NU Corporate Web Portal – Final Project Report

Team Members

Nurali Rakhay
Olzhas Mukayev
Yelaman Fazyl
Daulet Kanatuly
Dinmukhammed Bagdat

Advisor

Askar Boranbayev

1. Executive Summary

This is a project for the Nazarbayev University Community, including students, professors, administration and other staff, named **NU Corporate Web Portal**. Aim of the project is to streamline the administrative tasks of the university and needs of students by automating the management of events, clubs, user profiles and providing communication channels. The team ensured that the portal is friendly for end users and provided data in multiple languages including Kazakh, Russian and English to make the platform accessible. The authentication is provided by MS Azure SSO that enables secure access to the platform features. Those features are: centralized events calendar, news page for users to write articles, and a phonebook with different filters. The tech stack used to build the platform is React.js, Spring Boot and PostgreSQL.

2. Introduction

The aim of the platform is to provide service for university students and staff in a modernized and automated way to manage their activities, clubs and events in a convenient way. Also, current systems are inefficient and decentralized, which slows down the processes and makes it less convenient for people. Our team's solution solved this problem by talking to end users and stakeholders about their concerns and wants and aimed to improve data access and communication. This is a report to show

all the features of this platform like news, events, profiles and more along with the system and UI/UX design principles.

3. Background and Related Work

Existing solutions, such as ERP systems utilized in higher education, supported the development of this project. The team looked at user interface design principles (Nielsen, 2000; Facchinello, 2019) and reviewed various literature on the implementation of ERP systems in universities (Rabaa'i et al., 2011; Rabaa'i, 2016). A thorough understanding of the best practices for creating secure and responsive websites that offer the greatest user experience was obtained by studying sources such as Modern Campus (2023) and Clique Studios (2019). We integrated best practices in usability into the portal development process to make sure an intuitive user experience was provided while also offering secure authentication and multilingual support.

4. Project Approach

The tech stack was chosen to be React.js and Spring Boot, although the team was offered an alternative as PHP, but some members were more familiar with the former. The database management system was chosen to be PostgreSQL to provide structured and relational data. By the request of the DSS, we decided to use MS Azure Single Sign-One (SSO) for authentication of the users in the domain of the university.

The key functionalities include a user authentication through a secure login with MS Azure SSO.

Then, users are presented with the ability to manage clubs, including creating and changing club data and members list. The portal was built to make it easy to develop new features like generating reports on participation or any other data available. The club managers are able to create different events on behalf of the club and fill in different data related to those events like posters, descriptions, organizers, sponsors and more. The events appear in a real-time event calendar and students and staff can register to participate in events.

Also, the platform has a profile management system where users can update their personal information like birthday or description of themselves, and showcase extracurricular activities.

The team also developed a phonebook, a filtered contacts directory, with role-based access control.

Last but not least, there is a feature of publishing content with different media. Users can get notifications about the news and upcoming events of their interest.

5. Project Execution

The project was developed in a team of 5 people with different, but converging tasks. To successfully deliver the project, our team conducted regular meetings and iterative feedback sessions and as a result, divided responsibilities and ensured consistent progress.

There were some challenges encountered, but the team was successful with handling them. Those challenges include unfamiliarity of the team with the Java and Spring Boot stack, but it was resolved by leveraging video tutorials and reading official documentation. There was also a need to optimize the frontend part in React, which was resolved by studying best practices and refining UI components. Also, the team spent a considerable amount of time to design the architecture of the project to make it extensive and aligned with the best practices.

6. Evaluation

The project was evaluated through several methods. User testing was conducted with a group of potential users, including staff and students, to gather feedback on the interface, functionality, and overall performance. In terms of performance metrics, response times were assessed, and the system was tested to ensure it could handle over 1,000 simultaneous users, meeting scalability requirements. Additionally, security audits were performed regularly, including penetration testing and reviews of security protocols such as data encryption and role-based access, to maintain data integrity and protect user privacy.

7. Conclusion and Future Work

To sum up, NU Corporate Web Portal is an innovative and significant platform for the university including students and staff to manage university operations by replacing manual processes of the past. There is future work to be done to improve the platform, and it will mainly focus on enhancing the backend functionality to provide more exciting features. Also, UI/UX will be refined according to the NU brand book and stakeholder requirements. Then, the team is planning to improve the process of deployment to automate the process of introducing new features into the portal.

8. References

A list of all the references used throughout the project, including:

- **Rabaa'i, A.** (2016). ERP systems in higher education.
- **Nielsen, J.** (2000). Designing web usability.
- **Clique Studios** (2019). Best practices in university website design.
- **PostgreSQL Documentation** (2025). PostgreSQL documentation.
- **React Documentation** (2025). React.js documentation.
- **Spring Boot Documentation** (2025). Spring Boot documentation.