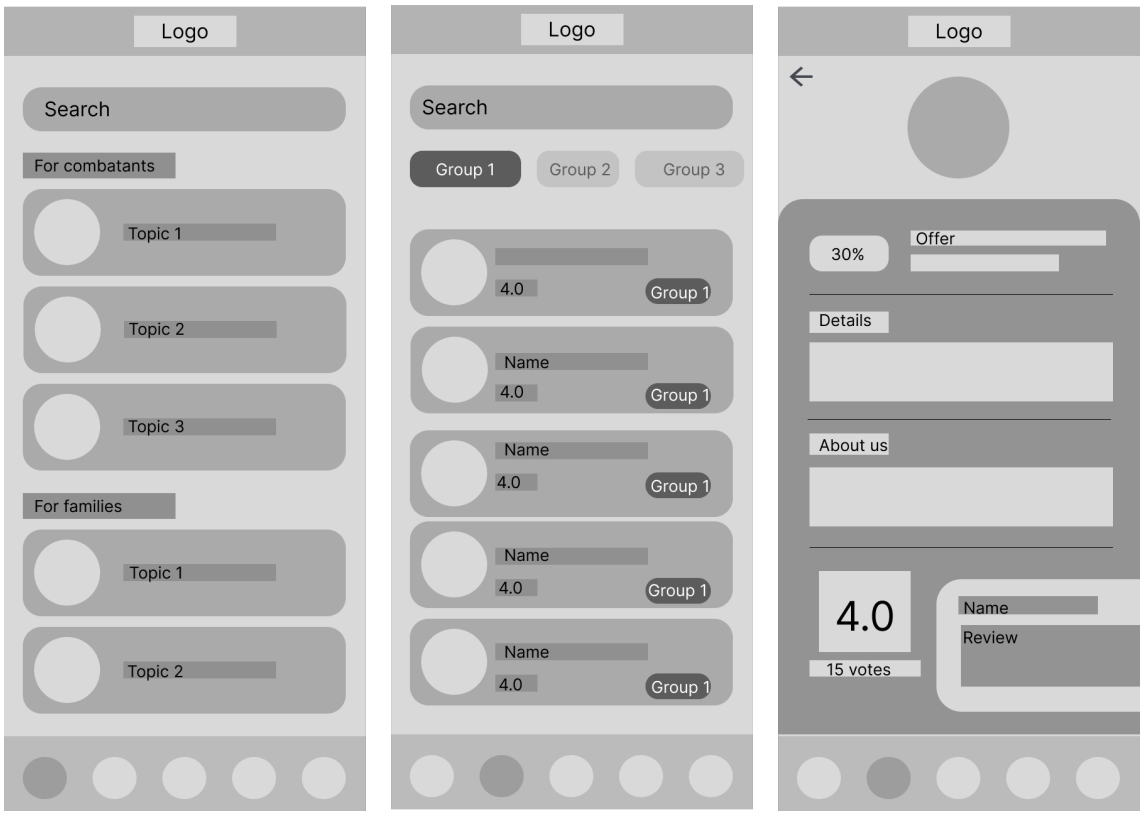


FIGURE 5.1: Wireframes for Home page, Partners and Offer page (left to right)

2. **"Partners"** - this page should contain a list of partner offers and a minimum amount of information about each - name, photo, category, and rating. This page will correspond to the second position on the tap bar. It will also be convenient to add a search bar, sorting, and predefined categories at the top for quick filtering.

After clicking on a specific offer, the page for this offer should be displayed ("Offer" page) - conditions and information about the partner. Also, the importance of reviews was noted during the surveys, so there should be more detailed information about the rating, namely information about the number of star reviews and individual text reviews, which could be viewed by swiping horizontally.

3. **"Events"** - this page should contain a list of future events and a minimum amount of information about each of them - name, photo, category, and date. This page will correspond to the third position on the tap bar. It will also be convenient to add a search bar and sorting (for example, by date) and predefined categories for quick filtering.

   After clicking on a specific event, a page for this event should be displayed - place, time, and description. It is also possible to add a registration form for those events where it is needed. In general, these pages are similar to the Partners/Offer page but do not have reviews and ratings. The wireframe of the Partners page was used for reference.

4. **"Center"** - this page corresponds to information specifically about LSPSC. It should also mention their most popular services and redirect to a page with their description. It is also appropriate to add a feedback form so that people can leave their requests, for example, on weekends or if they do not live in Lviv and cannot visit the center in person. Such requests can be verified via SMS confirmation of the mobile number. This page corresponds to the fourth position on the tap bar.

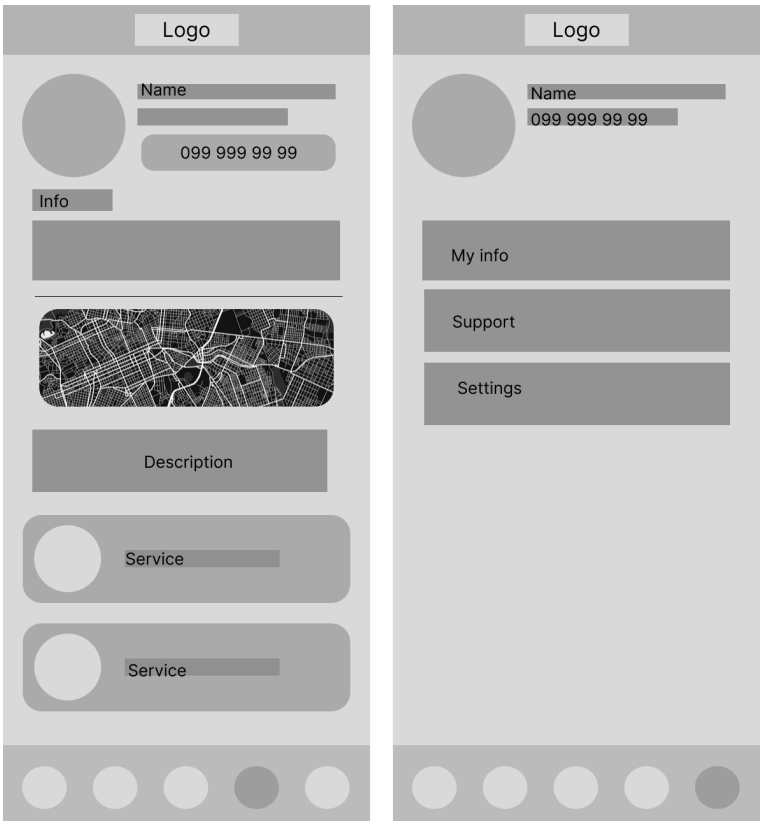


FIGURE 5.2: Wireframes for Center and Profile pages

5. **"Profile"** - the page of the user's personal settings, which should contain information about his first and last names, phone number and allow them to be edited, as well as contact with technical or LCPSC support and change the appearance of the interface (for this, a settings tab has been added). On the settings page, you can place options to increase the font size, change colors, and disable images. The wireframe lists this page as the fifth position, but during prototyping, it was moved to the top right corner.

5.3 Prototype

The main characteristics of the prototype:

- Designed for a native Android app;
- Screen size: 412 x 892 px;
- Created in Figma;
- Components from Material 3 Design.

The prototype was created in Figma using the Material 3 Design Kit. The functionality of Figma is enough to validate the idea and the initial appearance of the application. The Material Design system was developed by Google specifically for the Android platform. It was decided to create prototype for Android, because there are many more Android users, and it's also more relevant to our target audience. The reason is quite simple - in general, more people use budget versions of smartphones rather than iPhones. In our case, there is no need to develop a unique design since the application does not have such complex functions that cannot be covered by native components. In addition, the development and maintenance of a custom design in the future would require substantial financial and human resources.

Also, native components in a real application are faster and smoother during an interaction; they are optimized for different devices and Android versions and look familiar and routine to the user. In the future, it is possible to make an application for iOS with native components for this system. Although this project is limited to a prototype in Figma, it is important to understand that in real life, it will be more optimal to develop a separate design for another operating system than to come up with a unified application for several platforms, which will be expensive to maintain and difficult to implement. Therefore, we will operate with Material Design components, which, for example, are already implemented in the Material UI library for React.

The first version of the prototype was created rather for my own testing and experimenting. It wasn't completed, assigned a flow or even a color palette, it wasn't tested with users; however, it was a step toward the creation of the main prototype itself. We will take a closer look only at the main prototype.

Obviously, it has a lot of flaws and isn't properly finished. Font choice, position of the elements, structure of text information and much more could be, and was improved in the second version. Nevertheless, the initial version is still worth mentioning to demonstrate the process's evolution.

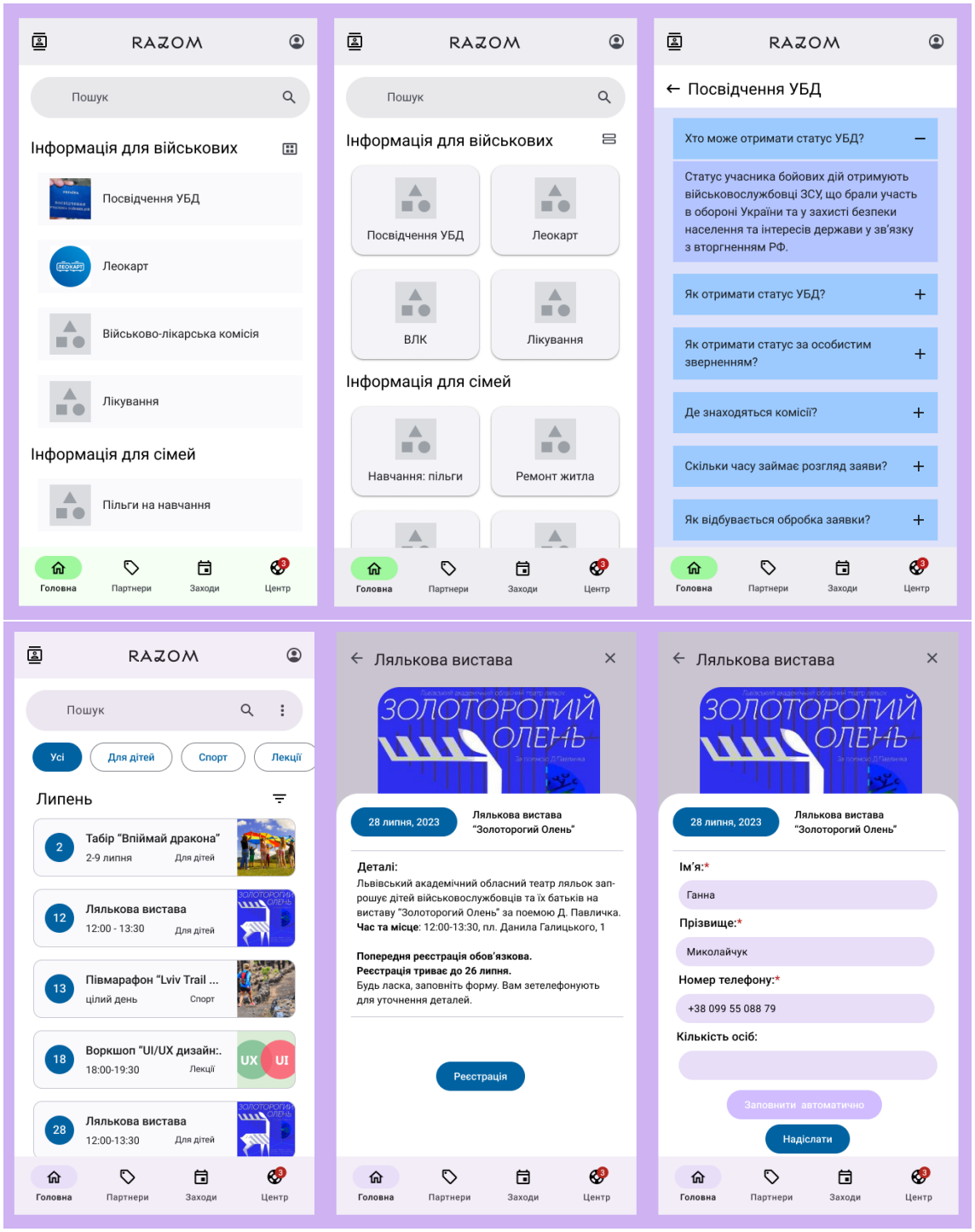


FIGURE 5.3: Initial prototypes for "Home" and "Events" sections

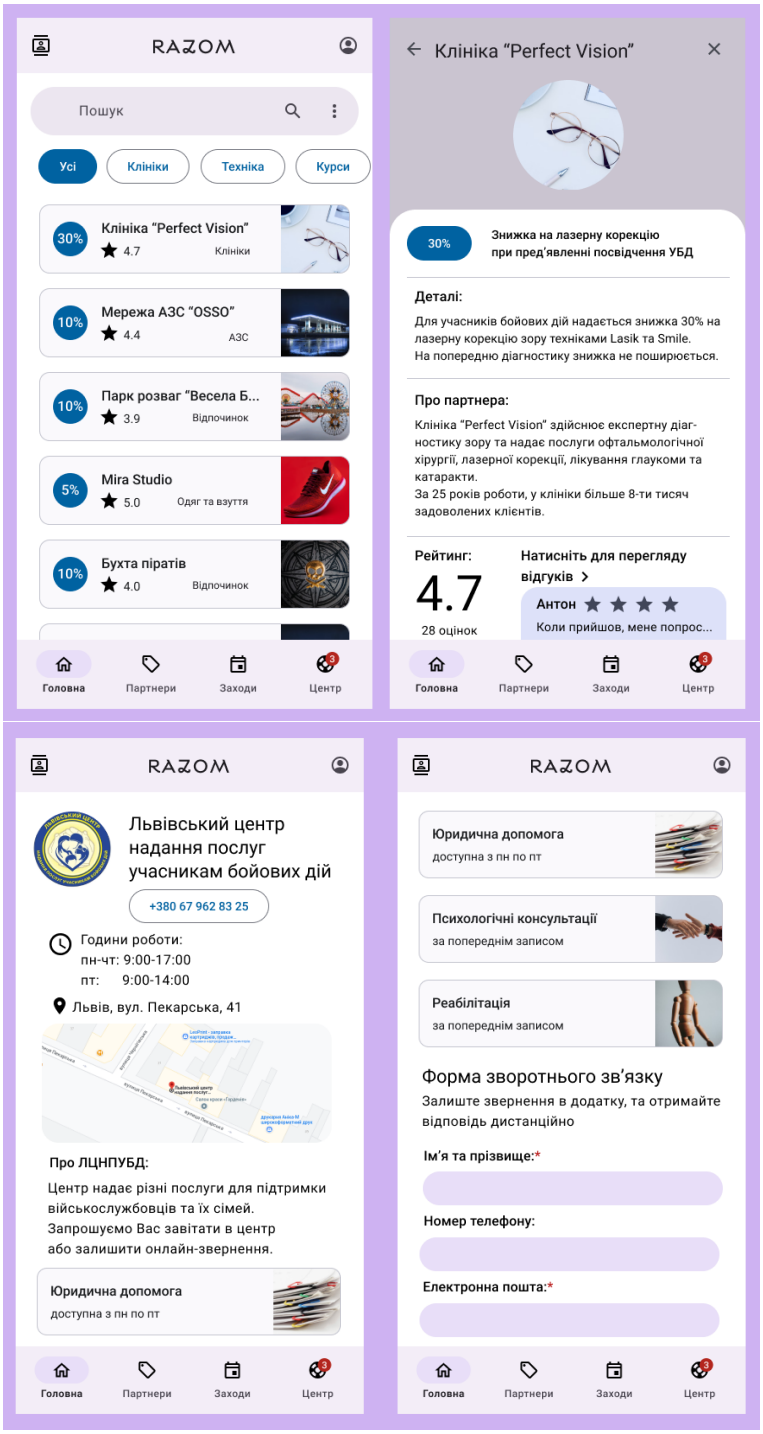


FIGURE 5.4: Initial prototypes for "Partners" and "Center" sections

The starting screen in the app is "Home", because the most common requests to LCPSC are related to informational matters, recommendations for document preparation and legal aid. The app is supposed to meet the most popular (at least, by now) need of users on the very first screen. Division of content is supposed to help users navigate between topics. In comparison with initial protype, we replaced pictures to topic with icons, because it's pretty hard to find proper images that correspond to topic "Military medical commision", pictures in here do not provide any additional information to user, their aesthetic value is doubtful and they disperse the focus of

user. Unlike images, minimalist icons with direct associations allow the user to focus on the text.

For the question section, the visual separation between the question and the answer was removed.

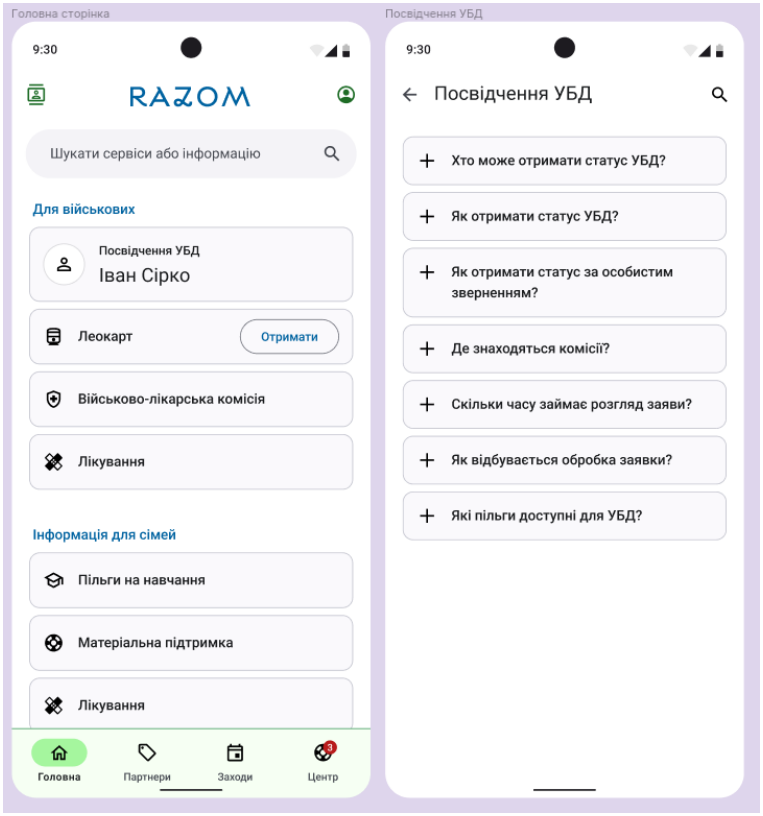


FIGURE 5.5: Prototype pages: "Home" screen and Q/A subsection

Filtering by categories is a crucial element for the "Partners" page. Therefore, the categories are presented as a separate part and not a drop-down menu in the search bar, for example. A similar approach is followed in the IT Club application.

Unlike the "Home" page, images here (ideally, they should be logos - but in the prototype, I used primarily generic pictures) provide certain information to the user - more than name of the company and category is needed. Also, for some brands or public organizations, users may have a stronger association with the logo; the partners are also interested in representing their logo. Thanks to a monotonous interface, the images arranged in this way look harmonious and comfortable.

The carousel was added to show popular offers and allow user to quickly go through them with even less details.

"Offer" page was improved by creating a separate section for every kind of information, that may be provided and changing position of elements in the review section.

Similar changes are also made on the "Events" page, but an element has been added for the possible sorting of events. On the page of a specific event, after regrouping the text, page's appearance also improved significantly. In addition, the registration process was redesigned.

Same changes were applied to "Center" page. "Legal aid", "Psychological help" and "Rehabilitation" tabs should open a page, similar to the "Offer" page. That way, by creating "Offer" page, we pretty much have a basic template for another pages.

The "Profile" version was designed without significant changes from wireframe. As we worked on the project, we also experimented with the dark theme, so one more tab was added to switch themes. This option appeared to be useful.

Large and regular text pass AA and AAA levels of WCAG 2.0 and icons pass AA level for both light and dark modes.

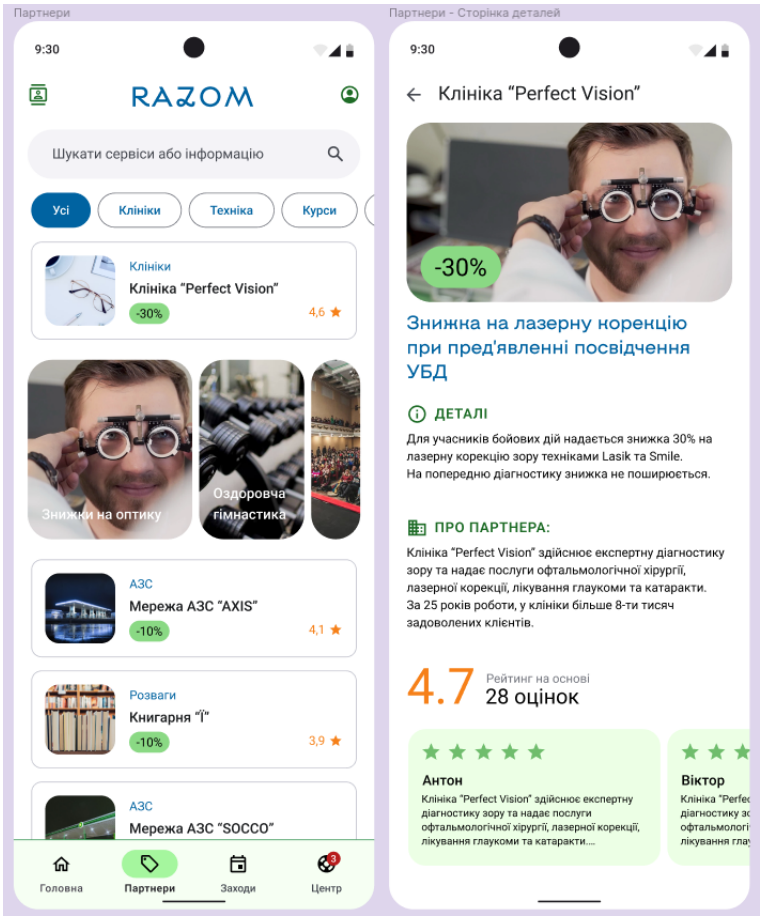


FIGURE 5.6: Prototype pages: "Partners" and "Offer"

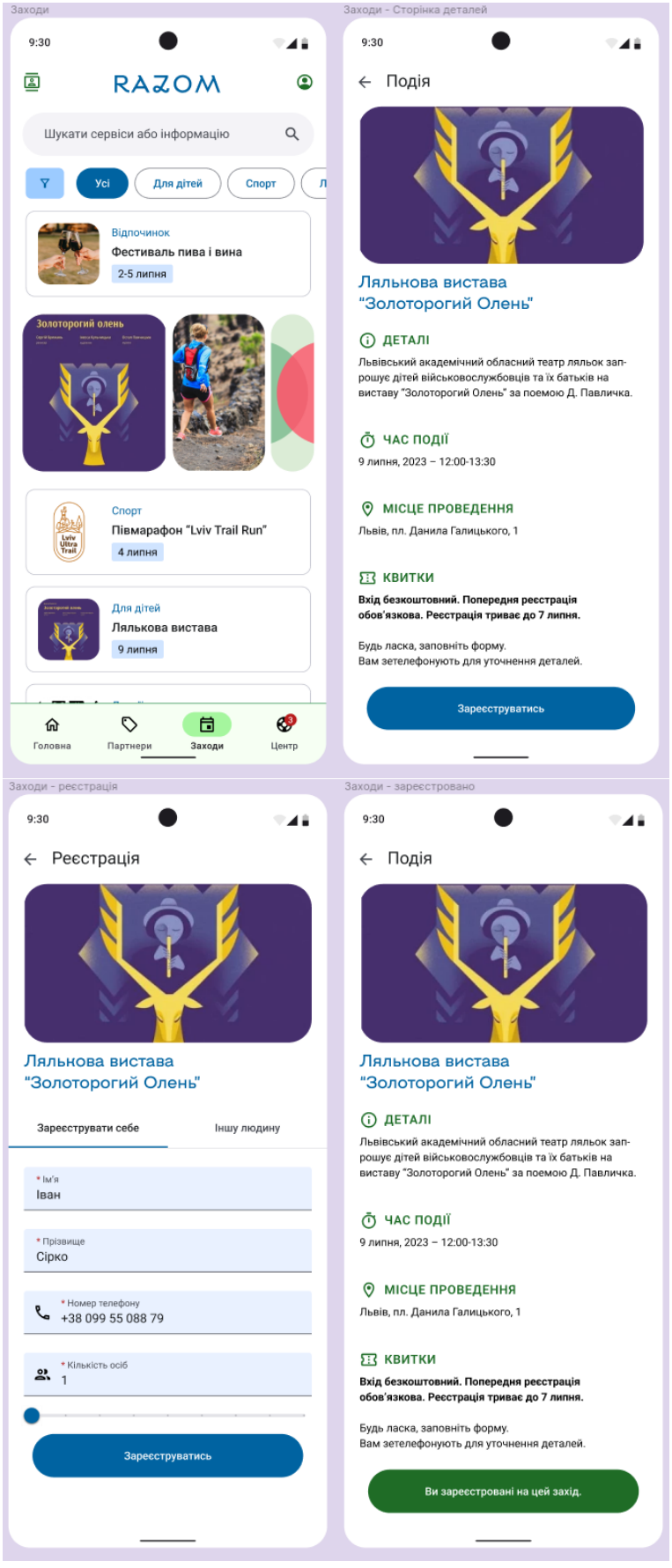


FIGURE 5.7: Prototype pages: "Events" and registration form

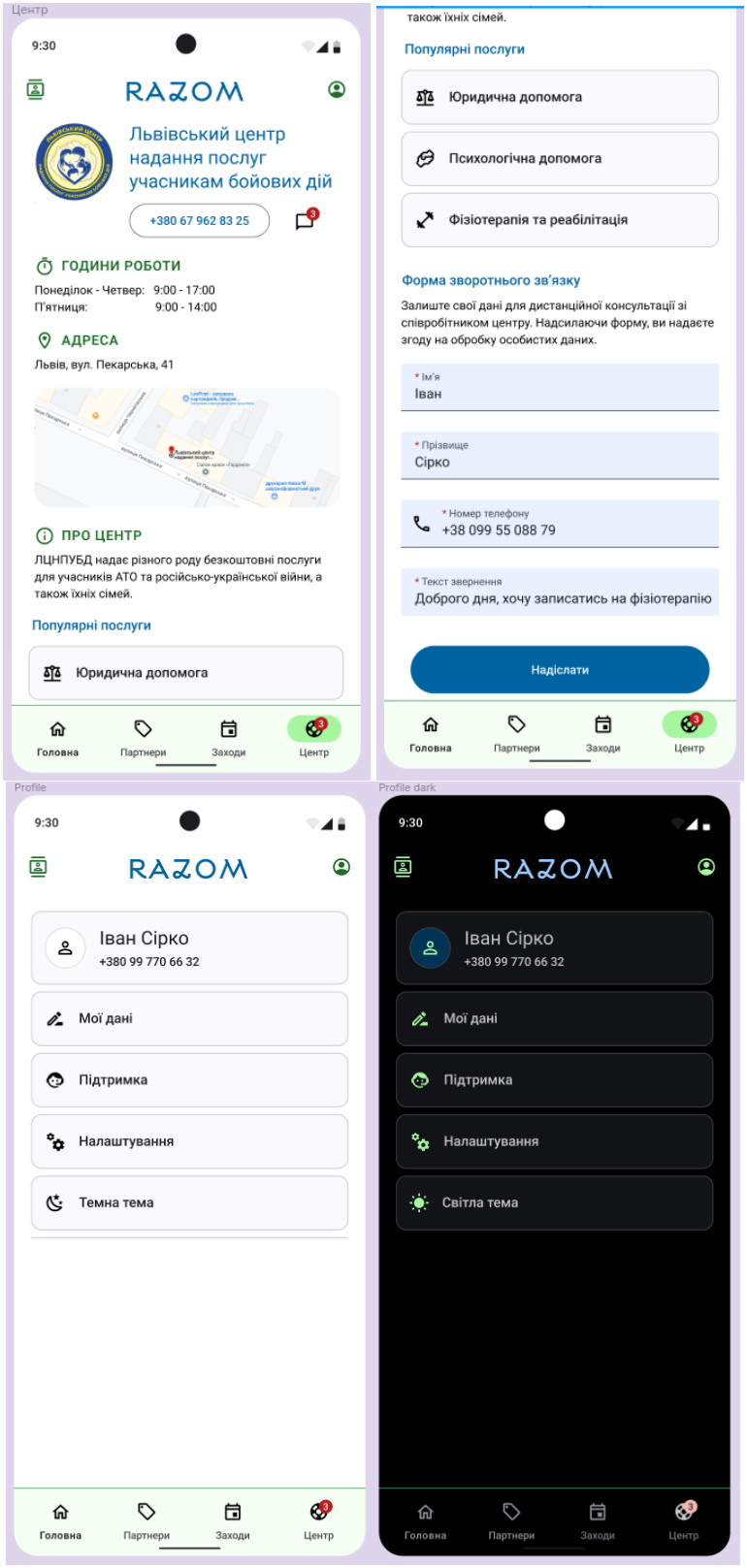


FIGURE 5.8: Top - "Center" page; bottom - "Profile" in light and dark modes

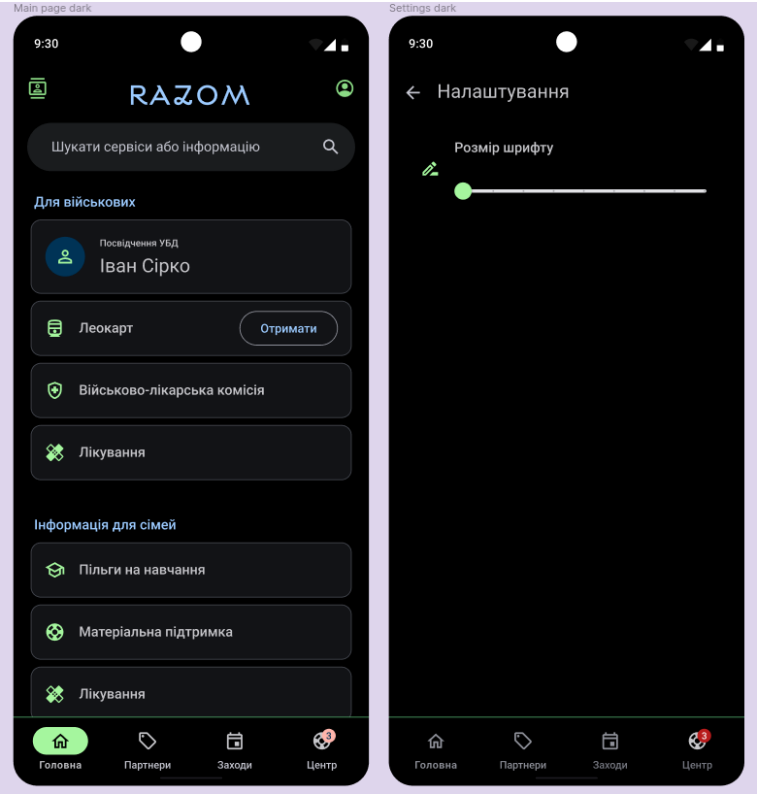


FIGURE 5.9: More examples in dark modes: "Home" page and "Settings"

Chapter 6

Validation of prototype

6.1 Validation scenarios

Users were asked 5 tasks to perform and a few evaluating questions in the end. The tasks were the following ones:

1. You (your friend) recently joined Armed Forces of Ukraine and is interested how he can get certificate of a participant in hostilities. Please, look if there is some useful information about it in the app.

   Goal: to check the convenience of the "Home" page and "QA" section.

2. You decided to have laser vision correction. Please see if the certificate of a participant in hostilities gives you any additional opportunities.

   Goal: to check if navigation and naming of the "Partners" page are clear enough.

3. You want to go out with your 5-year-old daughter somewhere - to some event, for example. Please find out if there is something suitable and how to get there.

   Goal: to check if navigation of the "Events" page is comfortable for user. In some cases I also asked to finish registration and to tell whether they can see that the registration is completed.

4. Using the app, please find out what are the ways to contact the Lviv Center for Providing Services to Combatants and their families.

   Goal: to check if navigation and naming of the "Center" page are clear enough.

5. Please check if there are any ways to change the appearance of the application.

   Goal: to check where the users will look on the Profile page, and whether "Settings" tab will be clicked or "Dark/light mode".

Also, users were asked following questions:

- On a scale from 1 to 10, how do you think this app is, where 1 corresponds to "absolutely not useful", and 10 to "needed by everyone? Why did you estimate with this score?
- What the app is lacking to make it more useful for you?
- Was there something missing for you to complete the tasks?
- What was uncomfortable for you in interaction with the app? Was there something you didn't liked?

6.2 Validation results

The prototype was validated with 5 users from the target audience, who were combatants or their and family members. There was both common and distinct behaviour patterns between users. Common results/approaches:

1. Everybody completed the first task without mistakes;
2. In the third task, when participants entered "Events" page, everyone was trying to use filters at the top;
3. For the second task, at first all of the participants tried to open "treatment tab on the "Home" screen; then, 3 of the participants tried to find this information in the first tab on the main screen, the same they used for the first task; 2 of them after that tried the search bar;
4. After reaching "Events" page, everybody chose the right option and proceeded with the registration; 4 of the participants went to the "Events" page immediately;
5. All of the participants decided to change the look of the app with "Dark mode" initially; then 3 of them proceeded to try and click "Settings"; two of the participants said without prompt they like dark mode more;
6. Four respondents said that readibility is easy, the fifth one (with visual impairment) was interested in possibility to change the font size (he also was the one of 2 persons that openly said they like dark mode more);
7. All respondents marked the app above average (two marked by 8 points, two by 10, and one by 9.5); on average, the mark is 9,1 - and it is an excellent result;
8. Two persons where confused with icon on the left in header and tried to enter it at first during fifth task.

Differences, suggestions and notes, made by the participants

1. Andriy - combatant;
    - Noticed that "Z" letter in the logo should be changed;
    - Said he would search for the "Center" info rather by scrolling down on the "Home" section;
    - Was the only participant to use carousel highlight on the "Events" page;
    - Said the the icon in the left corner of the header is not straightforward and hard to understand;
    - Said that it would be nice to include information about grants for combatants.
2. Anna L. - family member;
    - Didn't complete the second task - was certain that it should be on the "Home" page.
3. Anna M. - family member;
    - Wanted both to filter and sort the events;
    - Was the only participant who tried to change number of visitors to event by dragging the lower bar indicator.

4. Dmytro - combatant with temporary visual impairment;
    - Was excited about the accessibility function;
    - Was the only participant who tried to change number of visitors to event by dragging the lower bar indicator.
5. Natalia - family member;
    - Noticed she would like to know the region for which proposals are gathered, to be sure they are at the same location as her.

Chapter 7

Summary

7.1 Conclusions

The main conclusion of the work is confirmation of the need and market for such a solution. Great demand, relevance, lack of competitors, and easy implementation are the main advantages that will allow this application to gain users quickly. As a result of consistent research, there is a detailed description of the problems that can be solved after the completion of this project.

The main advantages users named when testing the prototype and justifying their marks are the availability of all information in one place, the availability of information about offers for the military and events - all the goals we set for ourselves at the beginning of work on the solution. The application needs to be implemented as a socially vital project to support military personnel, veterans, and their families, and the prototype shows excellent validation results. All materials and documentation for the project can be found at the GitHub repository.

Demo is also available on YouTube

7.2 Future steps

The main steps for future improvements should be a modification of the scroll feed on the “Home” page with information about the center from the bottom, the expanse of accessibility features, re-testing of the users for the “Partners” tab task and correction of design flaws according to the results that we discovered. Correction of the main shortcomings and implementation of the most common suggestions of users will give an even better result that can be implemented in the near future.

Applying for funding and continuing work on the project is its next stage. At the moment, the UI/UX concept of the application is fully formed, which is the basis for a quick start of work and the success of the project at the final stage.

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