

обновлений с сервера который не способен инициировать соединения в реальном времени в традиционной клиент-серверной архитектуре.

Протокол WebSocket, работающий основе TCP соединения решает данные проблемы, делая возможным более тесное взаимодействие между браузером и Web-приложениями, способствуя распространению интерактивного содержимого и созданию приложений реального времени. WebSocket - это протокол, реализующий полнодуплексную связь между сервером и клиентом [4]. Протокол WebSocket имеет два разных направления связи, а именно для доставки от сервера к клиенту и доставки от клиента к серверу. Таким образом, WebSocket позволяет оптимизировать передачу данных и снизить нагрузку на сервер за счет поддержания открытого соединения между клиентом и сервером, тем самым снижая количество избыточных HTTP заголовков и ненужных HTTP запросов.

Список использованных источников

1. Cisco. Cisco Visual Networking Index: Forecast and Trends, 2017–2022 [Электронный ресурс] // <https://twiki.cern.ch/twiki/pub/HEPIX/TechwatchNetwork/HtwNetworkDocuments/white-paper-cl1-741490.pdf>
2. Ericsson: объем мобильного веб-трафика удвоился за два года. [Электронный ресурс] <https://infocity.tech/2022/07/ericsson-obem-mobilnogo-veb-trafika-udvoilsya-za-dva-goda/>
3. Разработка приложений для Windows. [Электронный ресурс] <https://learn.microsoft.com/ru-ru/windows/win32/uxguide/mess-notif>
4. Zhang, L., & Shen, X. (2013). Research and Development of Real-time Monitoring System Based on WebSocket Technology. International Conference on Mechatronic Sciences, Electric Engineering and Computer (MEC).

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UX/UI DESIGN OF WEB AND MOBILE APPLICATIONS

Abstract. From simple interpersonal interaction to business management, user interface design is rapidly transforming almost every aspect of life. The article discusses

the basic principles of UX/UI design that must be taken into account when developing web and mobile applications.

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UX/UI ДИЗАЙН ВЕБ- И МОБИЛЬНЫХ ПРИЛОЖЕНИЙ

***Аннотация.** От простого межличностного взаимодействия до управления бизнесом дизайн пользовательского интерфейса быстро трансформирует практически все аспекты жизни. В статье рассматриваются основные принципы UX/UI-дизайна, которые необходимо учитывать при разработке веб- и мобильных приложений.*

IT technologies have penetrated into all spheres of human activity. The use of technologies such as the Internet and mobile devices are an indispensable part of human life. Interface development is an important step in the implementation of any Internet resource. A good UI/UX design is responsible not only for the emotions that users evoke, but also for the functionality of the project, its adaptability to modern devices, the more logically it is built, the easier it is to guide the visitor through the sales funnel and lead to the targeted action. Creating an understandable web interface for business improves the user experience by raising the conversion to the proper level.

UX design (User Experience) is responsible for how the interface works. UI design (User Interface) is responsible for how the interface looks. One part cannot exist without the other. Now it is hard to imagine that you can develop an interface and not think about how it will look, and vice versa - design the UI in isolation from UX design.

Yet, what exactly is user experience? And what makes it so significant? Let's first look at what we mean when we say "user". A user is a person who purchases a product, digital interface, or service or interacts with it. As a result, a set of events that take place when a person actually uses a product, digital interface, or service is referred to as the user experience (UX/UI). Additionally, the process of determining your requirements and devising solutions that meet those requirements is known as user experience design [1].

When designing an appealing or impressive user interface, UX/UI designers have a lot to think about. In addition to product usability and accessibility, they should take into account various design principles, usability heuristics, and information architecture. Additionally, it's important

to keep in mind the company's objectives and comprehend user expectations, which can be found through surveys.

There are a lot of important tenets to UX/UI design, but to make things easier to understand, we've broken them down into five main ideas: Validation, strategy, usability, empathy and inclusion [2].

Empathy. High-quality user experience design prioritizes user requirements over product design. Empathic design is a skill that UX/UI designers must master in order to comprehend the user and their challenges. Designers can learn about a user's daily life, problems they need to solve, expectations they have when interacting with particular products, and what a good experience looks like by putting themselves in the user's shoes through empathy.

Strategy. It can be difficult to design efficient solutions to difficult issues. Therefore, prior to beginning any project, having a well-defined plan and set of objectives is an essential part of user experience design. A lot of designers will develop a user experience (UX/UI) strategy that lays out a variety of UX/UI goals, such as the preferred research methods, design and testing systems, and definitions of success for the user and the business. A UX/UI strategy is important to follow, but it is not fixed and can be changed as designers move through the design process.

Usability. In a world where technology is constantly changing and sometimes making things hard to understand, consumers often prefer products that don't require much brainpower to operate. A user should not be made to feel like placing an order for food delivery on their phone is like solving a 1,000-piece puzzle. Making products and services that are easy to use for people of all ages and abilities is a big part of user experience design. When designing for optimal and simple usability, designers take into account mental models, accessibility, behavioral psychology, and affordances.

Inclusivity "Design for all" is a phrase that is frequently used in the user experience (UX/UI) field. It means that our design efforts ought to take into account the requirements of people of all races, ages, genders, backgrounds, and socioeconomic statuses, among other things. Through their designs, UX/UI designers are able to shape the world around them and solve difficult issues that affect a wide range of people.

Exemplary user experience design takes into account the experiences and requirements of marginalized or oppressed groups of people and can even come up with solutions to their individual issues. When designing for various populations, inclusive design ensures that a variety of viewpoints are taken into consideration.

Validation. Without user testing, even the most impressive design would be meaningless. Testing proposed solutions with the people who will

actually be using them in real life is one of the most important aspects of user experience design. The design process is guided and informed by user feedback, ensuring that the products being produced are ones that people will happily want to use. Designers continuously employ methods to evaluate products' success and areas for improvement even after they are released.

In product development and beyond, UX/UI designers are an invaluable addition to a wide range of industries. Let's look at the main advantages of a good UX/UI designer [3].

- Customer acquisition and retention are boosted by UX/UI design considerations. Customers are more likely to become and remain devoted when they have a positive user experience. UX/UI design can make a company's products, mobile apps, and websites run smoothly and look modern, dependable, and in line with current trends—all things that attract customers and keep them interested.

- Revenue is increased by good UX/UI. When a customer is pleased with their experience with a brand, they will not only continue to use it or make additional purchases, but they may also tell their friends about it. A company's profit margin can be greatly improved by organic engagement and word-of-mouth advertising. Since UX/UI designers are trained to understand what users want and how to design for higher conversion rates, there is a good chance that sales will increase.

- Great UX/UI designers contribute to reducing development costs. The training for user experience designers is to find the best solutions for the user and the business.

- UX/UI designers can contribute to an increase in productivity for businesses. Sometimes, a designer is creating for company employees rather than customers. UX/UI designers can assist businesses in streamlining business procedures, improving company policy, or redesigning employee software to make it simpler and more effective to use. Employee motivation and productivity often rise as a result of smoother workflow, as does the overall efficiency of the business.

- Ultimately: UX/UI enhances the quality of life for users.

Conclusion. When developing web and mobile applications, you need to take into account the recommendations of UX / UI design. This will allow you to develop effective applications, because people are looking for convenience, ease of use and efficiency when using their mobile phone. However, all too often they become frustrated with mobile devices due to poor usability.

As quality mobile design becomes more commonplace, the bar for what people expect from their mobile experience is constantly being raised.

References

1. Ratcliff C. A comprehensive guide to UX Benchmarking: Lonitudinal and Competitive [Электронный ресурс]// URL: <https://www.userzoom.com/blog/a-comprehensive-guide-to-ux-benchmarking/>
2. Usabilla, The Complete Guide To User Experience Metrics [Электронный ресурс]// <https://lp.usabilla.com/hubfs/Usabilla%20Global%20File%20Folder/Usabilla%20Content%20Files/Usabilla%20Ebooks/ENG/complete-guide-user-experience-metrics-EN.pdf>
3. Nielsen J. 10 Usability Heuristics for User Interface Design [Электронный ресурс]. URL: <https://www.nngroup.com/articles/ten-usability-heuristics/>

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РАЗРАБОТКА ВЕБ-СЕРВИСА ЛИЧНОГО КАБИНЕТА СТУДЕНТА В УСЛОВИЯХ ЦИФРОВИЗАЦИИ ОБРАЗОВАНИЯ

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DEVELOPMENT OF A STUDENT'S PERSONAL ACCOUNT WEB SERVICE IN THE CONTEXT OF DIGITALIZATION OF EDUCATION