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# Development and creation of an information site with a registration of applications for entry into student organizations of the University of KAZGUU named after. M.S. Narikbayev

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**Abstract:**

Work was carried out to create a website to automatically fill out applications for membership in student organizations of the university, as well as to inform potential participants about various extracurricular clubs to raise awareness among students.

The topic of this work was chosen and completed in connection with the urgent problem of the lack of a single application for student organizations. With a ready-made website, KAZGUU students can quickly and efficiently consider various options for joining the club, as well as learn additional information about the organizations themselves and their events.

The diploma project was developed taking into account the use of such website creation tools as HTML, CSS, PHP, mySQL. Next, the structure of the website and the connection of the given hosting and domain were determined.

As a result, a website was created through which students of KAZGUU and future potential universities can freely apply for consideration to join student organizations, be informed about extracurricular activities and actively monitor current and future student club events.

This work will be useful to universities that do not have a clear and unified system for monitoring student organizations and their flow of student applicants. In addition, the user can keep an eye on upcoming student club events for their potential participation.

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## Introduction

Information technologies today play a big role in the life of a modern person. The use of technology has entered the routine of mankind in various fields, helping to simplify the work and reduce the time for its execution.

The IT sphere provides many different products, for example, mobile applications, websites and portals, chatbots, big data analysis, etc. All these products make a great contribution to the process of informatization of people. Informatization exists due to the development of information technologies and the Internet. With the advent of the Internet, users go online every day, especially using the services of browsers with a large number of websites to choose from. Obtaining any necessary information involves the process of searching the Internet on web platforms. With the help of websites, it is currently possible to provide and distribute information to the maximum number of people around the world in the most easy and convenient way (Sandeep & Singh, 2017).

Web pages have become relevant in government and educational affairs. With e-government, citizens can receive interesting and relevant information, certificates and documents from state-owned enterprises online. An example of such a portal is eGov, where the work of the authorities is carried out in the most accessible way for citizens. The field of education is rapidly developing with the advent of the era of digitalization and informatization. Educational institutions, for example, such as universities, colleges, and schools can present themselves on the Internet. All the necessary information about education will be available on the website, where anyone can get the necessary information. Educational platforms offer students the opportunity to receive important news using the mailing method, exchange opinions and create networking, facilitate interaction between students and teaching staff, and learn up-to-date information about various events and events at the university.

At KAZGUU University, freshmen must complete the CSI program, for which students join various organizations. However, there are a lot of students and each association conducts various interviews and selections, since in order to apply, students need to come to the fair organized by the organizations

or write to them on social networks. However, this entire application process can take a long time as not all students attend these types of events as they may be busy or have other reasons. Furthermore, there are a lot of organizations so it can be a little complicated to notice announcements about each organization among other various news. Therefore, an idea was developed to create a website to facilitate and improve the work of organizations in KAZGUU. On this site, currently relevant organizations can post their information, and students can apply and subsequently go through castings, etc. The main idea of this project is to help students and organizations save their time and make their work more productive. Creating a separate website for student organizations will help to manage all the information so that students are aware of all the news of associations and distinguish this information from various other news that the university posts. Therefore, the goal of this project is to facilitate the task not only for student organizations, but also for the students themselves. The website will have several functions for the organization and for the students themselves, organizations will be able to add and remove information on the site, and students will be able to apply online through the website, which will take less time. In addition, surveys will be conducted to ask the students themselves about the features they would like to see on the website so further results will be improved. Methods will also be used in the form of interviews with DSA chairs and university students to fully analyze the identification of problems and the relevance of the idea of this project. Moreover, various sources and comparisons will be considered to achieve the best results.

## Literature Review

For some students, the university is not only a place of higher education, but also a place where people with the same passions get the opportunity to organize and / or join student organizations with similar interests. So, at the KAZGUU University at the moment there are about 30 student organizations, which are additional activities in the educational program of students.

The research (Borges, Ferreira, de Oliveira, Macini & Caldana, 2017) identified spontaneous student practice of initiatives such as the Principles for Responsible Managment Education (PRME) while participating in clubs. According to this, students who are members of any organizations have shown a predisposition to develop social skills, including "responsibility, ethics, interest in sustainability and awareness of society" (Borges, Ferreira, de Oliveira, Macini & Caldana, 2017, p. 153).

Following this judgment, according to Vasilj, Skender and Horvat (2021) student organizations are a good foundation for laying soft skills and networking among students. In addition to the fact that such skills will be useful not only for developing a successful career by improving existing skills, but also "building long term personal, social and business connections" (Vasilj, Skender & Horvat, 2021, p. 1934). Students gain valuable experience and knowledge through the prism of participation in the activities of clubs: from organizing events to participating in a variety of university activities. Such associations help students to get acquainted with some professions already during their educational activities, which in the future will help students develop faster and more actively in their future careers.

Basically, when hiring an employee, employers look for analytical skills, including critical thinking (Sobolevskaya, 2019). So, one of the important results when graduating from the university is the development of the ability to correctly perceive information, which is achieved both during educational activities and with participation in student associations (Sobolevskaya, 2019). Greater involvement in extracurricular projects directly affects the level of critical thinking, from which it turns out that students receive such benefits as: increased involvement in the university and

satisfaction with student life, development of team skills and communication skills, responsibility and leadership.

Macrini (2012) draws attention to the problem in which organizations with a large number of internal sub-organizations face the difficulty of communicating using traditional means of information, as a result of which there is a need to create a single platform for the development of communication within the organization. Thus, such a platform further helps to automatically extract the necessary information, overcome fragmentation in suborganizations and actively use human talent (Macrini, 2012). In this research, student organizations of KAZGUU were taken as a basis, information about which will later be used to create a single web platform where students can apply to join student clubs, and participants themselves to follow the news and events held by organizations

In addition to the fact that students receive a large number of bonuses while participating in student clubs, there is also a downside in the form of a constant variability in the composition of the association due to the release of previous members from the university. So, in addition to the fact that there are difficulties in the form of liquidity of the organization, careful planning and fundraising, due to changes in the composition of the project organizers and heads of organizations, a new problem appears in the form of the transfer of accumulated experience (Vasilj, Skender & Horvat, 2021). In view of the short mandate, it becomes difficult to transfer experience and knowledge from previous participants to current ones every time. Thus, Vasilj, Skender and Horvat showed that the presence of an intelligent digital platform helped to solve the problems described above (2021). Having a model that contains public information about student organizations helps to increase new members' awareness of news and changes in clubs.

Karani, A., Thanki, H., & Achuthan, S. (2021) stated in the article the impact of university website on students, a study was conducted on the use of the organization's website to test and determine the level of usability of the platform. The study was conducted from a student perspective, where a total of 577

students completed a website quality questionnaire. As a result, it was revealed that the web platform met the criteria of students in terms of content, organization and readability, which in turn had a large part of the impact on platform satisfaction. In addition, this study showed the importance of maintaining the university's website to keep students comfortable and up-to-date with content.

In the article, it might be observed that the results of 243 studies conducted and published over a period of 19 years, indicate the relationship between student engagement and technology (Bond et al, 2020). As a result of the collected information on the conducted research, the main points of the research were identified, the results of which were the behavioral involvement of students through the use of technology. This article allows to become the basis for further research regarding the study of the issue of stimulating student participation through the use of information technology.

Moreover, as a result of research conducted on Austrian and Chinese websites, showed a direct influence of culture and satisfaction with the use of websites (Alexander et al, 2021). Compliance with user needs plays a significant role in the success of the resulting use of websites. Consequently the introduction of cultural elements along the way of creation has an impact on the satisfaction of website users. For that reason it is essential to understand the role of input of different styles of providing information and also the interaction that the user seeks.

The paper showed how students rate the effectiveness and satisfaction of university websites designed for students as a way to learn (Shehzadi, S. et al, 2021). As one of the main methodologies, surveys were used, in which about 408 students from private and public universities in Pakistan took part. In addition, the data obtained from the electronic questionnaires were verified using the PLS-SEM analysis. All work leads to the conclusion that key factors such as ease of use and usefulness of the website are the basis for a positive outcome in favor of student learning.

The study reveals how students perceive e-learning in India due to the dynamic growth of Internet technologies(Chopra, G. et al, 2019). The survey method was used for students using courses from the Coursera website, the survey involved questions regarding the e-learning system, as well as the

effectiveness of using the website. The result of the work was that quality plays a significant role in the evaluation of the website, where the quality of the information does not affect the same level as the quality of the system and service.

## Methodology

In order to analyze more deeply the relevance of the topic of this project, a participatory methodological approach was used during the formation of the process. This helped us to identify and assess the real problems of club members and representatives of the Department of Student Organizations in organizing the acceptance of applications and the activity of students planning to join one of the clubs.

Two methods were identified to obtain a deeper and more complete understanding of the situation and analysis of this project topic in university conditions. One of the methods is to conduct a survey in an online format using a platform such as Google Forms. The survey was conducted in a confessional manner in order to avoid distorting the dates in view of the activities of the respondents.

This survey includes 9 questions that are aimed at clarifying the main problems of participants and/or leaders of student organizations during the acceptance of applications for participation in the same clubs. In addition, such questions were created in order to generally find out the benefits that students receive while participating in student organizations. This kind of information will be used to identify a general trend in the acquisition/development of any skills among the participants of student clubs. The information was collected in the form of an online survey, which was sent out via WhatsApp messenger, after which the data was organized in the form of charts (pie chart). Thus, the information was processed in visual form for a deep understanding of the questions asked, after which an analysis of the answers was carried out to identify the need to create such a product as a single website for KAZGUU student organizations.

The second method of obtaining dates was developed and used in the form of interviews with representatives of the DSA (Department of Student Associations). The relevance of this method is the consideration of the creation of such a site for student organizations by the main representatives of the department. Thus, actual problems of the organizational structure will be identified, in particular at the stage of filing, consideration and entering into statistics the number of incoming applications. For the

interview, 6 questions were used, which was designed to identify the main problems in application automation and the relevance of having such a site for further use at the university. In particular, such issues were noted as how the department copes with the receipt of applications to student organizations, in what form these applications are considered, the organizational structure when accepting applications and tracking them, how the statistics of incoming participants in student clubs are formed, what are the main problems that arise when considering applications and whether there is a need to create a website with a single information about all student organizations and automated submission of applications.

In addition, a corridor method was used, during which a live survey of the representatives of student organizations in KAZGUU was conducted. To consider the relevance of the problem, questions were asked about the methods of providing information about clubs and events and their effectiveness, the advantages in creating a single site for all student organizations and how useful this site will be in the realities of promoting university events, attracting new club members and organizing and simplifying the processing of requests for the entry.

Thus, the relevance of the problem was considered in terms of an online survey from university students, as well as interviews with heads of departments and leaders of student organizations.

## Analysis and Results

### Description of the IT product developed and its features

The IT product includes the creation of a website for students of KAZGUU University, where an online application system for joining student organizations was developed, as well as general information about university clubs and additional articles from representatives of the organization to disseminate up-to-date information. The main goal of the product is automation of filing applications and increasing awareness of students of KAZGUU University. The creation of such an IT product will increase productivity, save time for both students and the department, and raise awareness among students about current student organizations.

The product itself is a website with such major functions as collecting applications and posting. Online application is designed to automate the process of applying to join a selected student organization. Thus, students will be able to apply to clubs of interest on a single site, and representatives of the organizations will be able to process these applications in a convenient format. In addition, the postings feature from organizations and the department itself will help solidify understanding of the product as part of the university's information system. This leads to the fact that this IT product will be the basis for news about KAZGUU student organizations.

It is also worth mentioning features such as the main page with news and search engine. It will allow not only to view the main moments of the life of student organizations, but also to search for necessary information by entering keywords. Additional information in the form of answers to questions has also been added to the site in order to make it easier to find answers to your questions.

On the side of the administrative page an administrator control panel has been added. Its main functions are:

1. adding users as representatives of student organizations to further post news articles;

2. adding posts with club name, topic and post description;

3. adding a club with its name and a brief description;

4. managing users to change access parameters;

5. club management, where you can change the name and delete organizations;

6. management of posts for correcting the articles themselves and deleting them.

**User requirements and feedback**

Analyzing the results of the above research methods, the need for a unified website where students can apply to join a student club, as well as view all the information activities of the organizations was identified. A total of 105 students were surveyed (Figure 1.1), whose responses helped to understand the urgency of the problem of this project and the need for a unified website for student organizations.

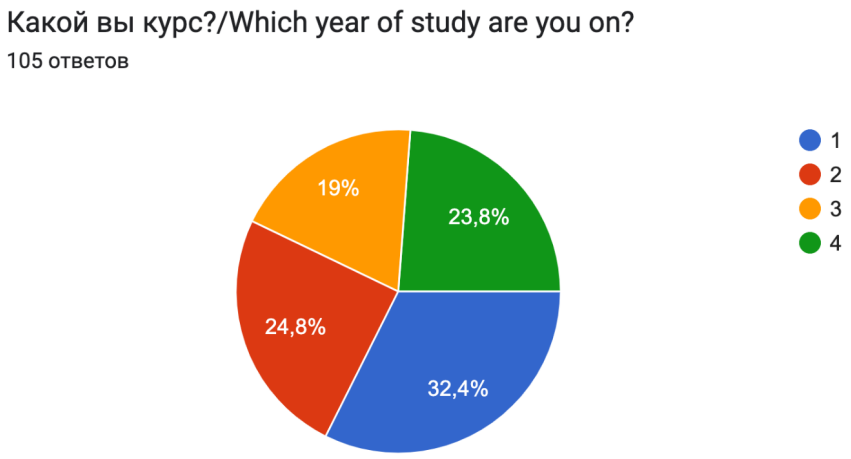


Figure 1.1 Online Survey

Based on the results of the survey, the main problem in submitting applications was the uncertainty of where the answer to joining the organization would come (Figure 1.2) and how quickly it would be possible to find out the answer. In addition, the issue was raised that when applications were collected manually by leaving numbers by student club representatives, there was no uniform system for reviewing these applications. Also, not all student organizations were known about, which could lead to results where students might not be aware of the existence of a potentially interested club.


Figure 1.2 Online Survey

On the part of the organizers/leaders of student organizations, the main problems were that applications did not have time to be processed, and due to the large influx of applications, potential participants' contacts could be missed/not noticed. In addition, there were those students who could leave an application without knowing about the idea of the club, due to which later there were refusals to join the organization.


Figure 1.3 Online Survey

Thus, the need for such a platform with application automation functions and a dashboard to increase the visibility of existing student organizations was identified.

Before creating a website, it was necessary to analyze the system part of the project. Thus, three diagrams - Use Case, User Flow and Sequence Diagram - were designed to understand and consider what path the user and the administrator of the page on the website.

The first diagram (Figure 2) shows the Use Case, which describes the interaction of system participants with a specific purpose. So, a Use Case diagram was created to design and describe the interaction between the user and the system. In this project, there are two main users - Site User and Administrator. The Site User interacts with the site by viewing the main news, searching for posts by keywords, reviewing student club descriptions, and answering questions. On the other hand, the Administrator has access to edit the content on the site. To do this, you either need to register a new administrator account if you don't have one, or log in with an existing login. The administrator then has the ability to add/edit/delete content such as accounts of student organization representatives and the clubs themselves, and news posts.

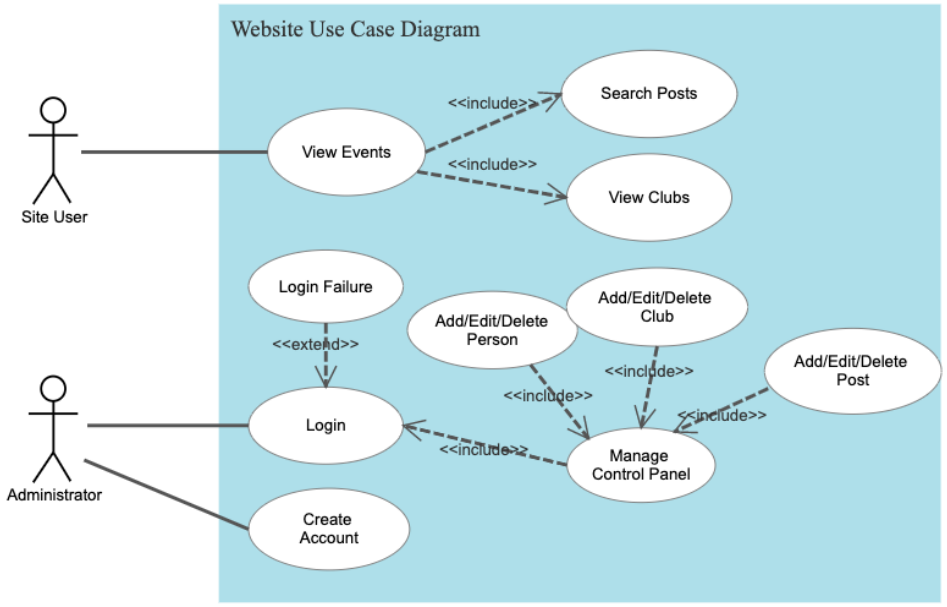


Figure 2. UML Use Case Diagram for Website

Another diagram is the User Flow Diagram (Figure 3), which is needed to visually represent the sequence of actions performed by the user to achieve the final goal. In this project, the final goal is to leave applications from students to join the club of interest. Thus, the user's path and each step from the entry point (home page) to the final interaction (leaving an application) has been demonstrated. Such a diagram helps to consider and analyze the user's path to fully understand the structure of the website.

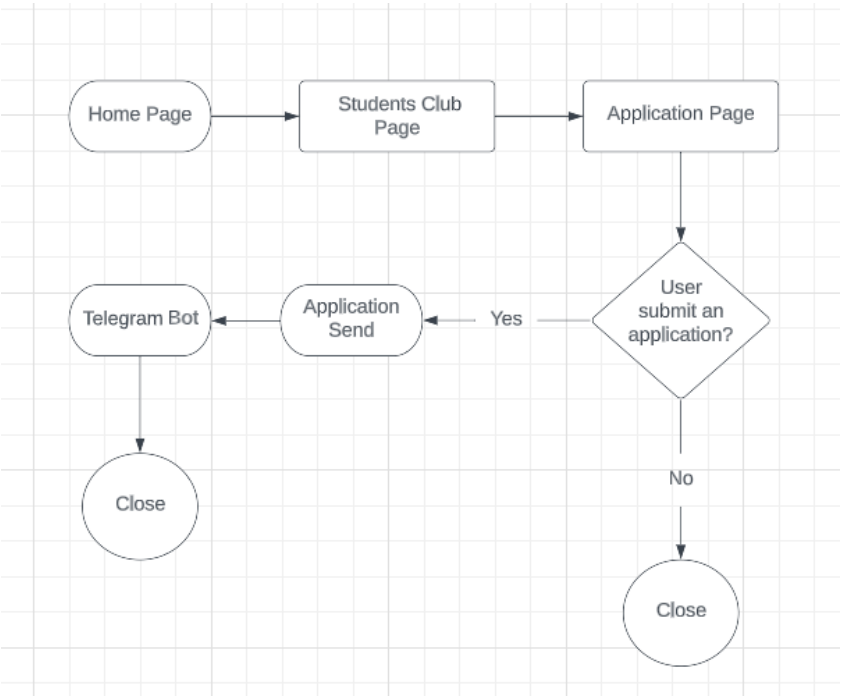


Figure 3. User Flow Diagram for Website

The last diagram (Figure 4) describes the logic of using the website as a script for documenting the project. Thus, it takes into account possible precedents that may appear during the development of the platform. This diagram helps to see the overall structure of the objects involved in the organization of the project. It looks at the interaction of objects with each other and the description of these actions. In this project the objects are two users - User and Administrator, - Website, Student Organization Page, Application Page, Database.

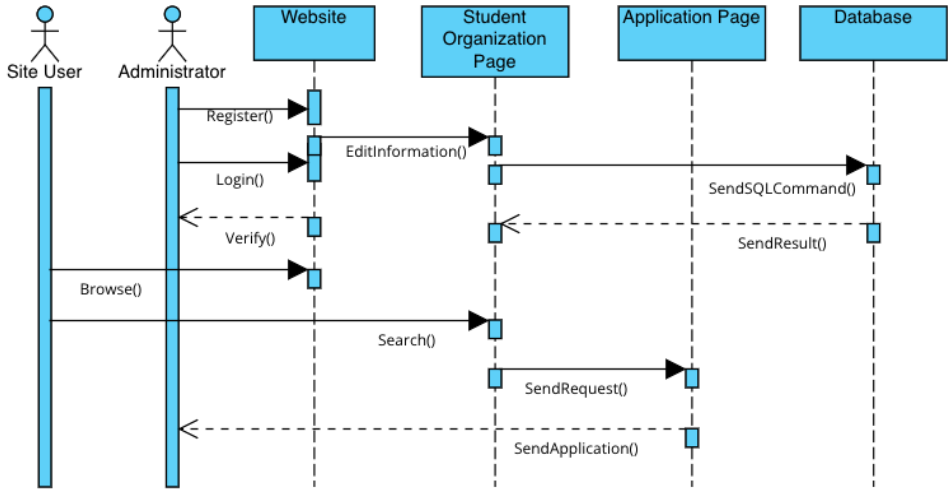


Figure 4. Sequence Diagram for Website

**Visual structure of the site and design development**

Website design begins with a UX strategy, where a plan for creating a website is being worked out. This plan includes three main components as a product vision, goals for implementation and a plan for creating a product. Vision allows it to structure ideas and ideas, providing a brief description for the future product and its characteristics. Goals are an indicator for the detailed parts of the site, that is, clear site features, content and construction. The creation plan includes key points that the developers need to remember when creating a website with goals and vision.

The website for student organizations is designed in a dynamic style with elements of blue, white and burgundy colors. The development of the composition of pages, that is, the position of objects and elements are arranged in a harmonious way, where the user can easily find the necessary information. By using a modular grid, blocks and page elements are visually ordered, which is convenient and readable for all users.

**Development of technical elements of the site. Backend features**

The important part of creating an IT product, especially a website, is backend development. Backend is the hardware and software part of the server that allows the site to fully perform functions. This part

is not shown to users working on a remote server where the process of processing and storing data and connections takes place.

The structure of the backend on the website for student organizations includes processing, interaction, formation of all teams, applications and responses. Web server is the software that is responsible for the correct operation of functions, that is, client requests. For the backend part of the site, it is necessary to connect a server that will read PHP scripts. The XAMPP web server is connected to the website of student organizations. This helps to quickly deploy site data and build a local web server.

Processing requests from users gets to the service with PHP scripts. PHP is a programming language that interacts with databases, which is also suitable for web development, accepting and processing applications and commands.

The script is responsible for processing the request, which can send a request to the database and change all the information in it.

Feedback is important for the operation of any site. Therefore, after processing the request and making changes from the database, the server must respond to the client's request. The operation is displayed on the HTML page and executed by a PHP script, after which it responds in the form of a JSON response.

The AJAX request is used to interact with the user in the backend part. The AJAX request does not overload the server, thus improving site performance and reducing response time. The response is sent to the user using a PHP script on the web server. However, the server part may make errors and take a long time to load. To do this, the program needs to notify the user about the error.

The database is needed for the proper operation of each website, preserving information and the ability to manage. All data and information available on the site are stored in a database. Data security is the priority of any official website. Since the SAKAZGUU website collects students' personal data, it is necessary to make sure that it is stored correctly and that leaks and hacking are avoided. MySQL primary keys are used for this.

For the correct structure and distribution of information, a tabular record is used. This function writes data to tables, after which it is easier to find and update values. A record in the form of tables does not allow double repetition of data in which server errors occur.

Thus, MySQL primary keys provide high confidentiality and security, reducing the likelihood of data loss or corruption.

PHP code is attached to the database using constants in the file "config/constants.php ". This file contains values for constants such as DB_HOST, DB_USER, DB_PASS and DB_NAME, which contain the data necessary to establish a connection to the database. The presence of errors is checked by the command "mysqli_errno()", where when it occurs, the function warns and terminates the function with “die()”

Functions "mysqli_query()" and so on. send queries to the database. This method allows the server to conveniently and quickly use the site, where its requests will be processed and stored in a database using scripts and a web server.

**Method of submitting applications**

One of the main functions of a website for student organizations is the transmission and processing of student applications. Telegram was used for this. This project is an example of a simple Python Telegram bot using the python-telegram-bot library. It allows the creation of a bot that accepts applications from users and sends notifications about these applications to a specific chat or user.

Main components of the code:

- Importing the necessary modules and classes from the python-telegram-bot library.

- Setting up logging to receive information about the work of the bot.

- Determining the token of your Telegram bot. The token is provided when registering a bot on the Telegram platform.

- There is the user ID to which notifications about applications will be sent. This can be your ID or a specific chat ID.

- There is a start function, which will be called when the /start command is received. It sends a welcome message to the user and describes the format in which to provide information for the ticket.

- There is the process_information function that will be called when a text message is received from the user. It processes the information provided by the user and generates a notification that is sent to a specific chat or user.

- Defining the main function that starts the bot. In this function, an Updater object is created with the passed token, command and message handlers are registered, and the bot is started to listen for new messages.

**Optimization of business process**

The business goal in creating this platform was to optimize and automate the acceptance of applications from KAZGUU University students to student organizations. The positions were considered from the perspective of three parties:

1. From the university side

2. From the club side

3. From the student’s side

The project identified a hypothesis to improve the optimization of application processing. On the one hand, the university needs to collect accepted applications by collecting all applications from student organizations in the form of a single table. The university then collects students' personal data, which they manually enter and process for further analysis.

On the other hand, to recruit students to a particular student club, a casting call ad is placed, after which students respond to those ads. Then, based on the allocated selection criteria depending on the

organization, club representatives select students over a set period of time. Student organizations interview students, then identify who passed the interview and send the results within an average of 3 business days.

The student must find information about the student clubs, the criteria and requirements for admission, and the deadlines for accepting applications. After passing all stages of the selection process, the student awaits the final results from representatives of the organizations.

The above takes a certain amount of time, which can be reduced by using this project. On average, it takes about 15 minutes for a student to accept applications, including browsing the site, finding a suitable club and sending an application via Telegram bot. For student organizations and the university itself, the process of automating applications benefits in the form of reduced time to process applications from students.

As a result, instead of a lot of unprocessed data, this IT project helps reduce the time to process applications and optimize the analysis of all information.

## Discussion

KAZGUU University students need a student organization web platform to improve work efficiency and facilitate the application process. The results showed that many students face numerous problems during the application process and in finding information about all organizations. The web platform for student organizations at KAZGUU University helps improve and streamline the application process. It will be easier for students to find information about each organization on this website. One limitation is the lack of funds to support the student website. Therefore, for future improvements, certain supporters or sponsors can be found to maintain this website. However, there may be restrictions on the promotion of this project. Therefore, it is possible to improve the performance of the website by working together with various interested IT companies, which can further help to solve the problem with the technical parts. Thus, it can attract more attention to this project, which will help develop the business plan. This business plan can bring numerous benefits not only to KAZGUU University but also to the educational system as a whole. Moreover, in case of increasing information in the database, there will be a need for additional help from the IT part.

One of the components of the product is a comparative analysis. Competing products on the market are the official web pages of various universities such as MIT University, Nazarbayev University, and other universities. The website of which provides general information about student life, existing student clubs, as well as individual web pages of student organizations. While the provided website for student clubs of KAZGUU University is a hybrid platform that combines all the necessary data about student organizations, the ability to create a student club, as well as an automated system for joining these organizations.

## Conclusion

To summarize the work done, it is significant to note the participatory methodological approach taken to better understand the issue. As a result, online questionnaires, interviews with DSA (Department of Student Association) representatives, and interviews with the heads of student organizations played an important role. This methodological approach led to the main problems faced by student organizations and stakeholders, i.e. limited availability of information, minimal visibility on online platforms, difficult process of student involvement, as well as limited analysis of data about the organization and participants. The main result of the conducted work was the need to create a unified online platform focused on student organizations of KAZGUU n.a. Narikbayev University.

Thus, a single website was created through which interested persons have access to the function of submitting applications to the organization, along with representatives of the organization processing these applications. In addition, the website has a main page that displays the news of student organizations, furthermore a search function with which it can search for an organization of interest. Moreover, representatives of organizations have the opportunity to publish posts regarding student organizations. On the other hand, the website provides various options for the administrator, which include: adding directly adding a student organization, adding users such as club heads, adding posts of tangent organizations, a user control panel, managing organizations, the ability to change data or delete, additionally possibility to customize published posts.

Despite all the listed qualities of the created product, there are some limitations. One of the main ones is financial constraints, since the development and further implementation of a website requires significant funds for maintenance. Furthermore, there are technological limitations, such as the availability of technological infrastructure and resources, as well as restrictions on the amount of data stored. Precisely because of the technical and financial constraints, a suggestion for further research is to conduct a user needs survey to assess satisfaction with the functionality of the website, besides to explore technological possibilities. Further development of this product may lead to implications for the information technology industry and future research, as the product may lead to the development

of new technologies, improved data management practices, and a greater range of research opportunities in education.

In conclusion, as a result of the conducted methodologies, a problem was identified, the solution of which was the creation of a website for a student organization, which in turn became a key moment for further development. The creation of a single platform is a suitable way to increase awareness among students, attract students, as well as improve interactions between students and student organizations. In addition, the advantages are simplicity, usability, and automation which affect the efficiency of work and further development.

This project streamlines acceptance and processing of applications for the university, student organizations, and students themselves.

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# Appendices

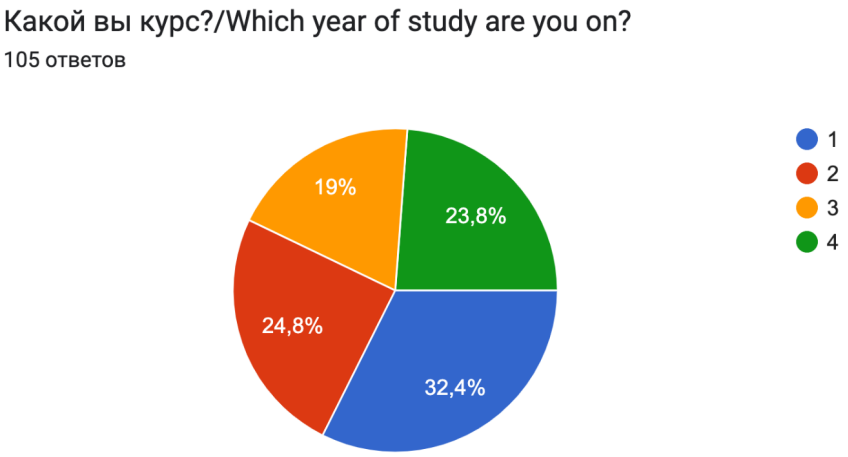


Figure 1.1 Online Survey


Figure 1.2 Online Survey


Figure 1.3 Online Survey

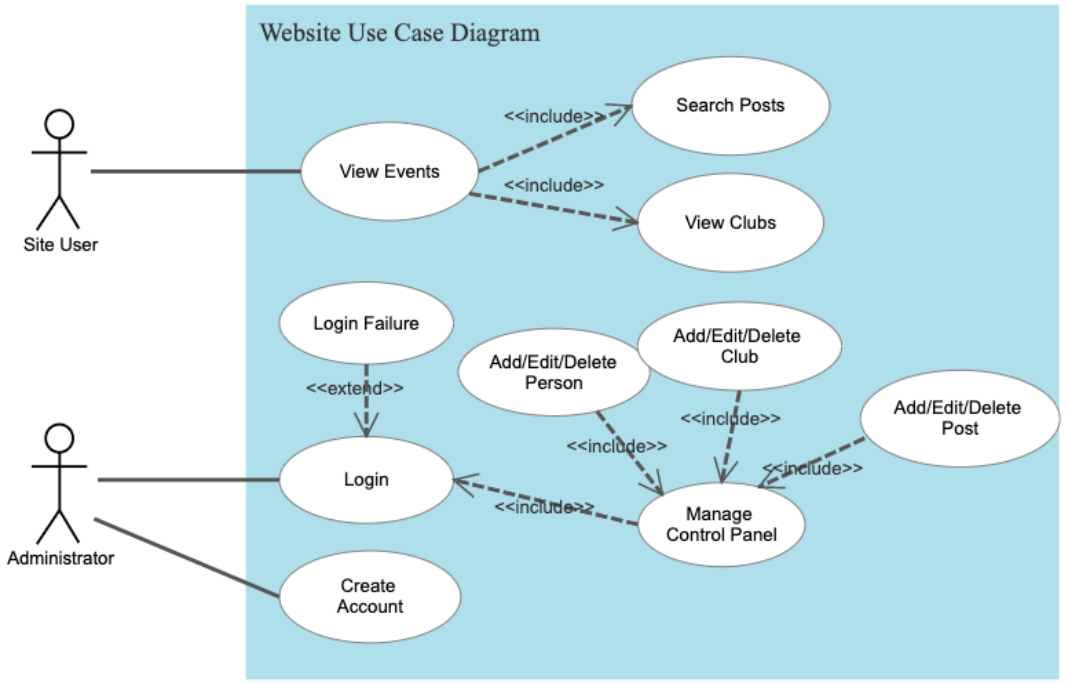


Figure 2. UML Use Case Diagram for Website

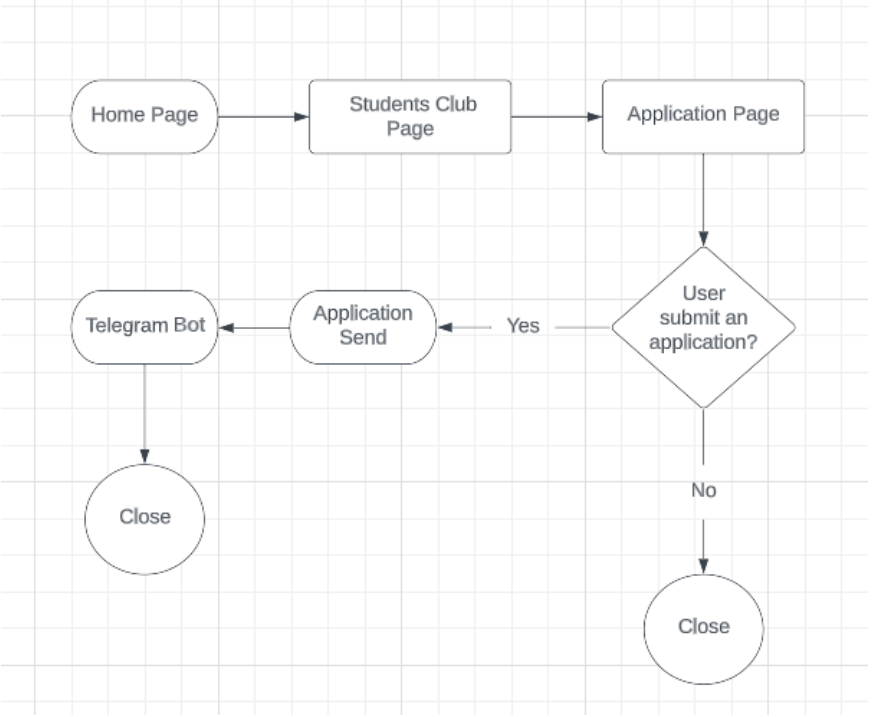


Figure 3. User Flow Diagram for Website

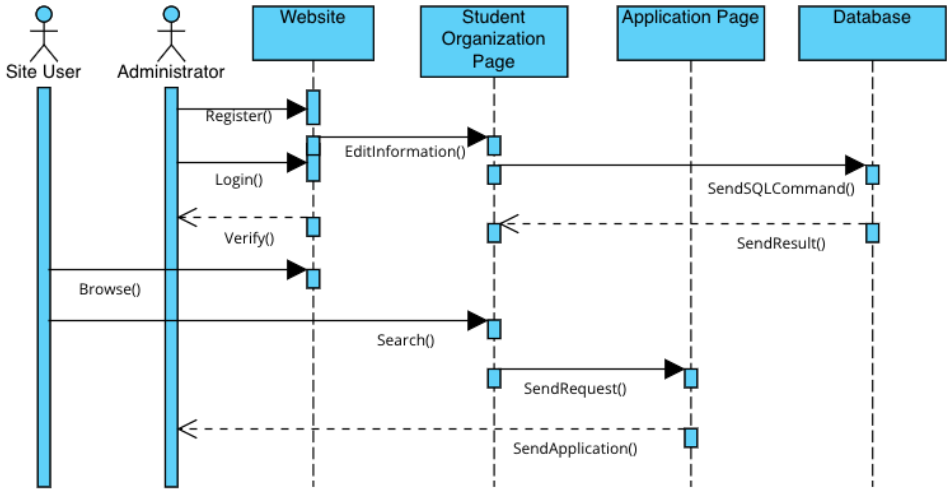


Figure 4. Sequence Diagram for Website