ҚАЗАҚСТАН РЕСПУБЛИКАСЫ ҒЫЛЫМ ЖӘНЕ ЖОҒАРЫ БІЛІМ МИНИСТРЛІГІ

«Л.Н. ГУМИЛЕВ АТЫНДАҒЫ ЕУРАЗИЯ ҰЛТТЫҚ УНИВЕРСИТЕТІ» КЕАҚ

Студенттер мен жас ғалымдардың
«ǴYLYM JÁNE BILIM - 2024»
XIX Халықаралық ғылыми конференциясының
БАЯНДАМАЛАР ЖИНАҒЫ

СБОРНИК МАТЕРИАЛОВ
XIX Международной научной конференции
студентов и молодых ученых
«ǴYLYM JÁNE BILIM - 2024»

PROCEEDINGS
of the XIX International Scientific Conference
for students and young scholars
«ǴYLYM JÁNE BILIM - 2024»

2024
Астана

«ǴYLYM JÁNE BILIM – 2024» студенттер мен жас ғалымдардың XIX Халықаралық ғылыми конференциясы = XIX Международная научная конференция студентов и молодых ученых «ǴYLYM JÁNE BILIM – 2024» = The XIX International Scientific Conference for students and young scholars «ǴYLYM JÁNE BILIM – 2024». – Астана: – 7478 б. - қазақша, орысша, ағылшынша.

Жинаққа студенттердің, магистранттардың, докторанттардың және жас ғалымдардың жаратылыстану-техникалық және гуманитарлық ғылымдардың өзекті мәселелері бойынша баяндамалары енгізілген.

The proceedings are the papers of students, undergraduates, doctoral students and young researchers on topical issues of natural and technical sciences and humanities.

В сборник вошли доклады студентов, магистрантов, докторантов имолодых ученых по актуальным вопросам естественно-технических и гуманитарных наук.

6.   Ahmad, N., & Karim, A. J. A. (2019). Organizational culture and ERP assimilation: Evidence from Malaysian SMEs. Journal of Enterprise Information Management, 32(1). Pp. 150-172.

7.   Kuandykova, A., & Lyazzat, T. (2018). The challenges of ERP implementation in Kazakhstan: A case study approach. Procedia Computer Science, 144. Pp. 113-118.

8.   Ibrayev, Z., & Kassenova, G. (2020). The role of leadership in enterprise resource planning (ERP) systems implementation: A case study of Kazakhstan. International Journal of Advanced Research in Computer Science, 11(2). Pp. 253-259.

9.   Kozhaliyev, E. B. RAZVITIE ERP – SISTEM V KAZAKHSTANE [[The development of ERP systems in Kazakhstan]. UDC 681.588.

10.   Ospanova, A., & Korobeinikov, A. (2020). Improving the Mechanism for Managing the Quality of Services Based on ERP Systems in Kazakhstan. In Proceedings of the International Scientific and Practical Conference "Scientific Potential of the XXI Century". Pp. 131-133.

11.   Ismagulova, G. (2020). Challenges in Implementing ERP Systems in Kazakhstan. International Journal of Management, Accounting and Economics, 7(10). Pp. 927-937.

12.   Ospanova, A., & Korobeinikov, A. (2020). Improving the Mechanism for Managing the Quality of Services Based on ERP Systems in Kazakhstan. In Proceedings of the International Scientific and Practical Conference "Scientific Potential of the XXI Century". Pp. 131-133.

13.   Ismagulova, G. (2020). Challenges in Implementing ERP Systems in Kazakhstan. International Journal of Management, Accounting and Economics, 7(10) Pp. 927-937.

14.   Abdrakhmanova, G., Amangeldin, B., & Abdrakhmanov, A. (2021). Development of Information Systems in Kazakhstan. In Proceedings of the International Scientific Conference "Digitalization: Society, Industry, Education". Pp. 73-76.

15.   Smagulova, B., Nurlybayeva, S., & Zhumataev, M. (2021). The Role of Higher Education Institutions in Improving the Quality of Education in ERP Systems in Kazakhstan. Journal of Critical Reviews, 7(18). Pp. 482-485.

UDC 004
DEVELOPMENT OF A WEB APPLICATION FOR A CONSUMER RIGHTS CONSULTANT

Sandigali Bekarys
bekaris070603@gmail.com
Student of L.N. Gumilyov Eurasian National University
Supervisor – Zh.Oralbekova

The rapid evolution of digital commerce has significantly transformed the consumer landscape in Kazakhstan, introducing a myriad of opportunities alongside a complex array of challenges. As transactions migrate online, the intricacies of consumer rights and the mechanisms for their protection have become increasingly convoluted, leaving consumers vulnerable to new forms of violations. This pressing issue underscores the critical need for innovative solutions that not only educate consumers about their rights but also provide them with practical tools for enforcement.

This work presents the development of a sophisticated web application specifically designed to empower Kazakhstani consumers in this digital age. Built on a foundation of cutting-edge technologies, including Next.js for the frontend, Django and Django REST Framework for the backend, and React library for dynamic user interfaces, this application is a beacon of digital empowerment in consumer rights advocacy. It aims to demystify the legal jargon and complexities surrounding consumer protection, making it accessible and actionable for the everyday user.

At its core, the application is driven by a user-centered design philosophy, ensuring that the platform is intuitive, engaging, and accessible to a broad audience, regardless of their technical expertise. The incorporation of RESTful APIs facilitates seamless interaction between the application's components, enhancing its functionality and user experience. By providing a direct conduit to legal assistance and a repository of educational resources, the application stands as a vital

tool in the arsenal of Kazakhstani consumers, enabling them to navigate the digital marketplace with confidence and assert their rights effectively.

The introduction of this web application into the consumer rights landscape of Kazakhstan is not merely a technological advancement but a significant stride towards fostering a more informed, empowered, and protected consumer base. Through its innovative use of technology and commitment to user empowerment, the application sets a new standard for consumer rights advocacy in the digital era.

In our pursuit to empower consumers and enhance their rights awareness in Kazakhstan's dynamic digital landscape, we embarked on the development journey of a comprehensive web application. This scientific work provides an insightful overview of the architecture and design considerations underpinning our project, leveraging Next.js for the front end and Django for the back end [1-3].

Our front-end design, rooted in Next.js, embodies the essence of server-side rendering to ensure optimal performance and search engine visibility. This approach facilitates a seamless user experience, enriching interactions and enabling swift navigation through our platform:

- Component-Based Structure: We embrace a modular architecture, encapsulating UI elements into reusable React components. This design paradigm fosters consistency and scalability across our application.

- Efficient Routing: Leveraging Next.js's file-based routing system, we define page components within the `pages` directory, facilitating intuitive navigation within our Single Page Application (SPA).

- State Management: Central to our front-end architecture is the effective management of application state. Through techniques like React Context or Redux, we orchestrate data flow, ensuring synchronization and coherence across components.

- Styling Prowess: With styled-components or traditional CSS/Sass, we design visually appealing and responsive interfaces, enriching user interactions and fostering engagement.

Our back-end infrastructure, powered by Django, serves as the bedrock of our application's functionality and data management. Through meticulous design and implementation, we harness Django's capabilities to realize a robust and scalable platform:

- Modularization with Django Apps: We adopt a modular approach, segregating functionality into distinct Django apps such as 'newsapp' and 'service'. This organizational paradigm promotes clarity and maintainability within our codebase.

- Data Management with ORM: Django's Object-Relational Mapping (ORM) seamlessly interfaces with our database, offering a declarative syntax to define data models. This abstraction simplifies database interactions, enhancing productivity and code readability.

- RESTful API Development: Django REST Framework empowers us to create RESTful APIs, facilitating seamless communication between the front-end and back-end. Through JSON data exchange, we enable dynamic data flow and interaction across our platform.

At the heart of our architecture lies a robust integration mechanism, enabling cohesive collaboration between the front-end and back-end components. Through RESTful APIs and standardized communication protocols, we orchestrate a seamless data flow, empowering users with real-time access to information and services.

Security and deployment are paramount considerations in our architecture, underpinning the reliability and integrity of our platform. Adhering to best practices, we implement stringent security measures, safeguarding user data and application resources against potential threats. Furthermore, our deployment strategy prioritizes scalability and efficiency, leveraging cloud services and CI/CD pipelines to ensure seamless updates and scalability.

Our web application encompasses a range of features designed to empower consumers and provide them with valuable resources and assistance in protecting their rights.

Our platform incorporates a robust user authentication system, leveraging Django's built-in capabilities to enable users to register, login, and manage their accounts securely. Furthermore, we

implemented role-based access control (RBAC) to define user roles and permissions, ensuring that different user types have appropriate access to the application's features and resources.

Central to our platform is the management of consumer rights information and legal resources. Through Django models, we developed a comprehensive database schema to store information related to consumer rights, legal documents, and user interactions. Leveraging Django's ORM, we enabled CRUD operations, allowing authorized users to dynamically manage and update consumer rights information as needed.

To facilitate the process of filing complaints against violations of consumer rights, we implemented a user-friendly complaint submission form. This form, developed using Next.js and React components, enables users to provide detailed information about their grievances. We integrated form validation techniques to ensure data integrity and completeness, minimizing errors and streamlining the complaint submission process.

Our platform features a searchable directory of legal consultants, providing users with access to professional assistance and guidance. Through Django models and RESTful API endpoints, we created a robust directory system that allows users to search for legal consultants based on various criteria such as expertise, location, and availability. This feature enhances accessibility to legal resources and facilitates connections between consumers and legal experts.

In implementing these features, we employed a variety of techniques and frameworks to ensure efficiency, reliability, and maintainability:

1. Front-end Development with Next.js: Leveraging the capabilities of Next.js, we structured our front-end application to optimize performance and user experience. Next.js's file-based routing system allowed us to organize page components efficiently, facilitating seamless navigation within the application. We utilized React hooks and the context API for state management, enabling dynamic data flow and reactivity across components.

2. Back-end Development with Django: Our back-end infrastructure, built on Django, provided a solid foundation for implementing complex business logic and data management operations. Through Django models, we defined entities such as users, consumer rights information, complaints, and legal consultants, ensuring consistency and integrity in our data schema. We utilized Django REST Framework serializes and view sets to create RESTful API endpoints, enabling CRUD operations on various resources and facilitating seamless communication between the front-end and back-end components of our application.

3. Cross-Origin Resource Sharing (CORS) Issues: One challenge we faced was dealing with CORS errors when making API requests from the front end to the back end. This issue arose due to browser security restrictions on cross-origin requests. To resolve this, we configured Django's CORS middleware to allow cross-origin requests from specified origins, ensuring seamless communication between the front-end and back-end components of our application.

4. Authentication and Authorization Complexity: Implementing a secure and scalable authentication and authorization system posed another significant challenge. Ensuring that user roles and permissions were properly enforced while maintaining data security required careful consideration. By leveraging Django's authentication system and permissions framework, combined with token-based authentication for API endpoints, we were able to address these challenges effectively, providing users with a seamless and secure experience.

The authorization and administration page is shown in Figure 1.
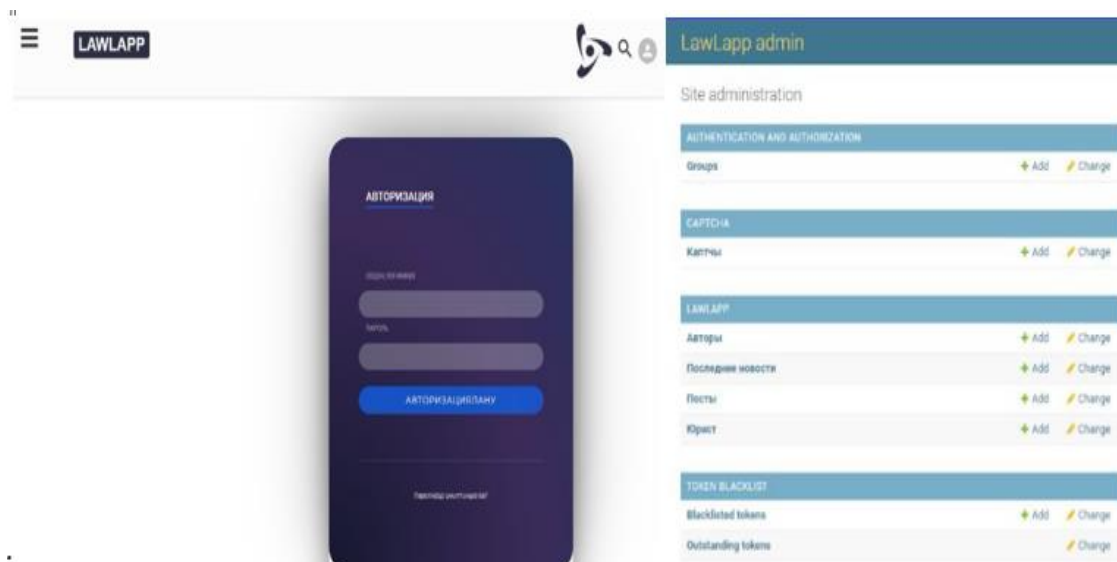
Figure 1. Authorization and administration page

In conclusion, our web application represents a significant advancement in consumer rights advocacy and protection in Kazakhstan, enabled by the utilization of technological frameworks, user feedback, and collaboration with advocacy organizations. While challenges and threats exist, the strengths and opportunities afforded by our platform position us well to continue making a positive impact in empowering consumers and championing their rights. By remaining responsive to user needs, adapting to regulatory changes, and fostering partnerships, we are poised to drive meaningful change and contribute to a more equitable and just society. This study explores the development and impact of a novel web application designed to enhance consumer rights awareness and legal assistance in Kazakhstan. With the digitalization of consumer markets, there has been a noticeable increase in the complexity of consumer transactions and a corresponding rise in consumer rights violations. This research aims to address this issue by providing a digital solution that educates consumers about their rights and facilitates access to legal support.

The methodology encompasses the application's conceptual framework, design principles, and development process, emphasizing user-centered design and accessibility. The application integrates comprehensive educational content on consumer rights, an intuitive interface for ease of use, and a network of legal professionals to assist users in drafting formal complaints.

Preliminary results from the deployment of the web application indicate a significant positive impact on users' understanding of their consumer rights and their ability to seek redress effectively. The study also examines user engagement metrics and feedback to assess the application's usability and effectiveness.

This research contributes to the field by demonstrating the potential of digital platforms to empower consumers and promote legal literacy in a context where such resources are limited. The findings suggest avenues for future enhancements and the potential replication of similar digital advocacy tools in other regions facing comparable challenges in consumer rights protection.

Literature

1. Zheng J., Qin L., Liu K., Tian B., Tian C., Li B., Chen G. Django: Bilateral coflow scheduling with predictive concurrent connections // Journal of Parallel and Distributed Computing. – 2021. – Volume 152. – P.45-56.

2. Next.js Documentation. https://nextjs.org/docs

3. Django Software Foundation. Django Documentation. [https://docs.djangoproject.com/en/3.2/]