

CircleSpace : School club platform for all university students

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Abstract. The existing methods for browsing and joining university clubs have the following issues: there is no standardized form, clubs cannot be searched by category or type, the source of information is unclear, and updates are slow. Through our web-based platform, we aim to address these problems and go further by integrating social networks and providing easy registration features, ensuring that university students can conveniently explore and join clubs at their universities. This led us to develop **CircleSpace**. Through the CircleSpace, we expect to improve the club culture in South Korea and achieve effective digitalization of club management.

1 Introduction

Many universities in South Korea have numerous types of clubs, ranging from academic societies and volunteer organizations to sports teams and hobby-based groups. These clubs play a vital role in enhancing the university experience, allowing students to explore their interests, develop new skills, and form meaningful social connections. As universities continue to expand their offerings, the number of clubs available to students grows each year, providing an increasingly diverse array of options for extracurricular involvement. However, despite the increasing number of clubs, there is no integrated platform that allows students to easily browse, categorize, or search for these clubs in a centralized and efficient manner.

According to our survey, more than 80% of students searched for club information using **EveryTime**, **official school website**, or **CampusPick**. Additionally, 69% of students responded that the "Difficulty of Finding Club Information" was either "Very difficult" or "Difficult." As for the reasons, 44% responded that "information is scattered and not easily viewable at a glance", 40% stated that "searching is difficult due to the lack of club categories or filters," and 12% pointed out that "outdated information is not updated."

These reasons closely aligned with the issues we had identified in the existing systems. Based on the survey results, we began designing the logic to address the current shortcomings and implement the necessary features.

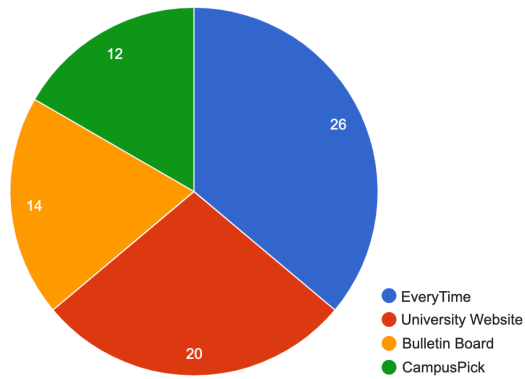


Fig. 1. Ways to Discover University Clubs

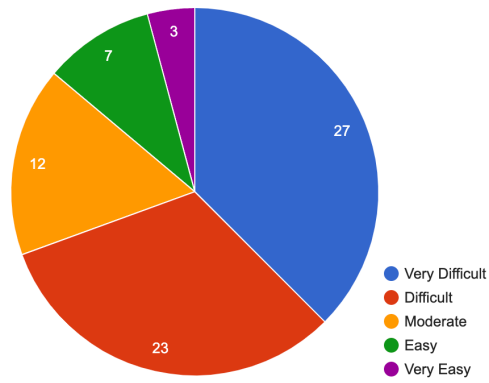


Fig. 2. Difficulty of Finding Club Information

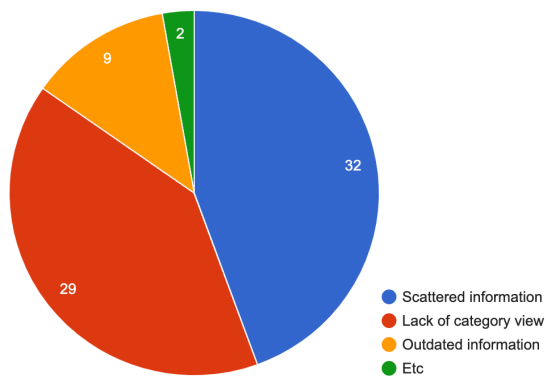


Fig. 3. Inconveniences When Searching for Club Information

2 Motivation and Objectives

2.1 Motivation

The most common method is searching the club information board in Everytime and directly checking the posts. Some students also check official university websites for central club information or use another platform, CampusPick, for union club information. However, all three methods have limitations, making it difficult for students to gather club information and apply efficiently.

First, Everytime provides a wealth of club information, but it is not systematically organized. Without a structured categorization of clubs, it is difficult for students to easily find the clubs they are looking for. Additionally, essential information like membership fees, number of recruits, contact details, and websites are not presented in a standardized format, leading to inconsistent content in posts, often missing crucial details. As a result, users have to scroll through various posts to find the necessary information, which requires considerable time and effort. This makes the process of handling large amounts of club information inefficient and exhausting for users.

Second, the information provided on university official websites also has limitations. Most university websites only offer details about central clubs, excluding union or departmental clubs that are also actively operating. The absence of this information presents a significant challenge for students trying to find clubs that suit their interests. Moreover, even the information about central clubs is often outdated or inaccurate, making it unreliable. For example, on the **Sungkyunkwan University website**, links to official club websites are provided, but they often either do not work or lead to incorrect pages.

Lastly, CampusPick provides information about union clubs at universities across the country, using search functions and category classification for relatively organized information. However, since the platform integrates data from all universities, it becomes difficult for students to selectively view only the information about clubs at their specific university. This centralized structure can overwhelm users with excessive information, making it harder for them to find relevant details. This is inconvenient for students who want to efficiently search for clubs at their own university.

2.2 Objective

To address these issues and make it easier for students to find and participate in club activities, we propose developing an integrated and systematic club management platform called CircleSpace. This platform aims to overcome the limitations of current club information systems and provide students with more convenient access to clubs through various features.

First, the platform will implement systematic categorization and classification of club information to help students quickly find the clubs they are interested in. Clubs will be categorized by type, such as central clubs, union clubs, and departmental clubs, and further divided into specific fields of activity (e.g.,



Fig. 4. EveryTime Club Board



Fig. 5. EveryTime Comments



Fig. 6. Official Website



www.skku.edu 페이지를 찾을 수 없음

다음 웹 주소

(https://www.skku.edu/skku/campus/activities/instagram/%20:%20@heaven.skku)이 대해 발견된 페이지가 없습니다.

HTTP ERROR 404

새로고침

Fig. 7. Inaccurate Information

sports, culture, academics). This categorization system will allow students to easily explore clubs that match their interests.

Second, the platform will ensure that club information is provided in a standardized format, requiring all clubs to clearly display essential details such as membership fees, number of recruits, contact information, and official websites. This will prevent important information from being omitted, and students will be able to quickly access consistent and structured details across all clubs, reducing user fatigue.

Third, real-time updates of club information will be provided through integration with official club websites and social media. Many clubs currently use platforms like Instagram to share their activities, and CircleSpace will link these social media accounts and official club websites to the platform, enabling students to access the latest club news and updates in real-time. This will improve the accuracy and reliability of information, allowing students to stay up-to-date with club activities.

Fourth, a login system using university accounts will be introduced to ensure the credibility of platform users. This will limit access to club information to students of the respective university and enable club managers to communicate

with accurate data. Moreover, the platform will include all types of clubs (central, union, departmental) from each university, providing a comprehensive system for managing the entire university's club information.

Fifth, the platform will include a notification system for favorite clubs, allowing students to automatically receive updates about the clubs they are interested in. This feature will help students stay informed about recruitment periods, key events, and other club activities, improving communication between clubs and students.

Lastly, a review and rating system for each club will be introduced, enabling students to leave feedback and read reviews from other students. This will help students make more informed and thoughtful decisions when choosing clubs, and club managers will be able to use the feedback to improve their club's operations.

These proposed solutions aim to enhance the efficiency of club information delivery and make it easier for students to access and join clubs. CircleSpace will provide an environment where students can find clubs that match their interests and actively participate in club activities, contributing to a better university experience.

3 Architecture and Proposed Solutions

The architecture of the system is divided into three main layers: frontend, backend, and database. These layers interact through APIs and are secured via an authentication and authorization mechanism

3.1 Client-Side

The frontend serves as the user interface layer. On the homepage, users can view newly registered clubs, explore clubs by category, search recruitment posts, apply sorting filters, and receive club recommendations based on their activity history. The My Page section offers a customized dashboard based on user roles. General users can manage their profile, set alerts for their favorite clubs, receive recruitment deadline notifications, and track the status of their applications. Recruiters can edit club information, monitor recruitment post status, view post statistics, and manage applicants. Additionally, the club profile page allows users to view club details, check registered recruitment posts, like the profile, set notifications, and communicate through a Q&A board. When creating recruitment posts, a standardized form with required fields is provided, allowing users to interact through comments, ratings, and views. The backend manages user authentication, club and recruitment post services, and handles database interactions, including storing user profiles, club details, recruitment posts, and interaction logs. It also manages keyword search, sorting by views, ratings, and likes, and provides personalized notifications for deadlines and new applications. The backend includes API endpoints that handle fetching and managing recruitment posts, user profiles, and club data, while ensuring security through authentication and session handling. Role-based access control is implemented

to differentiate permissions between general users and recruiters, ensuring secure data access.

3.2 Server - Side

The backend manages user authentication and provides services for managing clubs and recruitment posts. It handles keyword search, sorting by views, ratings, and likes, and provides personalized notifications for recruitment deadlines and new applications. The backend also includes API endpoints for fetching and managing recruitment posts, user profiles, and club data. Additionally, it ensures security through authentication and session handling, with role-based access control to differentiate permissions between general users and recruiters, ensuring secure data access.

3.3 Database

The database stores essential information such as user profiles, club details, recruitment posts, and interaction logs. It ensures the efficient handling of data related to user interactions, including storing recruitment activity and application history. The database supports backend operations by managing structured data for keyword searches, sorting criteria, and personalized notifications.

4 Development Plans and Timeline

4.1 Role

SeokHyun Bae is the team leader and will oversee the entire process from development planning to deployment, providing technical support in areas where needed. Jiwoo Chung and Jinu Park will be responsible for frontend development, handling everything from UI/UX design to web page implementation. They will use the Figma design tool and a Vite-based React framework. Guho Kim will be responsible for backend development, including server and API design and database access logic using Spring Boot 3.3.4. SeokHyun Bae will deploy the project to the designated domain after optimization and testing using AWS services such as S3 storage, RDS, and EC2.

4.2 Brief Schedule

Up until the 6th week, the team will set up the project environment, including Git and IDE, and members will focus on learning the necessary technologies for feature implementation. Starting from the 6th week, the frontend team will begin UI/UX design, while the backend team will start designing business logic. The main development phase will begin in the 8th week, where the mentioned technologies will be used to build the web application. From the 10th week, the team will focus on efficiently configuring the database and cloud storage and connecting them stably with the server. From the 11th week, the team will conduct testing and optimization, and starting from the 12th week, they will apply security rules, connect the domain, and begin the final deployment.

TASK & ASSIGNE	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12	WEEK 13
PROJECT SETTING ALL MEMBERS									
UI/UX DESIGN FRONTEND DEV.									
BUSINESS LOGIC DEVELOPMENT BACKEND DEV.									
WEB PAGE DEVELOPMENT FRONTEND DEV.									
API DEVELOPMENT BACKEND DEV.									
DATASOURCE DEVELOPMENT BACKEND DEV.									
TESTING & OPTIMIZATION ALL MEMBERS									
DEPLOYMENT BACKEND DEV.									

Fig. 8. Brief Schedule

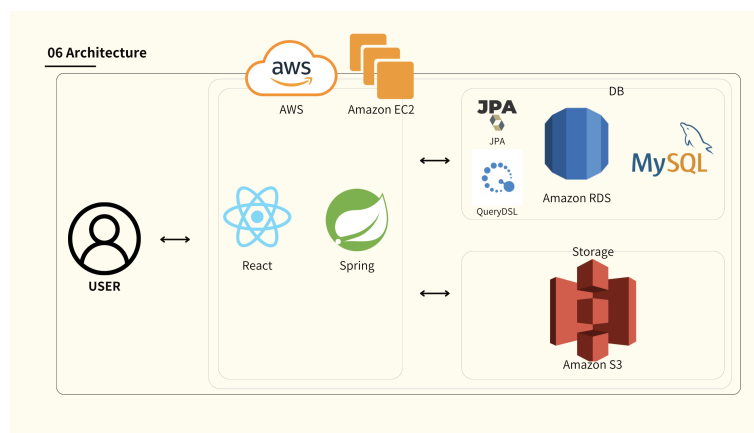


Fig. 9. Project Architecture

5 Expected Results, Conclusion

CircleSpace is expected to significantly improve the accessibility and organization of club information for students. By offering a centralized space where clubs can be easily searched and categorized, the platform will streamline the process of discovering and joining clubs. Additionally, CircleSpace will provide essential information such as club activities, meeting times, and application processes, which are often difficult to obtain through existing methods. The platform's value lies in its ability to enhance user experience by simplifying the search process, promoting student engagement, and fostering a more vibrant campus community.

In conclusion, CircleSpace sets a new standard for digital club management and is expected to significantly improve the quality of campus life, promoting a more active and engaging club culture.

References

1. EveryTime : Club, Conference Borad, <https://everytime.kr/>
2. SungKyunKwan University Student Organazation :
<https://www.skku.edu/skku/campus/activities>
3. CampusPick : <https://www.campuspick.com/>