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UX-PYRAMID METHOD FOR UX-DESIGN OF MOBILE APPS

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Abstract. *The UX-pyramid method is proposed for the development of mobile app UX-design. According to the proposed method, the UX design of a mobile app begins with the development of a pyramid consisting of 5 levels. Each level differs in detailing the specific core functions of the app, the specifics of the business goals, and the characteristics of the users. The developed method is advisable to apply to innovative digital products at the beginning of their design or prototyping for the development of an effective and user-friendly interface as well as great user experience.*
Key words: *mobile app, UX, design, UX-pyramid, user story, persona, scenario*

Introduction

Mobile devices with applications running on them make us mobile. Mobile platform is an operating system running on a mobile device such as a tablet or smartphone. The basic idea of a mobile operating system is the same as that of a conventional operating system. The main developers of mobile platforms and mobile devices are Google, Apple, Samsung, Xiaomi, Huawei.

The development of mobile apps is a rather complex process that includes the stages of market research, prototyping, architecture design, development and testing. At each stage, an important component is understanding what functions the product will have. The prototyping stage is one of the most important. At this stage, it is appropriate to develop user experience design (UX-design) of the app. In turn, user experience involves a detailed study of the target audience, user characteristics and the context of product use.

User experience

User experience is feelings and reaction of a person as a result of a particular product, system or service. When determining UX-requirements for a digital product, the rule of 'People-Tasks-Context-Product' is applied. UX-design is part of mobile app development process (Fig. 1) and normally starts at the stage of prototyping.

According to Human-centered design [1] methodology, the process of developing any interactive product, including software consists of the following gradual processes: Planning, Usage Context Definition, Requirements Definition, Prototyping, Evaluation.

The key differences and problems that arise in the development of software for mobile platforms:
- designing user-friendly interface;
- creating tools and techniques that can:
  a) accelerate time of software product launch;
  b) provide application support in a rapidly changing environment.

The development of software products for mobile platforms today has a broad applicability of user experience combining elements of user psychology, business modeling, advertisement and design with the method of iterative prototyping of the

user interface [2] with a gradual clarification of the requirements for the program product as a whole [1]. It is very important to identify the main criteria for combining technology, business goals and human values. With such an 'overlap', a product that harmoniously combines all the aspects, will be innovative.
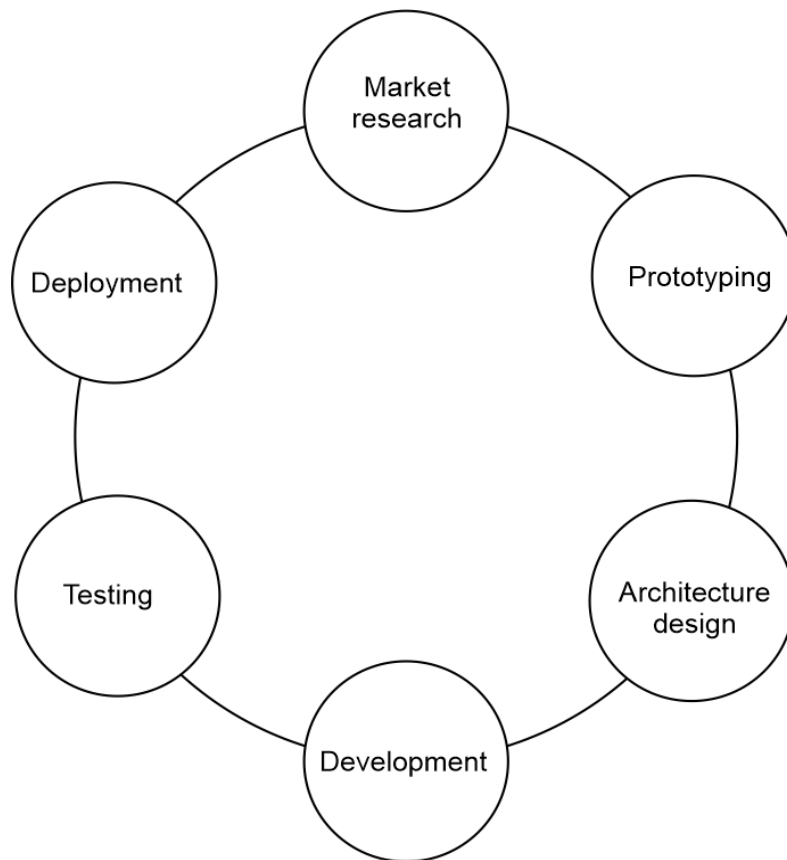

Figure 1 – Stages of mobile app development

Definition of the need to develop a new software product can be formulated according to the goals of a particular organization (commercial or non-commercial) based on its business goals, so called developed innovative 'intentions' [3] etc. Defining the context of use involves a detailed study of the behavior of the main target audience. Based on the studies, the initial requirements for the system are formulated and a minimum working ('viable') prototype is created. The next important stage is presenting it to the target audience or further improvement. The process continues iteratively until the product is launched on the market – the context of use may be specified, requirements may change.

An important characteristic of the user interface is usability. Usability is the degree of efficiency, productivity and satisfaction, with which the product can be used by certain users to complete certain tasks in a certain context [1].

The concept of the user interface is closely related to the concept of design. The main conditions for a good mobile app design are:
- clarity and certainty of the goals;
- constant feedback when performing tasks;
- complexity of the tasks must correspond to the skills and abilities;
- full concentration on the goal and involvement in the tasks performed.

As tasks are completed in the mobile app, the user must constantly feel his approach to the goal. The interface must at each moment of time give an understanding that the user is on the right track and pursues the goal, and if it's not like that, how to return to that track. The content of the system screens should be such as to concentrate the user's attention rather than scatter it. For the user to get quality experience, the product should tell a story that is in harmony with the history of his life and will become something really important for him.

Iterative prototyping

According to the method of iterative prototyping of the user interface [2], the process is divided into three parts – 1) prototype development; 2) research on potential users; 3) analysis of results and evaluation of the current version. Prototyping is done to test interface ideas, save time and money on software development and get new ideas (make the user experience of the application better). The process is iterative – at the end of stage 3, stage 1 begins and this continues until the final version of the user interface is developed. The prototype is shown exclusively to users for whom this product is intended. When communicating with potential users, it is not recommended to argue, defend ideas or reject them.

For the prototype, images, animations, interactive elements can be used. Efficient iterative prototyping allows you to minimize coding and reduce the total cost of developing a mobile application.

Proposed method

According to the methodology of user experience, the process of developing a prototype of mobile app includes:
- developing the mission, goals, capabilities, capacity of the product;
- research of potential users;
- creating a persona;
- writing scripts and contextual situations for a persona;
- designing interface solutions.

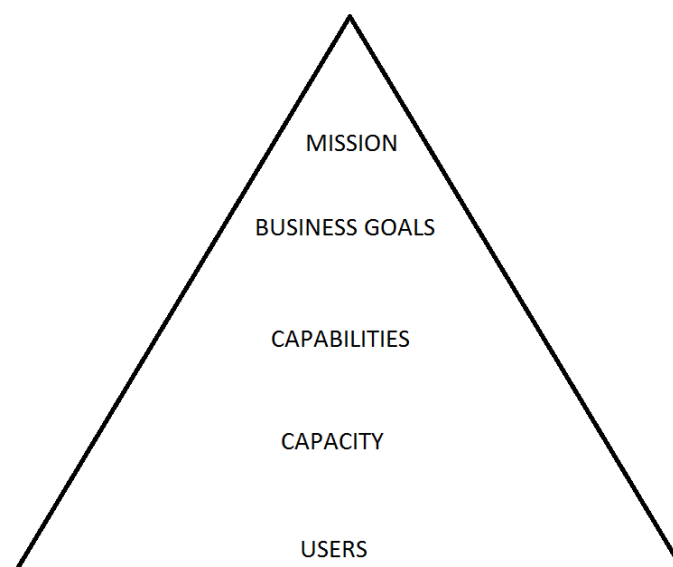One of the effective approaches is to create a UX-pyramid (Fig. 3).

Figure 3 – UX-pyramid

Mission – For what bigger reason does this product exist? Business goals – Why does it exist? Capabilities – What will human being gain due to the functions of the product? Capacity – What basic functions is it able to essentially perform? Users – Who is our user?

The developed UX pyramid is the foundation for the development of the entire visual part of the application. According to the proposed method, a good UX-design of a product consists of user stories, UX-pyramid, scenarios, persona (Fig. 4). Once the product mission is defined, it is easier to plan for prototyping, user interface development, and visual design. Capabilities characterize the main properties of the product, capacity details these properties.
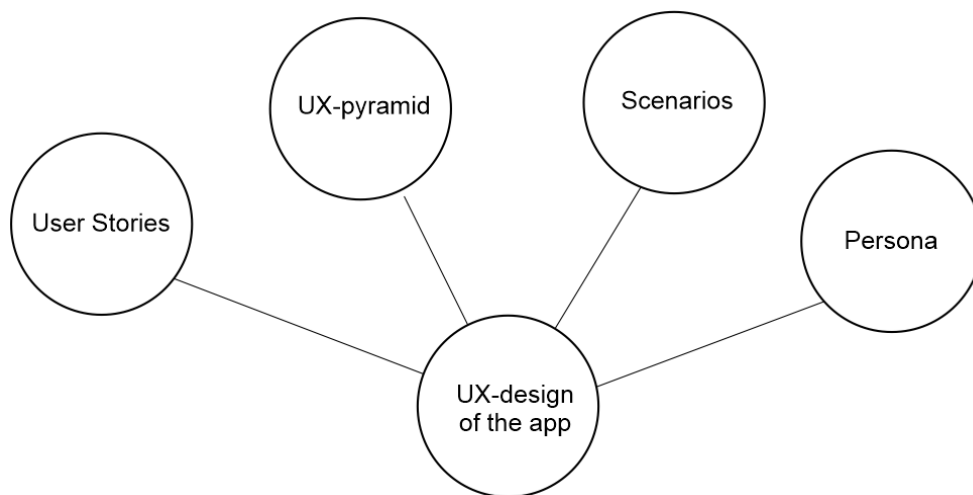

Figure 4 – Components of UX-design according to proposed method

It is very important at the stage of creating a mobile application to know well the characteristics of the target audience (TA). If we study it in detail, we can come to the conclusion that typical roles can be distinguished among the main segments of TA. The description of the roles so far does not say much about what the product should be. As a result, we understand that we should know more about real people and thus fix this knowledge. To that end, the persona technique is used. Personas are imaginary people who are the archetypes of our users for every important segment of the target audience and include all necessary behavioral characteristics.

Advantages of using personas: a good way to understand the target audience; constant focus on the main user; characteristics of several people are simpler than applying the results of studies during product development; empathy. By focusing on specific people, we can feel their needs, fears and emotions better, and this increases our level of responsibility for the final result.

Conclusions

The UX pyramid method is proposed, which includes the following levels – mission, business goals, capabilities, capacity, users. Based on this method, mobile app design can be done. Further work will be the study of a specific mobile app according to the proposed methodology.

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