



<UniFun>

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1 Introduction

The UniFun project aims to develop a mobile application that centralizes information about festivals and social events at King Saud University (KSU). The app will provide students with a convenient platform to discover and stay updated on campus activities, fostering a more connected and engaged university community.

Currently, students at KSU often face challenges in staying informed about these events due to fragmented information distributed across various platforms, such as social media and posters. This scattered communication results in reduced student engagement and misses opportunities, especially for new students still learning to navigate campus life.

To address this issue, the UniFun mobile app will serve as a centralized platform where students can easily access and explore all campus events and social activities at KSU. By simplifying event discovery, users can view, filter, and manage events on their personalized calendars, ensuring they stay informed and engaged. This solution is designed to boost student participation, foster community connections, and enrich the overall university experience.

UniFun has established the following primary objectives to effectively address the challenges:

- Provide an easy way to discover university events.
- Allow students to organize events in their personal calendars.
- Enable users to filter events based on their interests.
- Offer comprehensive details for each event.

This Sprint-0 Report outlines the foundational work for the UniFun project, including a comprehensive domain analysis and requirements engineering. It covers key topics such as terminology, general domain knowledge, identifying customers and users, understanding the environment, tasks, competing software, and cross-domain similarities. The report also defines system users, presents a use case diagram, and outlines the product backlog to guide future development. The document is structured with an introduction, sections on domain analysis and requirements engineering, and concludes with references.

2 Domain Analysis

The domain of the UniFun project is University Event Management, motivated by the need to develop a mobile app that enhances student engagement at King Saud University (KSU). This project recognizes that university festivals and social events are essential for fostering a sense of community. However, the fragmentation of event information across various platforms—such as social media, posters, and word-of-mouth—makes it difficult for students, especially newcomers, to fully participate. The aim is to create a centralized mobile application that consolidates event information, making it easier for students to discover and engage with campus activities.

To gain a deeper understanding of the domain and align our app with user needs, we conducted thorough research by examining existing platforms and resources for event management. This included interviewing university staff and event organizers to identify the challenges students face in accessing event details, as well as surveying King Saud University students to understand how they discover and attend events. The survey revealed key issues such as difficulties in finding event information and a lack of personalized event recommendations. We also reviewed academic literature on student engagement, including *Astin's What Matters in College?* [3] and *Tinto's Leaving College* [4], which highlight the significance of social events in fostering student involvement. Additionally, we analyzed user-friendly features of platforms like Eventbrite and CampusGroups to gain insights into effective registration processes and personalized event recommendations for the UniFun app. Ultimately, this research aims to inform the development of a tool that not only facilitates event discovery but also fosters a more connected and engaged student community at KSU.

2.1 .Terminology

The following terms are important for understanding the UniFun domain and will appear in both the user interface and documentation:

- **Event:** A scheduled activity or gathering organized for students, including workshops, cultural events, and social gatherings.
- **User Profile:** A personalized account that tracks student preferences, interests, and event participation history to provide tailored event suggestions.
- **Event Feed:** A dynamic list of upcoming events displayed to students based on their interests and previous engagement.
- **Club:** An official student group within the university focused on a specific activity, such as sports, culture, arts, or technology.
- **Club Feed:** A dynamic list of upcoming clubs displayed to students, helping them discover new organizations and opportunities to engage with their peers.
- **Club Registration:** The process by which a student joins a specific club through the app, allowing them to view available clubs and apply for membership.
- **Club Event:** An event organized by university clubs aimed at promoting club activities and increasing member and student participation.
- **Calendar:** A personalized tool for students that allows them to add, delete, and edit events. This calendar provides a comprehensive overview of all campus activities, helping students stay organized and engaged.

2.2 General Domain Knowledge

In the domain of University Event Management, particularly for the UniFun project, several key principles are essential for enhancing student engagement:

1. **Importance of Student Engagement:** Active participation in university events fosters a sense of belonging and improves retention rates, as social events help build relationships within the community.
2. **Event Planning Processes:** Effective event management involves structured steps, including conceptualization, budgeting, marketing, and post-event evaluation, which are crucial for supporting organizers and attendees.
3. **Technology in Event Management:** Event management today utilizes mobile apps and digital registration, offering personalized recommendations and simplifying how users discover and attend events.
4. **Data Analysis Techniques:** Analyzing engagement metrics through surveys and usage statistics provides insights into student participation trends, informing future planning and development.
5. **Club Operations:** Clubs are vital to university culture, offering opportunities for students to engage in shared interests. Knowledge of club operations, including membership and event organization, is essential for app integration.

This foundational knowledge, covering principles, processes, analysis techniques, and technology, informs the data processing and computations necessary for developing the UniFun app.

2.3 Customers and Users in the Domain

Buyers/Users of the Software

Buyers: Universities and educational institutions, particularly **King Saud University (KSU)**, that want to enhance student life and engagement on campus and would likely invest in Unifun. Institutions aiming to modernize student engagement tools, expand their digital campus offerings, or improve communication between students and campus organizations might also find this software beneficial. For example, universities using traditional methods to promote student clubs and events might want to upgrade their platforms to provide students with a more interactive and user-friendly experience.

Users: Students at **King Saud University (KSU)** represent the primary user base for Unifun. They seek a convenient way to stay informed about campus events, socialize with peers, and engage with student clubs and organizations. Unifun caters to a wide range of university students, regardless of their year or field of study, offering a platform that enhances their overall campus experience.

Others Who Work in the Domain

- **University administration:** The administration oversees official campus events, club approvals, and general student life activities. While they may not use the app directly, they play a role in how it integrates with broader university policies.
- **Event venue managers:** These staff members manage the physical spaces used for events on campus, such as auditoriums, conference halls, and outdoor venues. While they don't use the app, they coordinate with event organizers who do. They ensure that spaces are available, properly equipped, and maintained for the events promoted through Unifun.
- **External vendors:** For larger campus events, external vendors may provide food, merchandise, or equipment. Although they don't access the app, they collaborate with event organizers and the university to ensure their services meet the needs of students during these events.
- **Students (clients):** Since Unifun is student-oriented, students' feedback plays a key role in shaping the app's features. They value ease of use, convenience, and access to up-to-date information about campus life. Regardless of whether they are club leaders, event organizers, or general students, all users interact with the same interface to accomplish their respective tasks.

2.4 The Environment

The environment for the **Unifun** domain involves the use of mobile devices, specifically Android Mobile app, as the primary platform for accessing the Unifun application. Users will interact with the Unifun app through their Android devices, meaning the app must be compatible with various screen sizes and resolutions found on Android phones.

Additionally, the Unifun app will need to interface with the internet to access real-time event updates, user accounts, and club information. As a result, the app must be designed to function smoothly over both Wi-Fi and cellular data connections, ensuring reliable access for students both on and off campus. Also a server to save the users information on the database.

The Unifun app must also be compatible with the Android operating system, adhering to any specific requirements or guidelines set by Google for distribution on the Google Play Store. This includes ensuring that the app works with multiple Android versions to accommodate a wide range of devices used by students at King Saud University.

2.5 Tasks and Procedures

The Traditional Method:

Students at **King Saud University** typically find out about campus events and activities through word of mouth, either from friends or classmates. This method can be unreliable, as students may miss out on important events if they aren't in the right social circles or don't know the right people. Additionally, many students rely on scattered information from posters or flyers pinned up around campus. These physical notices often go unnoticed or are removed before students have a chance to see them.

Some clubs and events are promoted through social media, but the challenge is that not all students follow every club's account, and event information can be spread in emails and across different platforms like **Instagram, X(Twitter) or Snapchat**. Keeping track of various sources of information makes it difficult for students to stay updated on everything happening around campus. Event registration and club memberships are also usually handled manually, which can be time-consuming and inefficient for both students and organizers.

The Modern Method:

With **Unifun**, students can access all campus events and club information in one central app, allowing students to easily view, join, and stay updated on events and activities happening around campus. Instead of relying on word of mouth or scattered social media accounts, students can register for clubs and sign up for events with just a few taps.

2.6 Competing Software

The following table highlights key features across these platforms, comparing them with Unifun offerings to better understand where our app stands out and what areas may need improvement. By analyzing this data, we aim to develop a product that addresses gaps in the market while enhancing the overall student experience at **King Saud University**.

| Feature | CampusGroups | Unibuddy | Eventus | Unifun |
|--|--------------|----------|---------|--------|
| Club Membership | ✓ | | ✓ | ✓ |
| Calendar for Organizing Events | ✓ | | ✓ | ✓ |
| Personalized Notifications and Recommendations | ✓ | ✓ | ✓ | |
| Club and Event Ratings/Reviews | ✓ | | ✓ | |

2.7 Similarities Across Domains and Organizations

In the student engagement domain, there are both generic and specific features. **Generic features** include displaying details of upcoming events, user profiles, enabling users to join clubs, allowing students to search for specific events or clubs, providing messaging functionalities for communication between users, and offering account registration and login capabilities. These features are common across various student engagement platforms and are essential for enhancing user experience.

However, the **specific features** unique to the student engagement domain include offering localized event based on student interests, providing centralized management for club memberships, allowing users to register for an event directly within the app, and integrating university-specific resources and support services. These specific features set **Unifun** apart from other student engagement platforms and ensure its continued value and effectiveness in fostering a vibrant community at **King Saud University**.

3 Requirements Engineering

We employed a combination of user interviews and questionnaires to gather insights from our target audience as part of the requirements elicitation process for the UniFun mobile application. Our approach involved conducting three user interviews with key stakeholders, including the Head of Student Activities, the President of the Future Technology Club, and the Student Activities Coordinator at King Saud University. Each interview consisted of ten open-ended questions aimed at understanding their current challenges in organizing and promoting campus events, the level of student engagement, and their opinions on using a centralized platform for event management. The interviews provided qualitative data and allowed us to gain deeper insights into the perspectives of those involved in event management.

In addition to the interviews, we distributed a structured questionnaire to a sample of 22 participants, comprising students from various academic years. The questionnaire included 10 closed-ended questions focused on gathering quantitative data regarding their event participation frequency, preferred types of events, challenges in staying updated, and desired features for the UniFun app. This hybrid approach ensured that we captured both qualitative and quantitative insights, enabling us to comprehensively understand the user requirements and preferences for our project. The details of the interview questions, interview transcriptions, questionnaire questions, and their responses are included in Appendix A and Appendix B of the report.

Results and Findings

The interviews with the Head of Student Activities, the President of the Future Technology Club, and the Student Activities Coordinator provided valuable insights into the current challenges and opportunities for promoting and organizing campus events. Email and WhatsApp were identified as the primary channels used for promoting events by the Head of Student Activities and the Student Activities Coordinator. However, these methods are considered less effective in reaching a broader

student audience, as communication often remains within specific groups. The President of the Future Technology Club mentioned that social media platforms and WhatsApp groups are the main sources used for event promotion. However, there is no centralized coordination, and this approach heavily relies on individual efforts to spread the word.

All interviewees noted the lack of a centralized source for event announcements as a major challenge. The Head of Student Activities pointed out that students often miss out on events because information is scattered across multiple platforms. Additionally, the overlap of events with academic schedules was identified as a common issue, often leading to low attendance rates. The Head of Student Activities mentioned that student attendance varies depending on the type of event and its relevance to their academic interests. Specialized events related to students' fields of study tend to attract more participants. The President of the Future Technology Club shared that, while attendance is generally acceptable, there is still room for improvement, particularly in increasing student interaction and participation during events.

All interviewees were enthusiastic about the idea of a centralized platform like UniFun. They believe that features such as event notifications, calendar integration, and future preferences could significantly increase student engagement and streamline communication. The Head of Student Activities highlighted that a centralized platform with a calendar and reminder functionality would help avoid scheduling conflicts and enable students to better manage their time. Additionally, interviewees suggested adding features that would facilitate better coordination between clubs and departments, allowing them to organize events collaboratively.

The Head of Student Activities stated that official university celebrations such as National Day and academic workshops tend to attract the highest levels of participation. The President of the Future Technology Club shared that introductory events and closing ceremonies are usually the most popular among students. Overall, the interviewees believe that the UniFun app would significantly improve student participation in events and help overcome many of the current challenges related to event promotion and communication.

Questionnaire Results and Analysis

The questionnaire responses provided quantitative data that reflects the preferences and requirements of university students regarding campus events. The respondents included a diverse group of students: 9.1% Sophomores, 54.5% Juniors, and 36.4% Seniors (Figure 2). This balanced representation ensures that the gathered data reflects the needs and expectations of students at various stages of their academic journey.

One of the standout findings is that social media platforms, such as Instagram and X(Twitter), are the primary sources of information for campus events, with 90.9% of respondents using these channels. While social media plays a dominant role, traditional methods like posters and campus bulletins are rarely utilized, with only 45.5% of respondents indicating they still use them. Additionally, 72.7% rely on word of mouth to hear about events, which suggests that information is often disseminated informally (Figure 3). This fragmentation creates an opportunity for the UniFun app to become a centralized platform that consolidates all event-related information in one place, eliminating the need for students to search across multiple sources.

In terms of event participation, 31.8% of students reported attending events occasionally, around 3-5 times per semester, while 45.5% attended events 1-2 times per semester. However, 18.2% stated that

they never participate in campus events (Figure 4). This indicates that while many students are somewhat engaged, there is significant potential to increase participation by providing easier access to information and more personalized event recommendations.

The questionnaire also explored the challenges students face in staying updated on campus events. One of the key reasons cited for low participation is that 86.4% of students often miss event announcements due to scattered information. Moreover, 68.2% mentioned the lack of a centralized source as a challenge, which makes it difficult to keep track of all upcoming events (Figure 6). Addressing these pain points with the UniFun app could lead to higher student engagement and attendance.

When analyzing the types of events that students are most interested in, social and academic events emerged as the top choices, with 77.3% and 45.5% of respondents expressing interest, respectively. Other popular categories included panel discussions (54.5%) and sports events (31.8%) (Figure 5). This preference distribution indicates that the initial version of the UniFun app should focus on promoting a mix of social and academic events to cater to a wide range of student interests. Additionally, providing filters and search options based on these categories would allow students to find events that align with their preferences more efficiently.

The questionnaire also explored the features that students would like to see in a campus events app. Personalized event recommendations were highly rated, with 72.8% of respondents giving it a score of 4 or 5 out of 5 (Figure 7). Event notifications were even more popular, with 77.2% of respondents rating them as very useful (Figure 8). Calendar synchronization and advanced event filtering also received high ratings, with 68.2% and 81.8% of respondents, respectively, finding them valuable (Figure 9,10). These results highlight that students want a personalized and organized approach to discovering events, with timely reminders and an intuitive search functionality.

In terms of adopting a new platform, the majority of students showed a strong willingness to use the UniFun app. A substantial 45.5% of respondents stated that they are “Very Likely” to use a centralized campus events app, while 50% indicated that they are “Likely” to use it (Figure 13). Furthermore, ease of use was deemed a critical factor, with 73.3% of respondents rating it as “Very Important” and the remaining 13.6% as “Important.” (Figure 14) This feedback underscores the need for an application with a simple, user-friendly interface that allows users to navigate and access information with minimal effort.

Summary of the Requirements Engineering Process

In this section, we outlined the requirements elicitation methods employed for the development of the UniFun mobile application. The process included user interviews and questionnaires to gather qualitative and quantitative insights. The findings from these methods were analyzed to identify user needs and preferences, challenges faced in event management, and the desired features for the UniFun app. We also referred to the detailed interview transcripts and questionnaire responses in the appendices to provide additional context and evidence supporting the requirements. Through this structured approach, we were able to capture the needs of our target users and document them effectively for further development.

3.1 System Users

This section describes general characteristics of our users, including educational level, experience, and technical expertise.

For the UniFun application, we have only one type of user: **students**. These students will be able to access the application and utilize its features to explore, track, and participate in university events.

- **Language Proficiency:** Users should be able to read and write, and they should have basic proficiency in English, as the app's primary language is English.
- **Educational Level:** There is no specific educational level required; users can range from freshmen to final-year students.
- **Technical Expertise:** Users should have minimal technical knowledge to navigate and utilize the app's features effectively. This includes familiarity with using smartphones and interacting with common mobile application interfaces.
- **Previous Experience:** Users are expected to have basic familiarity with similar applications for event management or social activities.
- **Interests:** Users should be interested in participating in university events and be enthusiastic about engaging with campus activities.
- **Age Group:** The app is designed for university students, typically aged 18 and above.
- **Gender:** The app caters to all genders, providing an inclusive platform for both male and female students to stay connected and engaged with campus life.

3.2 Use Case Diagram

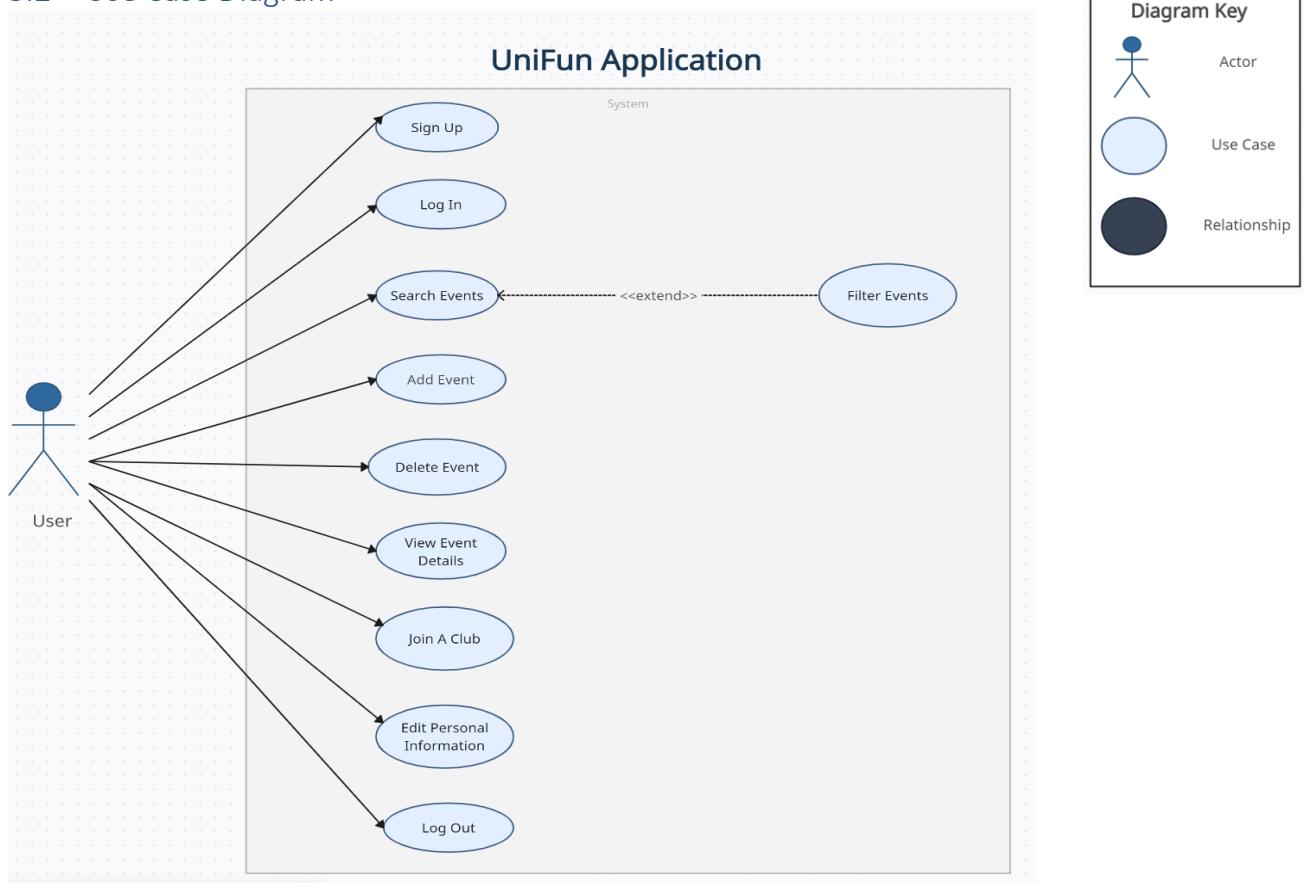


Figure 1: The Use Case Diagram Of UniFun

3.3 Product Backlog

In Agile software development, this section contains our **Product Backlog**, which consists of prioritized features of our project presented in user story format. It includes essential details such as size estimate (rated on a scale from 1 to 3), type and acceptance criteria, providing clarity for the development team. Each user story reflects user needs and desires, allowing us to address both functional and non-functional requirements effectively. This structured approach helps the team focus on delivering value while maintaining alignment with stakeholder expectations.

The **Product Backlog Item (PBI)** section details key features and functionalities through user stories, prioritizing **10 functional requirements** consisting (viewing event details, signing up, logging in, logging out, add event, delete event, edit personal information, search for recent events, filter events and explore clubs) and **2 non-functional requirements** that emphasize system availability and ease of use. Each user story is assigned a size in story points for effort estimation and classified by type, such as features, defects, etc.

To ensure that our Product Backlog Items (PBIs) are ready for development, we define our **Definition of Ready**. This set of criteria guarantees that each PBI is sufficiently refined before being incorporated into a sprint. Acceptance criteria are established to outline the conditions for completion, ensuring alignment with user expectations. This organized backlog empowers the team to deliver a user-friendly and efficient application that meets the needs of its users.

| [Definition Of Ready Of UniFun] | |
|---|---|
| ✓ | Business value is clearly articulated |
| ✓ | Details are sufficiently understood |
| ✓ | Dependencies are identified; no blocking dependencies exist |
| ✓ | Team is appropriately staffed relative to the PBI |
| ✓ | Estimated and small enough to be completed during sprint |
| ✓ | Acceptance criteria are clear and testable |
| ✓ | Performance criteria, if any, are defined and testable |
| ✓ | Team understands how to demo the completed PBI |

Table 2: Definition Of Ready Of UniFun

| PBI (user story) | Size (Story points) | Type (Feature, defect, technical work, knowledge acquisition) | Acceptance Criteria The conditions of satisfaction that must be met for that item to be accepted. |
|---|---------------------------|---|--|
| As a guest user, I want to sign up so that I can view and participate in the events held at the university. | 2 | Feature | If the user fills in their information (name, collage, department, email, and password) on the registration page and clicks the submit button, the system will verify if the user is already registered in the database. If the user is new, a confirmation message will appear, followed by a redirection to the home page. If the user is already registered, they will receive a message advising them to log in instead. |
| As a registered user, I want to log in so that I can access my account and utilize the services. | 2 | Feature | If the user enters their email and password and clicks the submit button, the system will verify that the information matches a record in the database before redirecting them to |

| | | | |
|--|---|---------|---|
| | | | the app's home page. If the credentials do not match any records, an error message will be displayed, indicating that the user has not yet registered. so after closing the message he can sign up by clicking on the sign up button in the log in page. |
| As a registered user I want to log out so that I can exit my account | 2 | Feature | If the user clicks the logout button at a profile, confirmation message will appear. If the user selects "Yes," they will be logged out and redirected to the login page. If the user selects "No," they will remain logged into their account. |
| As a user, I want to view event details for each campus event so that I can access comprehensive information. | 3 | Feature | If the user clicks on a specific campus event, the event page will open, displaying comprehensive information about the event, including the event description, location, time, and any other relevant details. If the user decides to return to the previous page, he can navigate back to it by clicking the "Back" button. |
| As a user, I want to add events to my personal calendar so that I can schedule and manage my upcoming activities. | 3 | Feature | If the user selects an event and clicks the "Add to Calendar" button, a confirmation message. If the user confirms, the event will be added to their personal calendar, and a message will indicate the successful addition. If the user cancels, the event will not be added to the calendar. |
| As a user, I want to delete events from my personal calendar so that I can manage changes and keep my schedule up to date. | 3 | | If the user selects an event from their personal calendar and clicks the "Delete" button, a confirmation message will appear asking if they are sure they want to delete the event. If the user confirms the deletion, the event will be removed from the calendar, and a message will indicate the successful removal. If the user selects |

| | | | |
|---|---|---------|--|
| | | | "No" or cancels the action, the event will remain unchanged in the calendar. |
| As a user, I want to search for the most recent events so that I can keep track of the latest activities. | 3 | Feature | If the user enters a query in the search bar to find events, the system will display the matching events. If no events match the search, a message will be shown to inform the user that there are no available events. |
| As a user, I want to filter events based on preferred domains or topics so that I can discover relevant opportunities that match my interests. | 3 | Feature | If the user selects their preferred domains from a filter checklist, the system will display only the events that align with those preferences. If no events match the selected filters, a message will notify the user that no events are available for those preferences. |
| As a user, I want to explore clubs and be directed to the appropriate club's website or app so that I can get more information about the club, join, and register for membership. | 2 | Feature | If the user clicks on a specific club after selecting the club tab from the tab bar on the homepage, the system will navigate them to the club page. This page provides details about the club, including a brief description and a link to the club's website or app for more information. By clicking the link, the user will be directed to the club's site, where they can easily join and register for membership. |
| As a user, I want to edit my personal information so that I can have a more tailored experience. | 2 | Feature | If the user clicks on their profile picture at the bottom navigation bar, their personal information is displayed along with an "Edit" button below. If the user clicks the "Edit" button reveals pen icons next to each detail, allowing individual edits. After making changes, the user can choose to click "Save" to confirm or "Cancel" to discard modifications. A confirmation message will appear upon saving, while clicking cancel will revert the fields to their original state. |

| | | | |
|--|---|---------|---|
| As a new user, I want the system to be easy to use and clear to navigate, allowing me to learn its functionalities within 10 seconds and complete tasks efficiently without requiring extensive training or support. | 2 | Feature | If a new user interacts with the system, they should be able to understand its key features within 10 seconds . The layout should be simple, with clear labels, enabling them to complete tasks easily. Brief instructions should guide users through essential functions without requiring extensive training, allowing efficient use from the start. |
| As a new user, I want the system to be available 24/7 so that I can access it anytime without downtime. | 3 | Feature | If a new user wants to access the system, it must be available 24/7 , ensuring they can use it at any time without downtime. The system should be reliable and maintain constant uptime, with no service interruptions, even during peak usage or maintenance periods. Backup systems and redundancies should be in place to ensure continuous access |

Table 3: The Product Backlog of UniFun

4 Chapter 4: System Design

4.1. System Architecture

System architecture describes your system's organizational style showing the major subsystems and data repositories and their interconnections. Include the system architecture and supplement your architecture with text as needed. Provide a high-level overview of how the functionality and responsibilities of the system were partitioned and then assigned to subsystems or components. Do not go into too much detail about the individual components themselves at this stage.

The main purpose here is to gain a general understanding of how and why the system was decomposed, and how the individual parts work together to provide the desired functionality. You may use one of the design patterns, either in describing parts of the architecture, or for referring to elements of the architecture that employ them.

Describe the system architecture by providing a high-level view of the system showing input and output, system users, external programs and devices, major components and their interactions.

System Architecture

The system architecture for the Unifun application is built on a client-server model. This architecture was chosen for its ability to efficiently process data and enable seamless communication between the user interface (client) and the backend system (server).

The user interface, acting as the client, allows users to interact with the application by performing operations such as searching for events and clubs, viewing detailed information, managing their profiles, and scheduling activities. The client ensures that the system is user-friendly and responsive to user inputs.

The server-side component handles requests sent by the client. It processes these requests, implements business logic, and manages user authentication and data integrity. The server retrieves or updates information in the database as needed and sends appropriate responses back to the client.

The database serves as a centralized storage for data related to university clubs, events, and user profiles. It is designed for efficient data retrieval and updates to support the application's core functionality.

The client-server architecture was chosen for its numerous advantages. One key benefit is the clear separation of responsibilities between the client-side, which handles the user interface, and the server-side, which manages business logic and data processing. This separation ensures that the system is well-organized and easier to develop and debug. Additionally, the architecture promotes scalability by enabling each component to be independently maintained and upgraded as the system grows, ensuring that new features or changes can be implemented without disrupting the entire system. Moreover, it enhances maintainability by isolating user-facing functionality from backend processes, making the application simpler to manage and more efficient to update or troubleshoot over time.

We did not choose other architectures for the system due to their specific limitations and unsuitability for the requirements of the Unifun application. The MVC architecture, while effective at separating concerns such as Model, View, and Controller, is more appropriate for structuring individual components rather than representing the overall system architecture. The Layered architecture, though it organizes systems into distinct layers like Presentation, Business Logic, and Data Access, is more rigid and lacks the flexibility offered by the client-server model in managing user interactions and backend processing. Similarly, the Repository architecture, which centralizes data management, was not prioritized because while we use a database, the repository concept is not central to Unifun design. The Pipe and Filter architecture, which emphasizes processing data through a sequence of filters, is unsuitable since filtering data is not a key functionality of our application. Ultimately, the client-server architecture was chosen because it efficiently handles dynamic user requests, processes data seamlessly, and provides structured communication between the client and server. By adopting this architecture, we ensure that the system remains modular, scalable, and capable of delivering a smooth and efficient user experience.

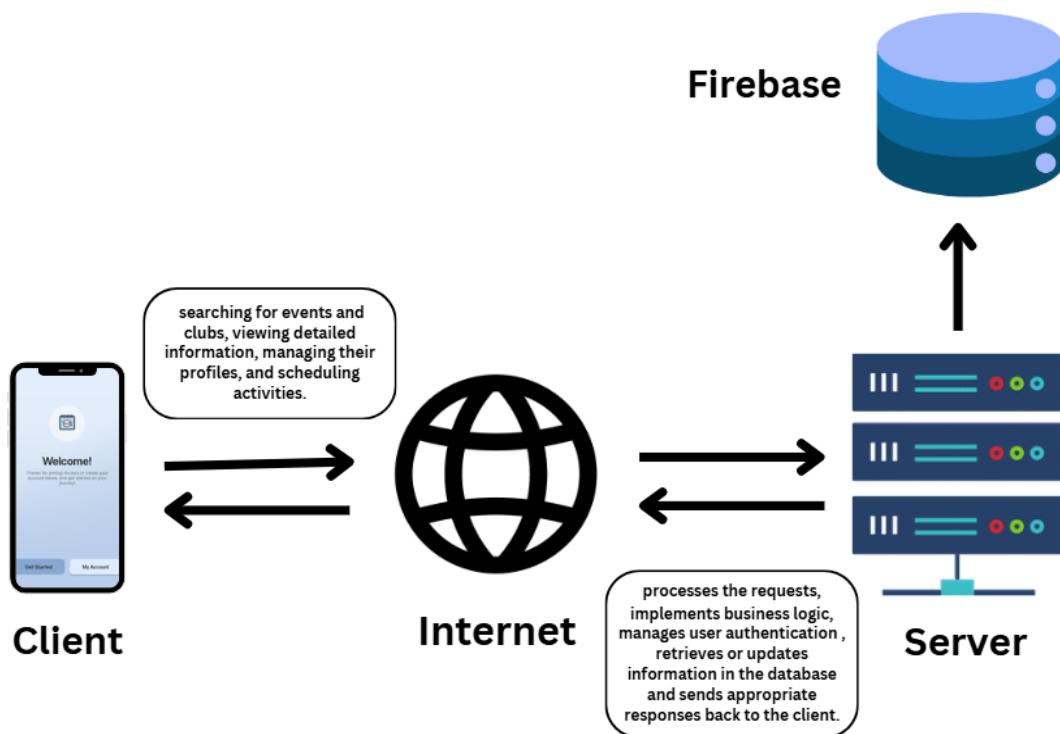


Figure 1

4.2 Class Diagram

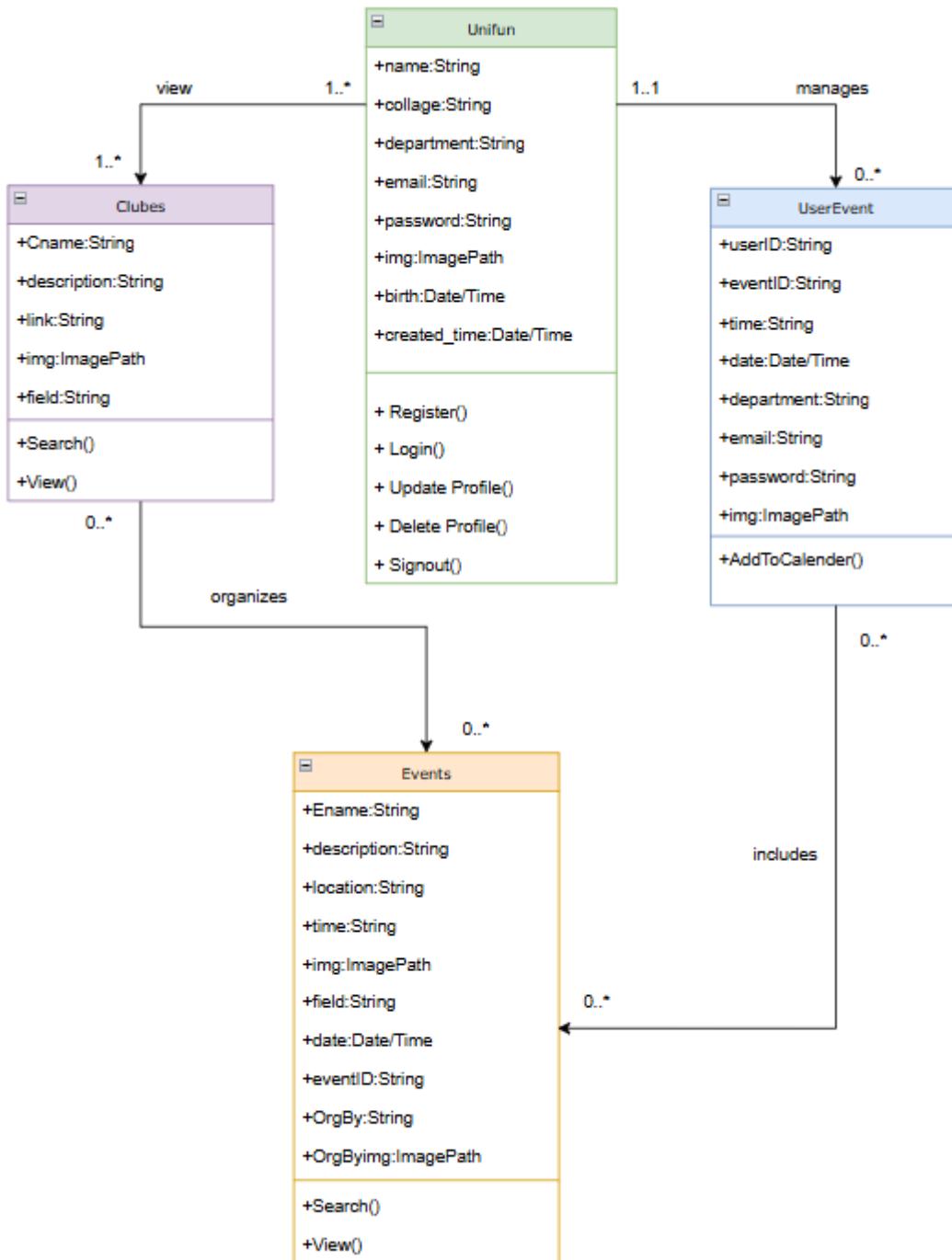


Figure 15

4.3. Data Design

1. Unifun (user): This table stores information about users who are registered in the Unifun app. It includes the following attributes:

- ID: Unique identifier for each user.
- Name: The user's full name.
- College: The college the user is affiliated with.
- Department: The department the user belongs to.
- Email: The user's email address.
- Password: The user's password.
- Image (Img): A path to the user's profile image.
- Birth: The user's date of birth.
- Created Time: The timestamp indicating when the user account was created in the system.

Example Contents:

| ID | Name | College | Department | Email | Password | Image (Img) | Birth | Created Time |
|----------|-------|-----------------------------------|------------|-----------------|----------|----------------|------------------|---------------------|
| Jhg3mv | Ahmed | Computer and Information Sciences | CS | Ahmed@gmail.com | pass123 | /img/Ahmed.jpg | 1999/05/23 12:00 | 2024/4/3 3:20:03 PM |
| 6jbcbc3I | sarah | sciences | Math | sarah@gmail.com | 789Jfbw0 | /img/tree.jpg | 2001/09/15 12:00 | 2024/6/2 8:05:07 PM |

2. Events: This table stores information about events available in the Unifun app. It includes the following attributes:

- ID: Unique identifier for each event.
- Ename: The name of the event.
- Description: A brief description of the event.
- Location: The venue or location where the event will take place.
- Time: The time of the event.
- Image (Img): A path to the event's banner or image.
- Field: The category or field related to the event.
- Date: The date of the event.
- EventID: A unique identifier for each event.
- OrgBy: The name of the person or organization hosting the event.
- OrgByImg: A path to the organizer's image or logo.

Example Contents:

| ID | Ename | Description | Location | Time | Image (Img) | Field | Date | OrgBy | OrgByImg |
|---------|-----------------------------|--|---------------------|---------------|---|---------------------|--------------------|----------------------|---|
| 5hvbnbe | Leadership and Value System | with His Excellency the Assistant Minister of Education, Eng. Mohammed bin Nasser Al-Ghamdi. | Hamad Al-Jasser 26B | 1:00-12:00 PM | https://pbs.twimg.com/media/GcqVmifXcAAGpy?format=jpg&name=large | Cultural and social | 2024/11/27 12:00PM | King Saud University | https://nucleararmed.org/wp-content/uploads/2022/03/KSU-300-.png |

3. Clubes: This table stores information about various clubs available in the Unifun app. It includes the following attributes:

- ID: Unique identifier for each club.
- Cname: The name of the club.
- Description: A brief description of the club and its activities.
- Link: A link to the club's page or additional resources.
- Image (Img): A path to the club's logo or representative image.
- Field: The category or field the club is associated with.

Example Contents:

| ID | Cname | Description | Link | Image | Field |
|---------|---------------|--|---|---|-----------|
| 4gjhk5j | Digital Minds | The first student club in the Kingdom. | https://t.co/hwxwIxfiF5 | https://pbs.twimg.com/profile_images/1840370864119848961/ikDgR-zI_400x400.jpg | Technical |

1. UserEvent: This table stores the relationship between users and the events they are associated with in the Unifun app. It helps track which user has joined or is participating in specific events, along with the event's time and date. It includes the following attributes:

- ID: Unique identifier for each relationship between user and the event.
- UserID: A reference to the user from the Users table.
- EventID: A reference to the event from the Events table.
- Time: The time of the event.
- Date: The date of the event.
- Name: The name of the user participating in the event.
- Example Contents:

Example Contents:

| ID | EventID | Time | Date | Name |
|-----------|------------------------------|-----------------|-----------------------|-------------------------|
| 3ghbhjv6j | /Events/SkGa5nAHCxpV7MmUymkh | 5:00 - 10:00 pm | 2024-12-01 5:00 PM | Breast Cancer Awareness |

- ER Diagram.

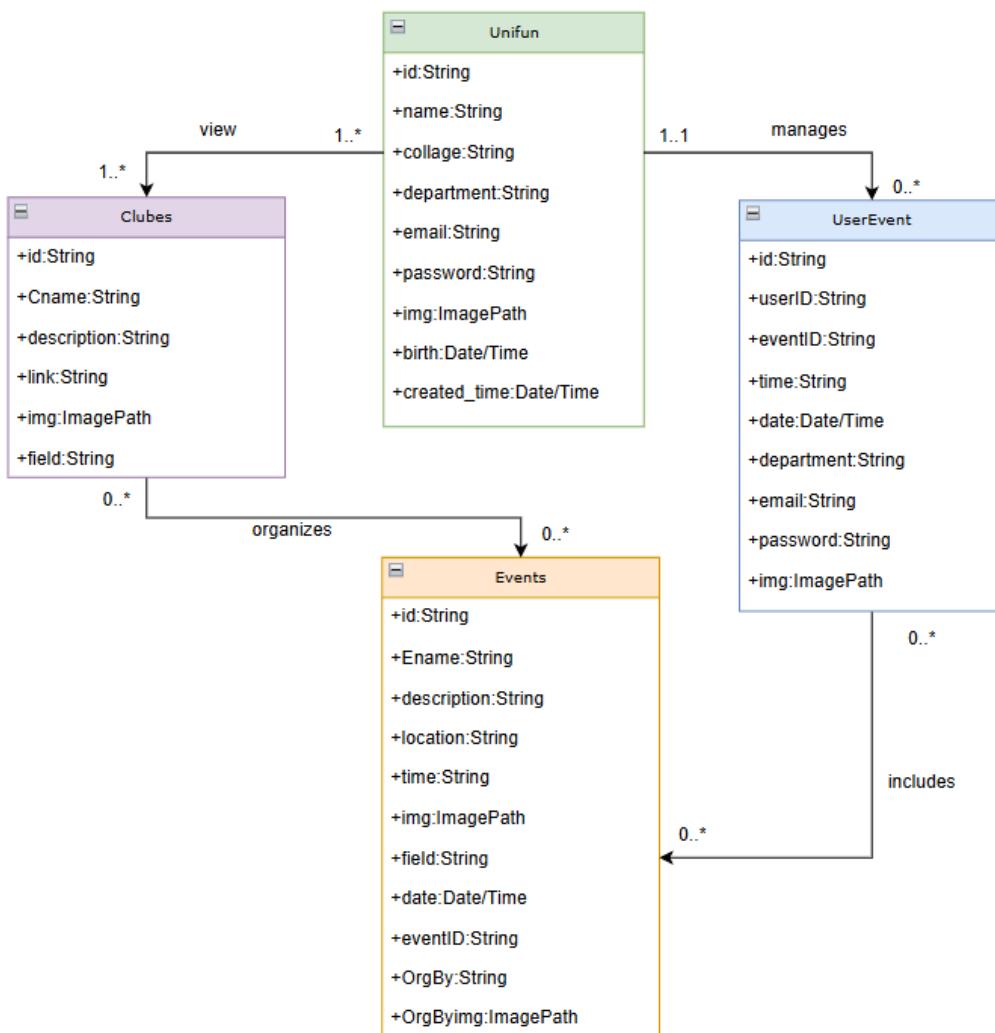


Figure 2

- Schema

- Unifun ([id](#), email, name, password, collage, department, img, birth)
PK: id
- Events ([id](#), Ename, description, location, time, img, field, date, OrgBy, OrgByImg)
PK: id
- Clubs ([id](#), Cname, description, link, img, field)
PK: id
- UserEvent ([id](#), [userID](#), [eventID](#), time, date, name)

PK: id
FK: userID (References Unifun.userID), eventID (References Events.eventID)

- Data Dictionary showing description of all entities:

| Entity Name | Description | Occurrence |
|------------------|---|--|
| Unifun | Represents individuals using the Unifun app. Users can join clubs, participate in events, and manage their profiles. | A user can view multiple clubs, attend multiple events, or none. |
| Events | Represents the events organized within the Unifun app. Each event contains details such as time, date, and organizer. | An event can be attended by many users or none. |
| Clubs | Represents clubs within the app, offering opportunities for students to view and explore it | A club can view by at least one user. |
| UserEvent | Represents the relationship between users and events, tracking their participation. | Each entry associates one user with one event. |

- Data Dictionary showing description of all relationships:

| Entity Name | Multiplicity | Relationship | Entity Name | Multiplicity |
|---------------|--------------|--------------|-------------|--------------|
| Users | 1..1 | Manages | UserEvent | 0..* |
| Events | 0..* | Included | UserEvent | 0..* |
| Users | 1..* | view | Clubs | 1..* |
| Clubs | 0..* | Organizes | Events | 0..* |

- Data Dictionary showing description of all attributes:

| Entity Name | Attribute | Description | Data Type | Length | Nulls | Multi-Valued | Default Value | PK |
|--------------|--------------|---|------------|--------|-------|--------------|-------------------|----|
| Users | ID | Unique identifier for each user | TEXT | 100 | N | N | Auto | Y |
| | Name | The user's name. | TEXT | 50 | N | N | N/A | N |
| | College | The college the user is affiliated with. | TEXT | 100 | N | N | N/A | N |
| | Department | The department the user belongs to. | TEXT | 100 | N | N | N/A | N |
| | Email | The user's email address. | TEXT | 255 | N | N | N/A | N |
| | Password | The user's password. | TEXT | 50 | N | N | N/A | N |
| | Img | A path to the user's profile image. | Image Path | N/A | Y | N | N/A | N |
| | Birth | The user's date of birth. | DateTime | N/A | Y | N | N/A | N |
| | Created_time | The timestamp indicating when the user account was created in the system. | DateTime | N/A | N | N | Current Timestamp | N |
| | ID | Unique identifier for each event | TEXT | 100 | N | N | Auto | Y |
| | Ename | The name of the event. | TEXT | 100 | N | N | N/A | N |
| | Description | A brief description of the event. | TEXT | 255 | N | N | N/A | N |
| | Location | The venue or location where the event will take place. | TEXT | 150 | N | N | N/A | N |
| | Time | The time of the | TEXT | 50 | N | N | N/A | N |

| | | | | | | | |
|-----------|-------------|---|-------------|-----|---|---|------|
| Events | | event. | | | | | |
| | Img | A path to the event's banner or image. | Image Path | N/A | Y | N | N/A |
| | Field | The category or field related to the event. | TEXT | 50 | N | N | N/A |
| | Date | The date of the event. | DateTime | N/A | N | N | N/A |
| | OrgBy | The name of the person or organization hosting the event. | TEXT | 100 | N | N | N/A |
| Clubs | OrgByImg | A path to the organizer's image or logo. | Image Path | N/A | Y | N | N/A |
| | ID | Unique identifier for each club | TEXT | 100 | N | N | Auto |
| | Cname | The name of the club. | TEXT | 100 | N | N | N/A |
| | Description | A brief description of the club and its activities. | TEXT | 255 | N | N | N/A |
| | Link | A link to the club's page or additional resources. | TEXT | 255 | Y | N | N/A |
| | Img | A path to the club's logo or representative image. | Image Path | N/A | Y | N | N/A |
| UserEvent | Field | The category or field the club is associated with. | TEXT | 50 | N | N | N/A |
| | UserID | A reference to the user from the Users table. | String (FK) | 100 | N | N | N/A |
| | EventID | A reference to the event from the Events table. | String (FK) | 100 | N | N | N/A |
| | Time | The time of the event. | TEXT | 50 | N | N | N/A |
| | Date | The date of the event. | DateTime | N/A | N | N | N/A |
| | Name | Name of the event the user will attend | TEXT | 100 | N | N | N/A |

4.4. Component Design

In this section, we will look at our system's component design, focusing on the functionality for adding, editing, deleting, Search for events . We will give design specifications and pseudocode for each user story, defining the logic and steps necessary for executing them. In addition, we will estimate the time and effort needed for each user story. We aim to give a complete knowledge of the implementation process for these services by giving thorough design information, pseudocode, and time estimates.

| Sprint number | PBI (user story) | User story tasks with effort estimates in hours | | | | | Sum of effort |
|---------------|---|---|--|--|---|--------------------------------------|---------------|
| 2 | As a user, I want to view event details for each campus event | Design event details page UI (3 hrs) | Configure data binding to fetch event details from the database (2 hrs) | Test data retrieval and display (2 hrs) | Format the event details layout (1 hrs) | Testing and debugging (2 hrs) | 10 hr |
| 2 | As a user, I want to add events to my personal calendar | Add "Add to Calendar" button in the UI (1 hrs) | Configure database action to save the event to the user's calendar (2 hrs) | Test calendar updates in the database (4 hrs) | Refresh the calendar view with new data (3 hrs) | Testing and debugging (2 hrs) | 12 hr |
| 2 | As a user, I want to search for the most recent events | Add a search bar to the UI (1 hrs) | Configure search functionality to filter recent events (3 hrs) | Display filtered search results dynamically (3 hrs) | Test database query and display (3 hrs) | Final testing and debugging (2 hrs) | 12hr |
| 2 | As a user, I want to edit my personal information | Design the edit personal info page (2 hrs) | Configure database action to update personal info (2 hrs) | Test input validation for the edit form (3 hrs) | Display a confirmation message after saving edits (2 hrs) | Final testing and debugging (2 hrs) | 11 hr |
| 2 | As a user, I want to delete my account | . Add "Delete Account" button to the settings (1 hrs) | Configure a confirmation dialog to confirm account deletion (2 hrs) | Configure database action to remove user account details (3 hrs) | Log the user out after account deletion (2 hrs) | .Final testing and debugging (2 hrs) | 10 hr |

1-View Event details

Activity Diagram

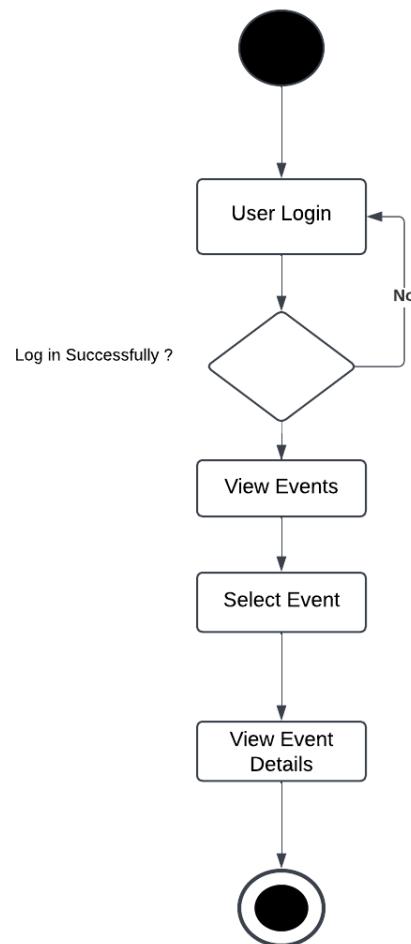


Figure 3

2-add events to my personal calendar

Flow chart

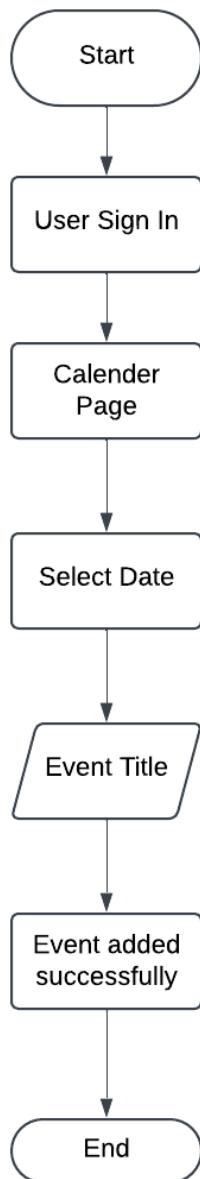


Figure 4

3-search for the most recent events

State diagram

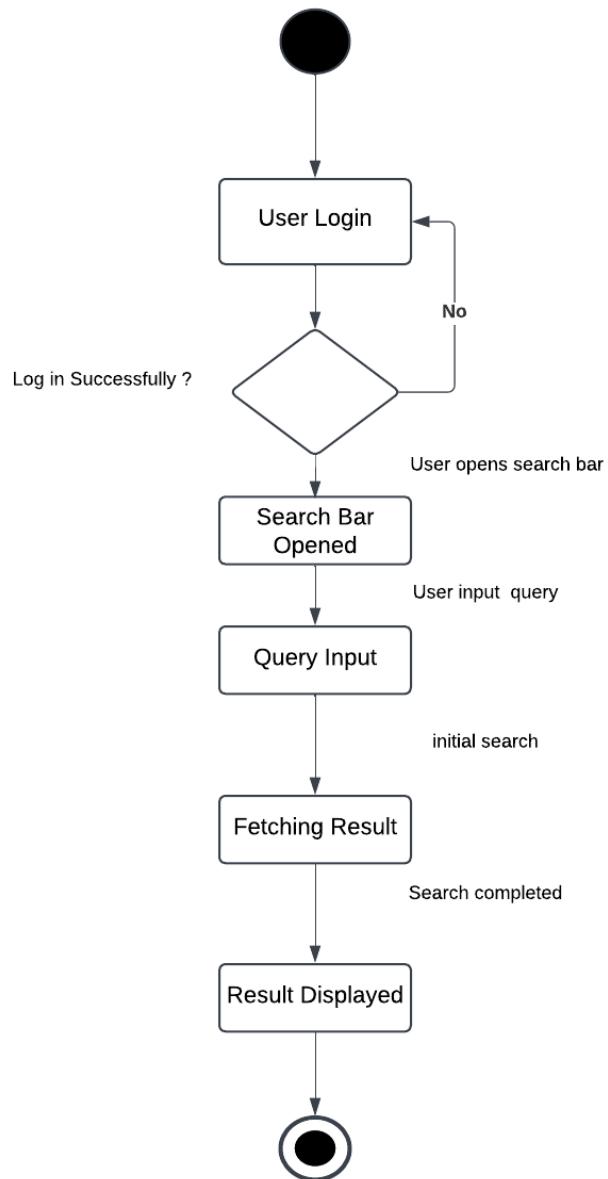


Figure 5

4-edit personal information Flow chart

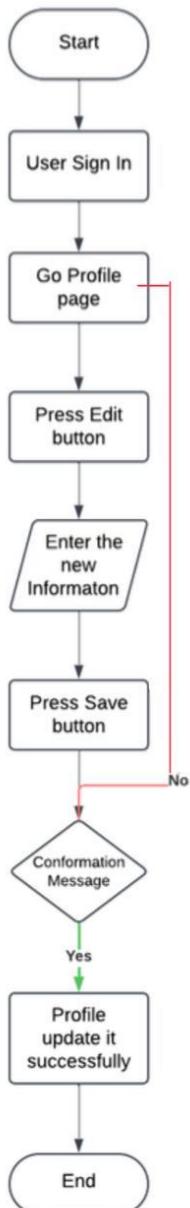


Figure 6

5-delete account

```

BEGIN
  DISPLAY "Profile Page"
  IF User selects "Delete Account" THEN
    DISPLAY "Confirmation Message: Confirm or Cancel"
    IF User presses "Confirm" THEN
      DELETE User Account
      LOGOUT User
      DISPLAY "Account Deleted Successfully"
      EXIT PROCESS
    ELSE IF User presses "Cancel" THEN
      DISPLAY "Return to Profile Page"
    END IF
  END IF
END
  
```

4.5. Interface Design

This section will focus on our system's Interface Design. We will use a navigation diagram to describe the application structure, emphasizing on the flow between screens and presenting the general architecture of our interface. Furthermore, we will give screenshots with descriptions of the important fields for a better understanding of the interface's functionality. Lastly, we will demonstrate our commitment to a user-centered approach by giving five UX standards that were incorporated into the design process of our app.

Navigation Diagram

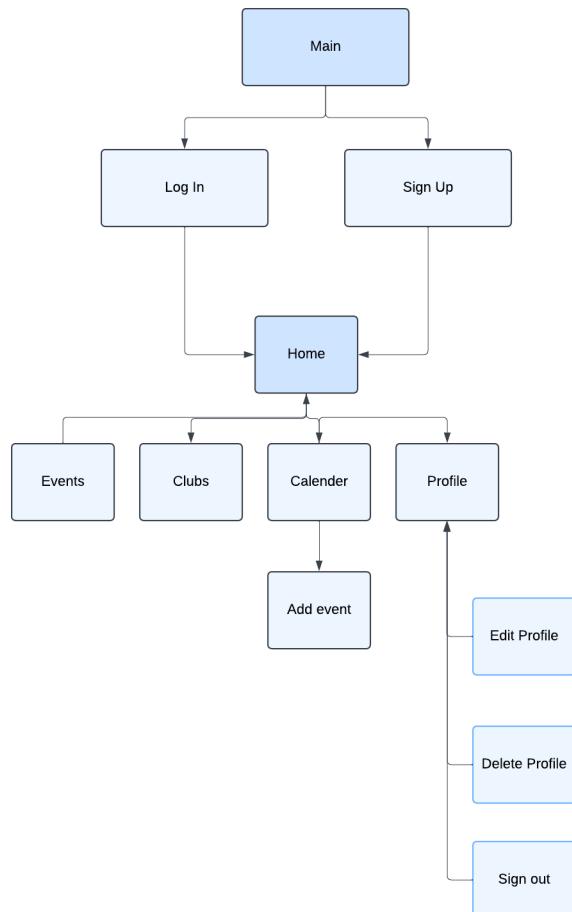
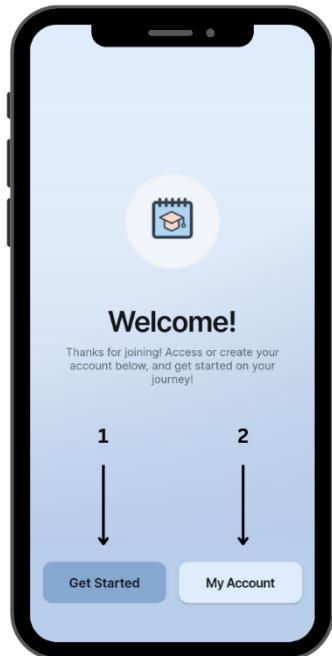


Figure 7

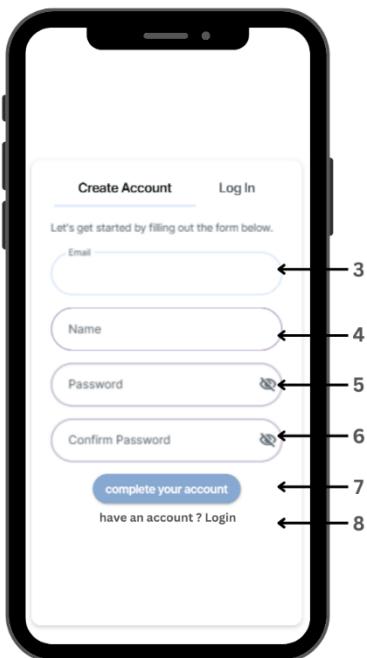
- User interfaces



Main page:

| # | Description |
|---|---|
| 1 | Get started button that direct the user to sign up page |
| 2 | My Account button that direct the user to log in page |

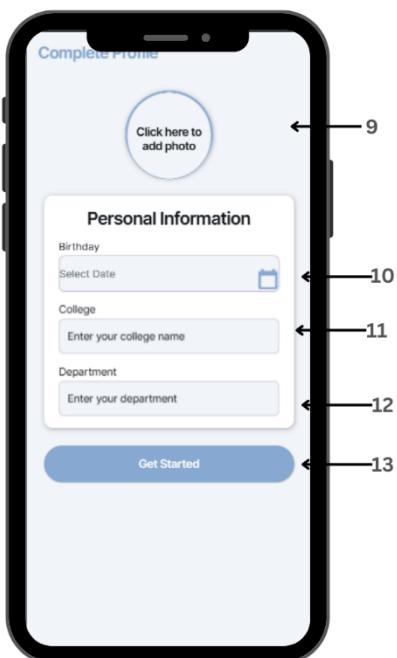
Figure 8



Main page (if user click on #1):

| # | Description |
|---|--|
| 3 | User's email input field that is mandatory to register as new user and access user's page. |
| 4 | User's name input field that is mandatory to register as new user and access user's page. |
| 5 | User's password input field that is mandatory to register as new user and access user's page, and it must be at least 10 digits. |
| 6 | User's confirmation password input field that is mandatory to register as new user and access user's page, and it must be like the password on the past field. |
| 7 | Complete your account button that transfer the new user to complete profile page to complete the user information. |
| 8 | Log in button that transfer user to log in page if already have an account. |

Figure 9



Complete account page (if user click on #7):

| # | Description |
|----|--|
| 9 | User's input personal img that is optional to register as new user . |
| 10 | User's input birthday date field that is mandatory to register as new user and access user's page. |
| 11 | User's college input field that is mandatory to register as new user and access user's page. |
| 12 | User's department input field that is mandatory to register as new user and access user's page. |
| 13 | Get started button that transfer user to Home page . |

Figure 10



Login page (if user click on #2):

| # | Description |
|----|--|
| 14 | User's email input field that is mandatory to access user's page. |
| 15 | User's password input field that is mandatory to access user's page. |
| 16 | Sign in button that transfer the user to the home page when all information entered. |
| 17 | Signup button that transfers the new user to sign up page. |

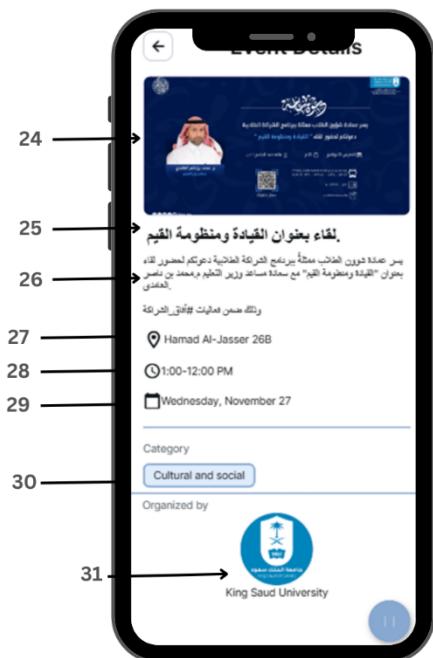
Figure 11



Home page (if user click on #16):

| # | Description |
|----|--|
| 18 | The user has the ability to view the events . |
| 19 | The user has the ability to search for the recent events |
| 20 | Displayed the event list with its name, description, the user has the ability to select the event they want to see. |
| 21 | Home button to direct the user to the home page. |
| 22 | Calendar button to direct the user to 'My Calendar' and the user will be able to view the event that been added to calendar. |
| 23 | Profile button that direct the user to user account |

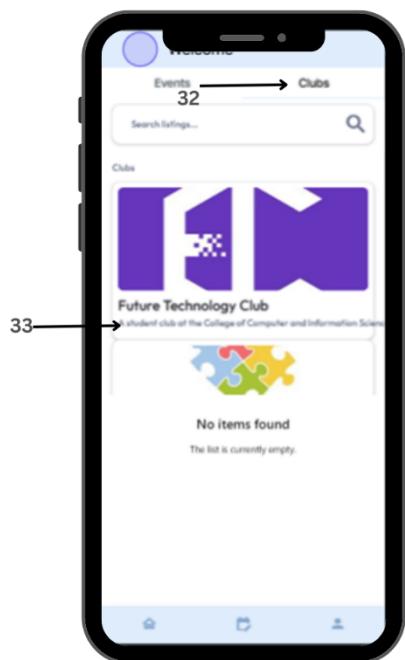
Figure 12



Event details page (if user click on #20):

| # | Description |
|----|--|
| 24 | The user have the ability to see the poster image |
| 25 | The user have the ability to see the event heading |
| 26 | The user have the ability to see the event description |
| 27 | The user have the ability to see the event location |
| 28 | The user have the ability to see the event time |
| 29 | The user have the ability to see the event date |
| 30 | The user have the ability to see the event category |
| 31 | The user have the ability to see the event date |
| 32 | Add to calendar button that direct to calendar page |

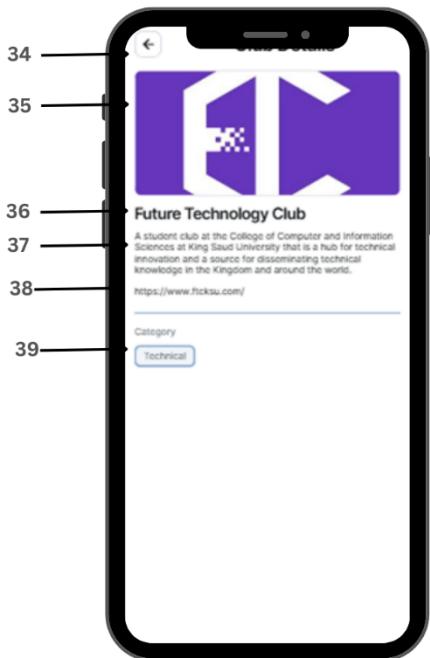
Figure 13



Home page (if user click on #18):

| # | Description |
|----|---|
| 32 | The user has the ability to view the events . |
| 32 | Displayed the club list with its name, description, the user has the ability to select the club they want to see. |

Figure 14



Club details page (if user click on #33):

| # | Description |
|----|--|
| 34 | The user have the ability to press arrow button that return the user to the clubs page |
| 35 | The user have the ability to see the club image that show the club logo |
| 36 | The user have the ability to see the club name |
| 37 | The user have the ability to see the club description |
| 38 | The user have the ability to visit the club website |
| 39 | The user have the ability to see the club category |

Figure 15

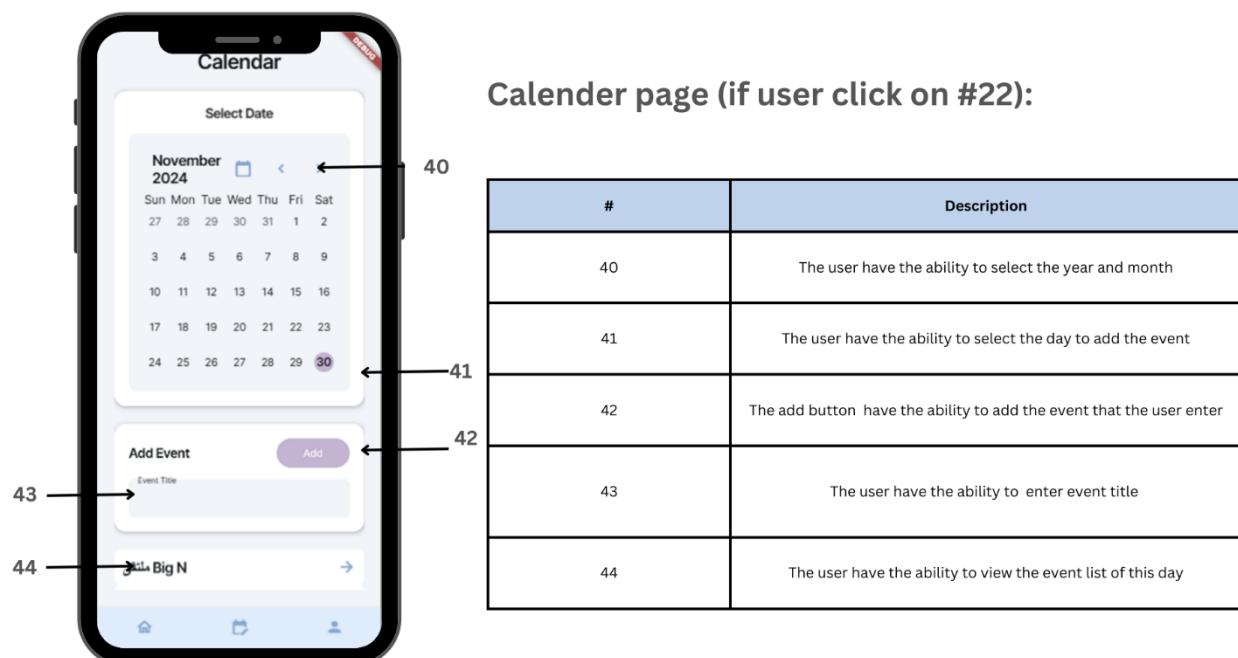


Figure 16

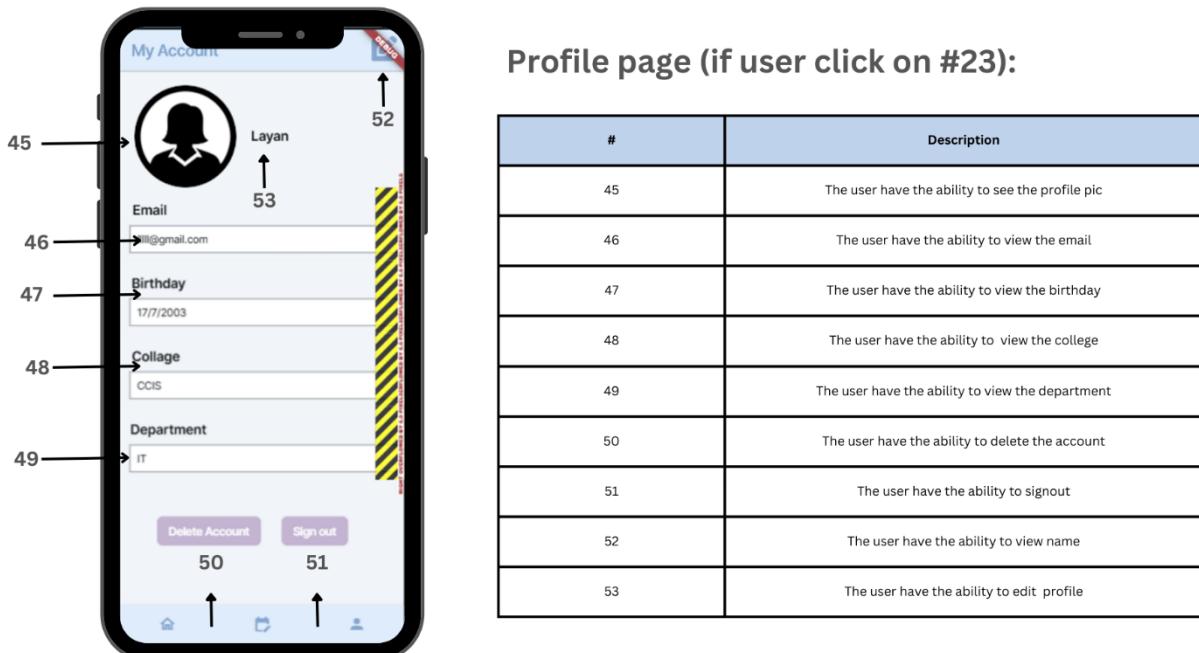
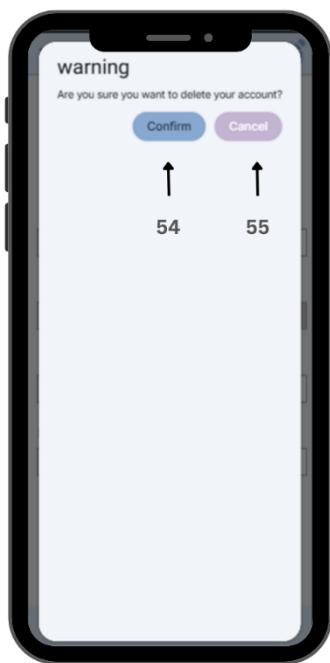


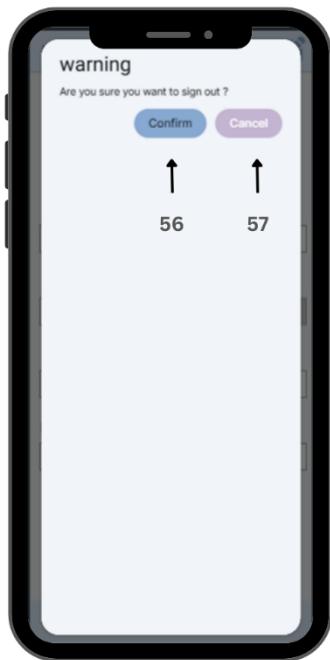
Figure 17



Profile page (if user click on #50):

| # | Description |
|----|---|
| 54 | Clicking on confirm will close the confirmation message will delete the account and return it to main pge |
| 55 | Clicking on cancel will close the confirmation message without delete the account . |

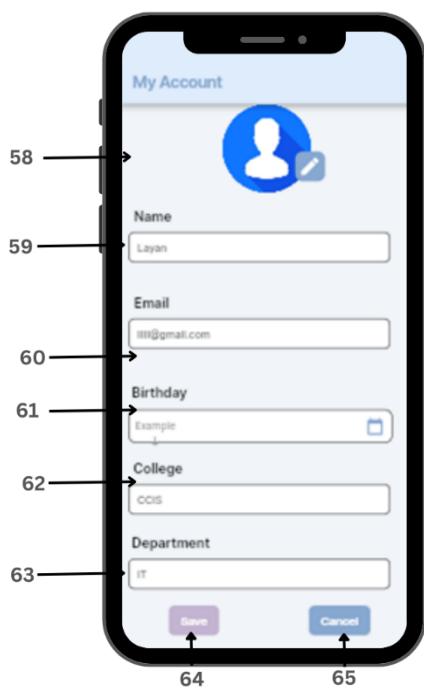
Figure 18



Profile page (if user click on #51):

| # | Description |
|----|--|
| 56 | Clicking on confirm will close the confirmation message with logging out to Main page. |
| 57 | Clicking on cancel will close the confirmation message without logging out to Main page. |

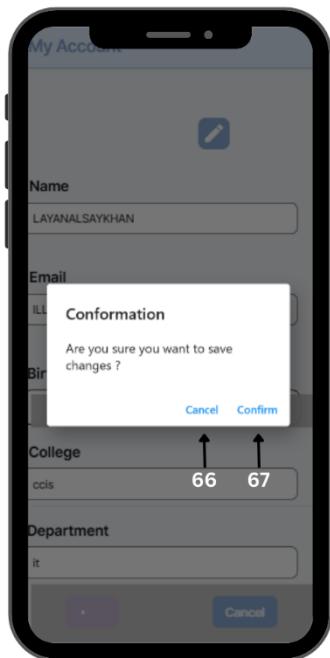
Figure 19



Profile page (if user click on #52):

| # | Description |
|----|--|
| 58 | The user have the ability to edit the profile pic |
| 59 | The user have the ability to edit the name |
| 60 | The user have the ability to edit the email |
| 61 | The user have the ability to edit the birthday |
| 62 | The user have the ability to edit the collage |
| 63 | The user have the ability to edit the department |
| 64 | The user have the ability to save the edits throw save button |
| 65 | The user have the ability to cancel edit throw cancel button and it will return it to the profile page |

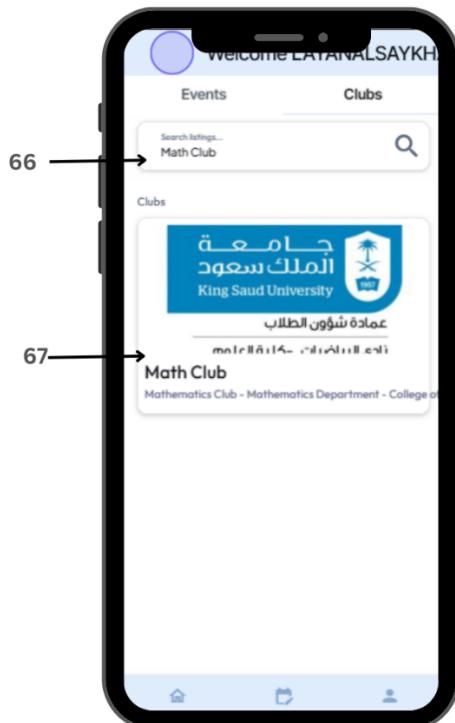
Figure 20



Profile page (if user click on #64):

| # | Description |
|----|---|
| 66 | Clicking on confirm will close the confirmation message will edit the profile informationreturn it to profile pge |
| 67 | Clicking on cancel will close the confirmation message without edit the personal information of the account . |

Figure 21

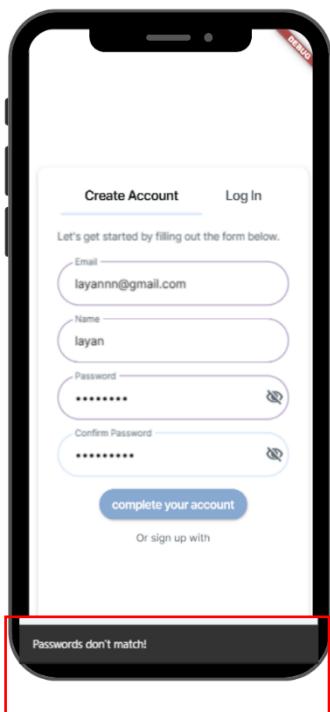


Home page (if user click on #18):

| # | Description |
|----|---|
| 66 | The user has the ability to Search for the clubs . |
| 67 | Displayed the club list result user search with its name, description |

Figure 22

-Error Message

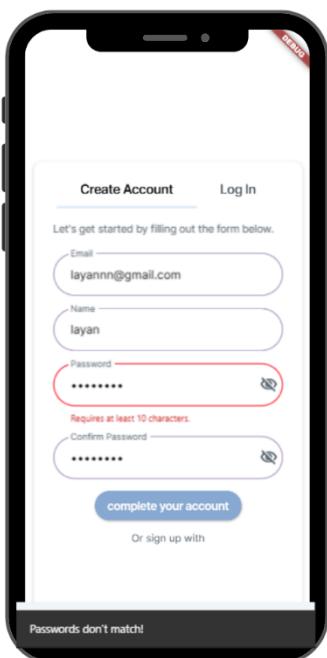


Error Message

1. Sign up with unmatched password

Error message to Sign up with unmatched password

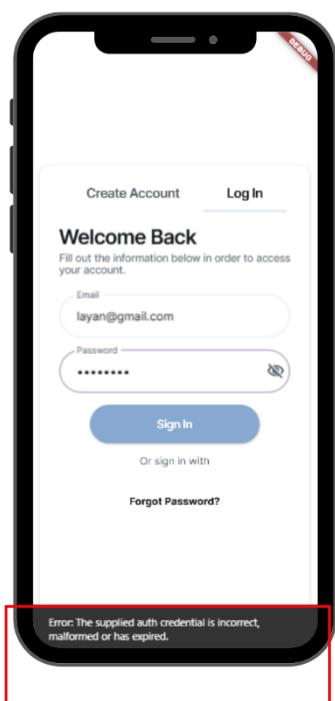
Figure 23



Error Message

2. Sign up with password less than 10 digits

Error message to fill the password with valid password contain at least 10 characters

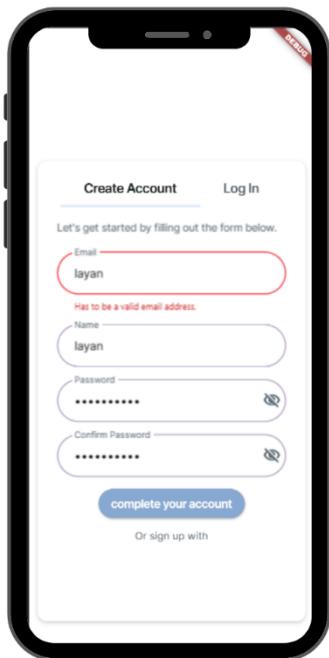


Error Message

3. Log in with wrong credentials

Error message to login with account doesn't exist

Figure 25

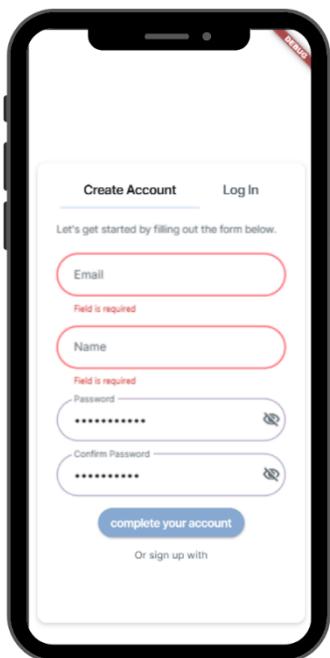


Error Message

4. Sign up with invalid format

Error message to fill the email with valid format

Figure 26



Error Message

5. Sign up without filling the required fields

Error message to fill all the fields

Figure 27

UX Guidelines Implemented for Each Interface

1. Consistency Design:
 - Ensures a seamless and cohesive experience across the application.
 - Standardized visual elements, such as consistent color palettes, typography, and layout designs, are used throughout all screens.
 - For example:
 - Buttons, icons, and navigation bars maintain a uniform style across the app.
 - Fonts and sizes are consistent for headers, subheaders, and body text.
2. Clear Navigation:
 - Navigation elements are intuitive and easy to use, enabling users to move through the app effortlessly.
 - A bottom navigation bar with clear labels/icons directs users to primary sections of the app (e.g., Calendar, Profile, Events).
 - Breadcrumbs or page titles help users understand their current location within the app.
3. Feedback and Confirmation:
 - Immediate feedback acknowledges user actions, ensuring clarity and user confidence.
 - For example:
 - When a user deletes an event or account, a confirmation message appears to confirm their intent.
4. Flexibility and Efficiency of Use:
 - The app is designed to support both novice and experienced users by streamlining workflows and reducing unnecessary steps.
 - Quick access to essential features:
 - Users can easily switch between pages, such as moving from the profile page to the event calendar, with minimal clicks.
 - Features like search bars and filters enhance task efficiency.
5. Error Handling:
 - Proactive measures are implemented to prevent errors where possible:
 - Input validation ensures users enter correct information (e.g., email format, event dates).
 - When errors occur, clear and helpful messages guide users:
 - Example: If a user enters an invalid email during registration, the app displays: "Invalid email format. Please use a valid email (e.g., example@domain.com)."
 - The app provides suggestions to resolve issues, reducing user frustration.

5 Chapter 5: Implementation

This section outlines the implementation phase of our “UniFun” application. Implementation involves building and creating the app, integrating the database, adding functionalities, linking pages, and ensuring the application flow is seamless.

From the outset, we chose the FlutterFlow environment for development. FlutterFlow provided an efficient and streamlined platform for both interface design and backend integration, optimizing our development process and minimizing potential challenges.

The implementation phase consisted of the following steps:

1. Requirements Gathering:

We began by collecting the necessary requirements to establish the foundation for development. This included understanding the goal of enhancing university life, user needs for discovering and managing events and clubs, and technical specifications.

2. User Interface Design:

The process started with designing the user interface (UI) for the application. This involved creating sketches and wireframes for various screens and functionalities tailored to university events and club activities.

3. Core Development:

The main development process involved constructing both the front-end and back-end components:

a. Front-End Development:

The front-end was built using Dart in the FlutterFlow environment. This included:

a. Designing user interfaces.

b. Creating all screens users interact with, such as event discovery, club details, and user dashboards.

b. Back-End Development:

Following the front-end, we developed the back-end using Dart and Firebase. This included:

a. Setting up the database via Firebase and connecting it to the project in FlutterFlow.

b. Linking front-end pages to establish a logical application flow.

c. Implementing app functionalities, such as:

i. **User registration, login, and logout** to manage secure access.

ii. **Viewing university events and club details**, providing students with comprehensive information.

iii. **Adding events to a calendar** to help users keep track of their schedules.

iv. **Searching for events or clubs by name** for quick and easy discovery.

v. **Deleting accounts** to allow users to permanently remove their data and accounts if desired.

vi. **Editing Account Information** to allow users to edit their information

4. Testing and Debugging:

Testing and debugging were conducted throughout the development process. We performed user acceptance testing, user story testing, and integration testing to ensure all functionalities met user requirements and worked as intended.

The application comprises several critical elements and components, including:

1. Front-End:

Developed with Dart, the front-end includes user interfaces and interactive screens.

2. Back-End:

Built with Dart and Firebase, the back-end handles all core functionalities.

3. Database:

A non-relational database was implemented using Firebase to store user data, event details, club information, and registrations. Firebase's SDK was used to establish connectivity and manage data interactions.

To streamline the implementation process and ensure effective collaboration, we used Jira as our primary platform. It enabled us to manage user stories and track progress throughout the development.

Regarding the challenges, the main obstacles we encountered in the implementation stage were as follows:

1. Single-Developer Restriction:

One of the most time-consuming challenges we faced was FlutterFlow's limitation of allowing only one developer to access the project at a time. This restriction slowed down the collaborative development process significantly. To overcome this, we had to establish a clear workflow and schedule for team members to work on the project. While this solution helped us progress, it required careful coordination and occasionally caused delays.

2. Functionality Issues:

Implementing features like adding events to a calendar and the account deletion functionality required careful consideration to ensure data integrity and synchronization. For example, when a user deletes their account, all associated data, such as event registrations, had to be removed efficiently from the database.

3. Input Validation:

Ensuring valid user input, such as rejecting incorrectly formatted emails or preventing registration for past events, was another hurdle.

In conclusion, the implementation phase of the “UniFun” app involved several essential steps, including requirements gathering, user interface design, and the development of both front-end and back-end components. Despite challenges such as FlutterFlow's single-developer restriction and the complexities of implementing functionalities like account deletion and database synchronization, we successfully created a reliable and user-friendly application. “UniFun” enables students to effortlessly explore university events, manage their schedules, and connect with clubs, enhancing their overall campus experience.

Jira Project Link: <https://320-4.atlassian.net/jira/software/projects/SCRUM/boards/1/backlog>

6 Chapter 6: Testing

In this chapter, we will perform various software testing methods, such as User Story Acceptance Testing, Integration Testing, and User Acceptance Testing, to confirm that the application meets its functional specifications and aligns with user expectations. These testing techniques are designed to ensure a stable and user-friendly product.

6.1. User Story Acceptance Testing

To ensure that the UniFun app meets user expectations and functions as intended, we conducted User Story Acceptance Testing. This process involved validating each feature against its corresponding user story and confirming that all acceptance criteria were successfully fulfilled.

We started by preparing the user stories, each detailing specific functionalities and user needs. The testing was then carried out with real users from our target audience in a quiet room. During the tests, we closely observed how users interacted with the app, ensuring that each feature met its acceptance criteria. This approach allowed us to confirm that the app's features function as expected while providing a smooth and intuitive user experience.

By testing a range of features such as sign-up, login, event viewing, and calendar management, we ensured that the app delivers the intended value while maintaining both ease of use and reliability.

A detailed overview of the tested user stories and their corresponding acceptance criteria is presented in the following table.

| Sprint Number | User story | Acceptance criteria | Test action(s) | Pass? | Comments |
|---------------|---|--|---|-------|----------|
| 2 | As a guest user, I want to sign up so that I can view and participate in the events held at the university. | <ul style="list-style-type: none"> • If the user fills in their information (name, collage, department, email, and password) on the registration page and clicks the submit button, the system will verify if the user is already registered in the database. • If the user is new, a confirmation message will appear, followed by a redirection to the home page. • If the user is already registered, they will receive a message advising them to log in instead. | <ol style="list-style-type: none"> 1. Click Get Started from the welcome page, then click Create Account. 2. Enter invalid details (email, short password, missing field). 3. Press Create Account and verify error messages. 4. Enter valid details (email, name, password, confirm password). 5. Click Create Account and verify redirection to Complete Profile. 6. Upload a profile picture and fill in personal info (birthday, college, department). 7. Click Get Started, verify account creation, and confirm redirection to the homepage. | Yes | - |
| 2 | As a registered user, I want to log in so that I can access my account and utilize the services. | <ul style="list-style-type: none"> • If the user enters their email and password and clicks the submit button, the system will verify that the information matches a record in | <ol style="list-style-type: none"> 1. Open My Account from the welcoming page and select the Log In tab. 2. Enter an invalid email and password. 3. Click Sign In and verify that an error | | |

| | | | | | |
|---|---|--|---|-----|---|
| | | <p>the database before redirecting them to the app's home page.</p> <ul style="list-style-type: none"> If the credentials do not match any records, an error message will be displayed, indicating that the user has not yet registered. so after closing the message he can sign up by clicking on the sign up button in the log in page. | <p>message appears.</p> <ol style="list-style-type: none"> Enter valid credentials (email and password). Click Sign In and confirm that the user is successfully authenticated and redirected to the homepage. | Yes | - |
| 2 | As a registered user I want to log out so that I can exit my account. | <ul style="list-style-type: none"> If the user clicks the logout button at a profile, confirmation message will appear. If the user selects "Yes," they will be logged out and redirected to the login page. If the user selects "No," they will remain logged into their account. | <ol style="list-style-type: none"> Click on the sign-out button in the profile section. Verify that a confirmation message appears with options to either confirm or cancel the sign-out. If the sign-out is confirmed, verify that the user is signed out and redirected to the welcoming page. If the sign-out is canceled, verify that the user remains signed in and the confirmation message disappears. | Yes | - |
| 2 | As a user, I want to view event details for each campus event so that I can access comprehensive information. | <ul style="list-style-type: none"> If the user clicks on a specific campus event, the event page will open, displaying comprehensive information about the event, including the event description, location, time, and any other relevant details. If the user decides to return to the previous page, he can navigate back to it by clicking the "Back" button. | <ol style="list-style-type: none"> Click on a specific campus event to open the event details page. Verify that the page displays the event description, location, time, and other relevant information. Click the "Back" button and verify that the user is navigated back to the previous page. | Yes | - |

| | | | | | |
|---|---|--|--|-----|---|
| 2 | As a user, I want to add events to my personal calendar so that I can schedule and manage my upcoming activities. | <ul style="list-style-type: none"> • If the user selects an event and clicks the "Add to Calendar" button, a confirmation message. • If the user confirms, the event will be added to their personal calendar, and a message will indicate the successful addition. • If the user cancels, the event will not be added to the calendar. | <ol style="list-style-type: none"> 1. Select a specific day in the calendar. 2. Enter the event name. 3. Click the "Add" button to add the event to the calendar. 4. Verify that the event is successfully added to the selected day. 5. Ensure that the user can cancel the event addition by not pressing the "Add" button. | Yes | - |
| 2 | As a user, I want to delete my account so that I can permanently remove my information from the system. | <ul style="list-style-type: none"> • If the user clicks "Delete Account" in the profile settings, a confirmation message will appear. • If the user confirms, the account will be deleted. • If the user cancels, the account will remain active. | <ol style="list-style-type: none"> 1. Click "Delete Account" in the profile settings. 2. Check if a confirmation message appears. 3. Confirm deletion and verify the account is removed. 4. Cancel the action and verify the account remains in the database. | Yes | - |
| 2 | As a user, I want to search for the most recent events so that I can keep track of the latest activities. | <ul style="list-style-type: none"> • If the user enters a query in the search bar to find events, the system will display the matching events. • If no events match the search, a message will be shown to inform the user that there are no available events. | <ol style="list-style-type: none"> 1. Enter a search query in the search bar for events. 2. Verify that the system displays matching events based on the query. 3. If no events match, verify that a message is displayed informing the user that no events are available. | Yes | - |
| 2 | As a user, I want to explore clubs and be directed to the appropriate club's website or app so that I can get more information about the club, join, and register for membership. | <ul style="list-style-type: none"> • If the user clicks on a specific club after selecting the club tab from the tab bar on the homepage, the system will navigate them to the club page. This page provides details about the club, including a brief description | <ol style="list-style-type: none"> 1. Navigate to the club tab from the homepage. 2. Select a specific club from the list of available clubs. 3. Verify that the club page loads with a description and a link. 4. Click the link and confirm redirection | Yes | - |

| | | | | | |
|---|--|---|---|-----|---|
| | | and a link to the club's website or app for more information. By clicking the link, the user will be directed to the club's site, where they can easily join and register for membership. | to the club's website or app. | | |
| 2 | As a user, I want to edit my personal information so that I can have a more tailored experience. | <ul style="list-style-type: none"> • If the user clicks on their profile picture at the bottom navigation bar, their personal information is displayed along with an "Edit" button below. • If the user clicks the "Edit" button reveals pen icons next to each detail, allowing individual edits. After making changes, the user can choose to click "Save" to confirm or "Cancel" to discard modifications. A confirmation message will appear upon saving, while clicking cancel will revert the fields to their original state. | <ol style="list-style-type: none"> 1. Click on the profile picture in the bottom navigation bar. 2. Verify that the user's personal information is displayed with an "Edit" button. 3. Click the "Edit" button and ensure pen icons appear next to each editable detail. 4. Make changes to the personal information and click "Save." 5. Verify that a confirmation message appears and the changes are saved. 6. Click "Cancel" and ensure the fields revert to their original state. | Yes | - |
| 2 | As a new user, I want the system to be easy to use and clear to navigate, allowing me to learn its functionalities within 10 seconds and complete tasks efficiently without requiring extensive training or support. | <ul style="list-style-type: none"> • If a new user interacts with the system, they should be able to understand its key features within 10 seconds. The layout should be simple, with clear labels, enabling them to complete tasks easily. Brief instructions should guide users through essential functions without requiring extensive training, allowing efficient use from the start. | <ol style="list-style-type: none"> 1. Open the app and check if the main features are easy to find within 10 seconds. 2. Make sure the labels are simple and clear so users can understand them right away. 3. Look for any short instructions or tips that help users understand how to use the app. 4. Test if users can do basic tasks without needing extra help or training. | Yes | - |

| | | | | | |
|---|---|--|---|-----|---|
| | | | 5. Confirm that the app is easy to navigate and users can complete tasks quickly. | | |
| 2 | As a new user, I want the system to be available 24/7 so that I can access it anytime without downtime. | <ul style="list-style-type: none"> • If a new user wants to access the system, it must be available 24/7, ensuring they can use it at any time without downtime. The system should be reliable and maintain constant uptime, with no service interruptions, even during peak usage or maintenance periods. Backup systems and redundancies should be in place to ensure continuous access. | <ol style="list-style-type: none"> 1. Test the system by accessing it at various times throughout the day and night to ensure it is available 24/7. 2. Check for any interruptions during peak usage times to confirm the system remains accessible. 3. Simulate maintenance periods to ensure backup systems maintain availability. 4. Ensure that no downtime occurs and, if it does, that the system recovers quickly. 5. Verify that the system remains reliable and accessible without disruptions. | Yes | - |

Table 4

6.2. Integration Testing

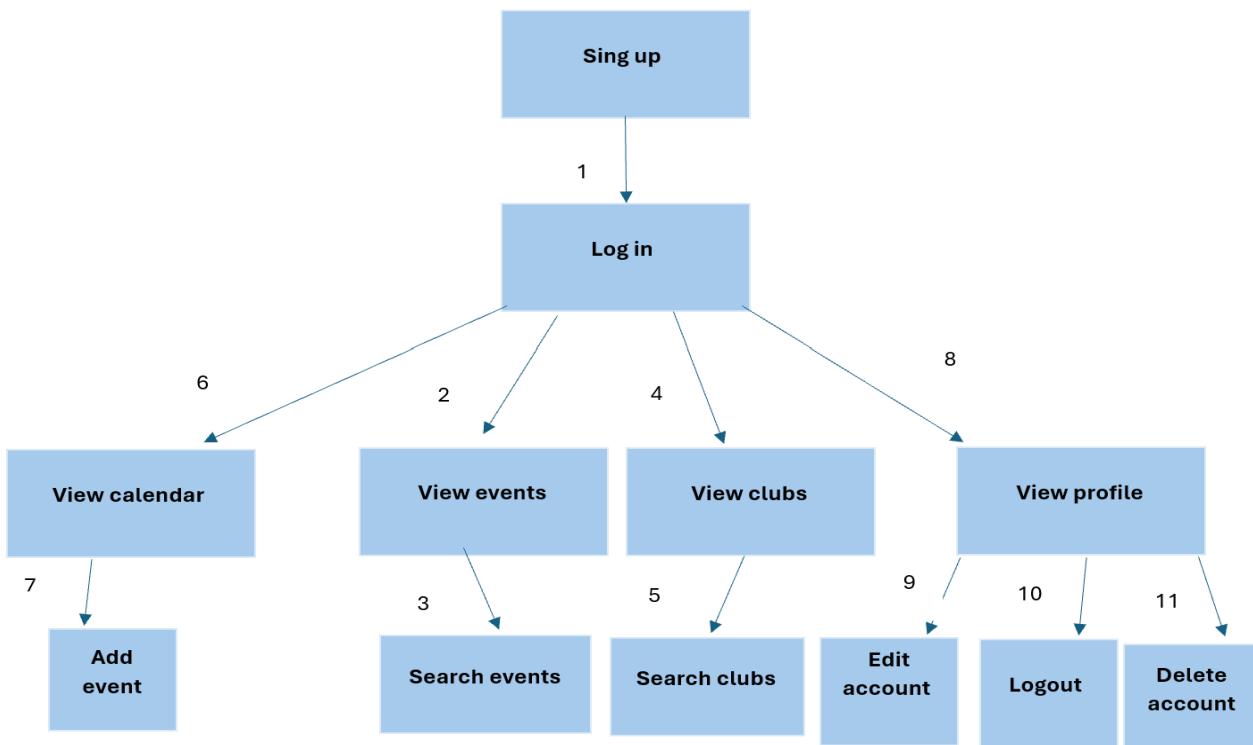


Figure 28

The following table lists one possible integration testing plan.

| System components | New component | Test case | Pass? | Comments |
|---|-------------------------|--|-------|----------|
| Sign up in the system | Logging in the system | 1. A user signed up into the system successfully. 2. The signed-up user signed in to the system. | Yes | |
| - Sign up in the system - Logging in the system | Viewing available items | 1. A user signed up for the system successfully. 2. The signed-up user signed in to the system. 3. The logged in user view available events or clubs | Yes | |
| - Sign up in the system. - Logging in the system - Viewing available events and clubs | Search an event or club | 1. A user signed up for the system successfully. 2. The signed-up user signed in to the system. 3. The logged in user view available events and clubs 4. The logged in user selected the View Available events or | Yes | |

| | | | | |
|--|---------------|---|-----|--|
| | | clubs' option. 5. The logged in user Search an event or a club | | |
| <ul style="list-style-type: none"> - Sign up in the System - Logging in the system - Viewing available events and clubs - Search an event or a club | View calendar | 1. A user signed up for the system successfully. 2. The signed-up user signed in the system. 3. The logged in user view available events and clubs 4. The logged in user selected the View Available events or clubs' option. 5. The logged in user Search an event or a club 6. The logged in user View calendar | Yes | |
| <ul style="list-style-type: none"> - Sign up in the System - Logging in the system - Viewing available events and clubs - Search an event or a club - View calendar | Add an event | 1. A user signed up for the system successfully. 2. The signed-up user signed in the system 3. The logged in user view available events and clubs 4. The logged in user selected the View Available events or clubs' option. 5. The logged in user Search an event or a club 6. The logged in user View calendar 7. The logged in user can add an event to calendar | Yes | |
| <ul style="list-style-type: none"> - Sign up in the System - Logging in the system - Viewing available events and clubs | View profile | 1. A user signed up for the system successfully. 2. The signed-up user signed in the system | Yes | |

| | | | | |
|--|--------------|---|-----|--|
| - Search for an event or a club - View calendar - Add an event to calendar | | 3. The logged in user view available events and clubs 4. The logged in user selected the View Available events or clubs' option. 5. The logged in user Search an event or a club 6. The logged in user View calendar 7. The logged in user can add an event to calendar 8. The logged in user can view profile | | |
| - Sign up in the System - Logging in the system - Viewing available events and clubs - Search an event or a club - View calendar - Add an event to calendar - View profile | Edit profile | 1. The signed-up user signed in the system 2. The logged in user view available events and clubs 3. The logged in user selected the View Available events or clubs' option. 4. The logged in user Search an event or a club 5. The logged in user View calendar 6. The logged in user can add an event to calendar 7. The logged in user can view profile 8. The logged in user can edit profile | Yes | |
| - Sign up in the | Log out | 1. The signed-up user | Yes | |

| | | | | |
|---|----------------|--|-----|--|
| <ul style="list-style-type: none"> - System Logging in the system - Viewing available events and clubs - Search an event or a club - View calendar - Add an event to calendar - View profile - Edite profile | | <p>signed in the system</p> <ol style="list-style-type: none"> 2. The logged in user view available events and clubs 3. The logged in user selected the View Available events or clubs' option. 4. The logged in user Search an event or a club 5. The logged in user View calendar 6. The logged in user can add an event to calendar 7. The logged in user can view profile 8. The logged in user can edit profile 9. The logged in user can log out account | | |
| <ul style="list-style-type: none"> - Sign up in the System - Logging in the system - Viewing available events and clubs - Search an event or a club - View calendar - Add an event to calendar - View profile - Edite profile - Delete profile | Delete account | <ol style="list-style-type: none"> 1. The signed-up user signed in the system 2. The logged in user view available events and clubs 3. The logged in user selected the View Available events or clubs' option. 4. The logged in user Search an event or a club 5. The logged in user View calendar 6. The logged in user can add an event to calendar 7. The logged in user can view profile | Yes | |

| | | | | |
|--|--|--|--|--|
| | | 8. The logged in user can edit profile 9. The logged in user can log out 10. The logged in user can delete account | | |
|--|--|--|--|--|

6.3. User Acceptance Testing

User Acceptance Testing (UAT) is the final phase of testing, where real users from the target audience assess the UniFun app to ensure it meets their needs and works effectively in real-life scenarios. This phase also checks if the app meets the business requirements.

For this phase, we selected a team of 10 participants, all of whom were proficient in using mobile apps and fit the profile of our intended audience, specifically those interested in university events. The test was conducted in a quiet room to minimize distractions, ensuring that participants could fully focus on interacting with the app.

Participants were given a scenario that covered all the core functionalities of the UniFun app, including:

- Signing up and logging in
- Browsing university events and viewing event details
- Adding events to the calendar
- Searching for event.
- Logging out

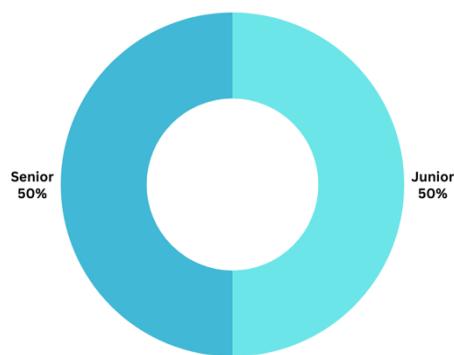
Prior to starting the test, participants were given three minutes to explore the app and familiarize themselves with its interface. Afterward, they proceeded with the scenario-based tasks.

Feedback was gathered via a questionnaire consisting of six questions, which helped assess the app's usability and effectiveness. The participants provided their insights on the app's functionality and pointed out any issues or areas for improvement. This feedback was then analyzed to identify usability issues and enhance the app's features.

6.3.1. Demographics of participants

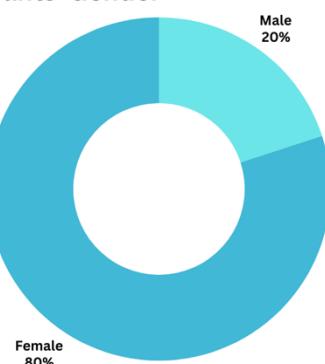
In this section, we present the demographic details of the participants, focusing on academic year and gender. The following table summarizes the demographic data:

Participants' Academic Year



Graph 6.2

Participants' Gender



Graph 6.1

Gender Distribution

The gender distribution showed that 80% of participants were female, while 20% were male. This higher percentage of females may be due to the fact that the test was conducted with a larger number of female participants compared to males, which reflects a stronger engagement with the app among female users during the test. This result could suggest that the app attracts more female users, or the sample distribution affected the final outcome. (See Graph 6.1).

Academic Year Distribution

The distribution of participants was evenly split between juniors and seniors, with 50% from each group. This balance ensures that we received feedback from both new students, who are still adjusting to university life, and senior students, who have a deeper understanding of university events and activities. Feedback from both groups is valuable as it helps us understand how the app meets the needs of students at different stages of their academic journey. (See Graph 6.2).

The demographic distribution shows a higher representation of females due to the sample distribution, with a good balance between juniors and seniors. This diversity of participants helps provide a comprehensive and objective view of the app's effectiveness, ensuring that the feedback covers a variety of perspectives based on gender and academic experience.

Provide relevant demographic information in a tabular or graphic format.

6.3.2. Questionnaire

Questionnaire Questions:

1 - It was easy to create an account and log in successfully

2 - Navigating between different sections of the app was straightforward, and the icons and symbols were intuitive.

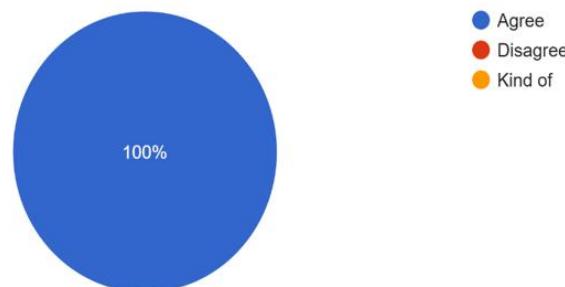
3 - The information provided about events and clubs was clear and easy to follow.

4 - Tasks, such as scheduling an event, could be completed without any difficulties or assistance.

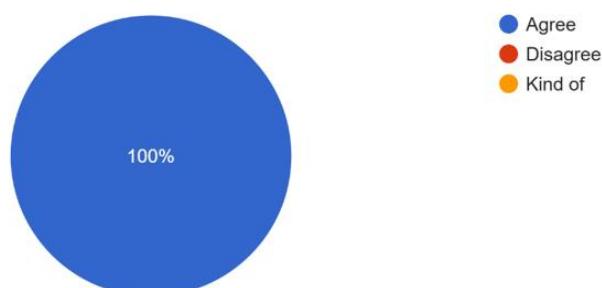
5 - The performance and responsiveness of the app met my expectations

6 - I believe this app could be helpful for managing activities and staying organized.

1 - It was easy to create an account and log in successfully.

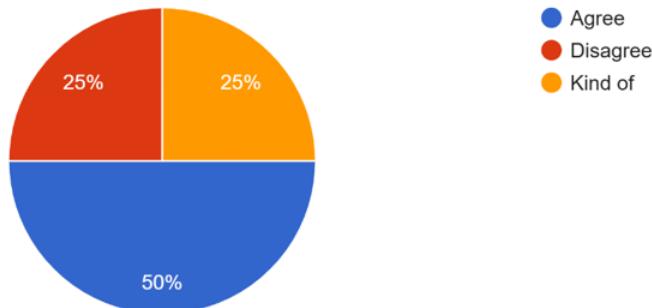


2 - Navigating between different sections of the app was straightforward, and the icons and symbols were intuitive.

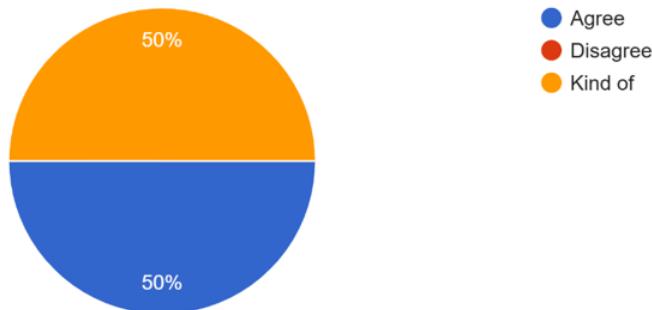


1.

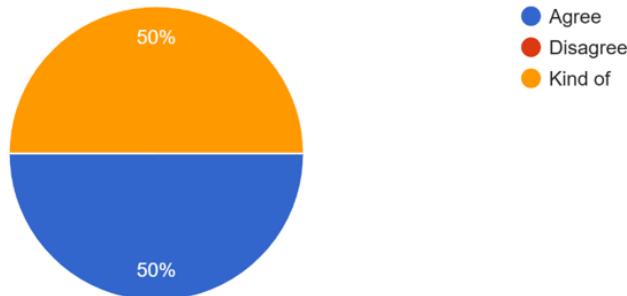
3 - The information provided about events, clubs, was clear and easy to follow.



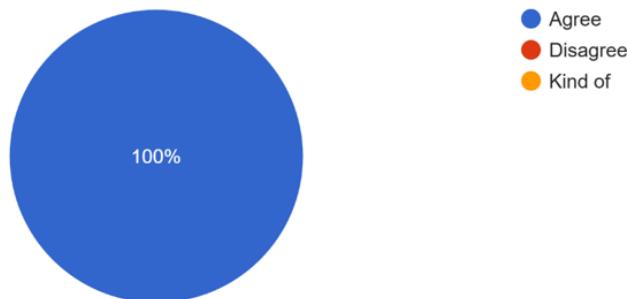
4 - Tasks, such as scheduling an event, could be completed without any difficulties or assistance.



5 - The performance and responsiveness of the app met my expectations.



6 - I believe this app could be helpful for managing activities and staying organized.



7 Chapter 7: Conclusion and Future Work

7.1. Conclusion

In conclusion, our "UniFun" app development document provides an overview of the software product release, covering the problem statement, solution, and the product's vision, roadmap, and objectives. We highlight the development team and the domain analysis, including the environment, customers, tasks, and competing applications.

The requirements engineering section identifies system users, the use case diagram, product backlog, and definition of done. We also discussed system design aspects such as architecture, data structure, and interface design.

Developing UniFun in FlutterFlow was a valuable experience, with challenges such as the lack of multi-user support in the platform, which required additional coordination. A significant limitation was the inability to upload photos directly in Flutter Flow, which led us to use URLs for photos instead. Additionally, we found that many of the desired features in Flutter Flow were locked behind paid plans, which added complexity to the development process and increased costs.

Despite these challenges, Flutter Flow streamlined both the design and development phases. Firebase integration for real-time database management was crucial, though ensuring data accuracy and synchronization across various components proved to be challenging.

The implementation phase focused on using Flutter Flow for app design and backend development, with Firebase handling user authentication, data storage, and event management. We also covered testing, including user story acceptance, integration, and user acceptance testing, ensuring the app met user expectations.

Looking ahead, enhancements could focus on refining user authentication features, expanding the app's functionality to include more interactive and engaging features, and optimizing performance to ensure a smoother and more efficient user experience.

Ultimately, our team successfully created the UniFun app, a platform that effectively supports university event and club management while integrating seamlessly with backend services. By addressing challenges and continuously improving the app's functionality, we were able to build a solution that meets user needs and offers a reliable, efficient platform for university students.

7.2. Future Work

This section outlines our future plans to enhance the UniFun app and further develop its features.

Looking ahead, we aim to expand the scope of the UniFun app by incorporating additional universities, creating a more inclusive platform for students across various institutions. This expansion will allow more students to engage with university events, clubs, and activities. Additionally, we plan to introduce features that will enable students to connect with others based on shared interests, courses, and extracurricular activities, fostering a more connected community.

We also intend to enhance the app's functionality by integrating real-time event updates. This will allow users to receive notifications for event changes, cancellations, or the addition of new events tailored to their interests. Moreover, we will explore implementing advanced communication tools, such as event-specific chat rooms or messaging options, allowing students and event organizers to interact more effectively.

Performance optimization will be another key focus. As we scale the app to accommodate larger user bases, we will enhance the back-end infrastructure to ensure smooth operation even as the number of users and events grows. Along with this, we aim to introduce features that will enable event organizers to manage registrations and payments seamlessly, improving the overall experience for both students and organizers.

We also plan to incorporate machine learning algorithms to provide personalized event recommendations based on students' preferences and past activities, enhancing user engagement and satisfaction.

Additionally, we will introduce a review and rating system, allowing students to share their feedback on events and clubs. This feature will help students make informed decisions and give event organizers valuable insights to improve their offerings.

Finally, expanding the app's language options to support multiple languages will ensure greater accessibility and inclusivity, especially for international students and those who prefer using the app in their native language.

Through these enhancements, our goal is to create a scalable, user-centric platform that promotes community engagement and helps students stay connected with university life.

8 References

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8.1 Appendix A: Interviews

Interview Questions

- What source do you usually rely on to share event information? (e.g., email, social media platforms)
- Who is typically responsible for sharing event details? Is there coordination between multiple parties within the university?
- How would you evaluate the level of student attendance at the events you organize? Do you find the number of attendees satisfactory?
- Do you think an app that consolidates all university events with features like notifications and calendar integration would be beneficial and attract a larger number of participants?
- What challenges do you face when promoting events and encouraging students to attend?
- Is there collaboration between different departments or clubs to organize joint events? If yes, how is this achieved?
- What types of events usually receive the highest level of interest and participation from students?
- What tools or resources do you believe would help improve communication and event organization?
- What are your thoughts on creating a unified platform for communicating with students about events? What features should this platform include?
- Do you have any suggestions for additional features or functions that could be added to the app to facilitate event organization and communication with students?

Interviews Transcriptions

| Face-to-face Interview | |
|--|---|
| Interviewee:Dalia alsebikh | Interviewer:Layan Alsaykhan |
| Location : Face-to-face in private room | Interview Date:4 October 2024 Start Time:12:18 pm End Time:12:44 pm |
| Objectives: | Reminders: The interviewee dependence on the email as the primary communication channels used to promote campus events. |
| <ul style="list-style-type: none"> • To identify the primary communication channels used to promote campus events. • To understand the roles and responsibilities in disseminating event information within the university. • To explore the challenges faced in attracting student participation. • To gather suggestions for improving communication and event management through a centralized application. | |
| Agenda: Introduction Background of the project Overview of interview Topic covered : Question1 Question2 Question3 Question4 Question5 Question6 Question7 Question8 Question9 Question10 Summary of major points Questions from interviewee Closing | Approximate Time : 1 min 2 min 1 min 1 min 2 min 2 min 2 min 2 min 1 min 2 min 2 min 2 min 2 min 2 min 1 min 1 min |
| General Observation: The interviewee, , was highly engaged and provided detailed responses throughout the | |

| | |
|---|--|
| <p>interview. She demonstrated a clear understanding of the current event promotion methods and their limitations.</p> | <p>Topic uncovered: if the club have a process to follow different than the university events</p> |
| <p>Interviewee:Dalia Alsebikh</p> | <p>Interview Date:4 October 2024</p> |
| <p>Questions:</p> | <p>Answer and Notes:</p> |
| <p>What source do you usually rely on to share event information? (e.g., email, social media platforms)</p> | <p>We mainly use email and Twitter to announce events.</p> |
| <p>Who is typically responsible for sharing event details? Is there coordination between multiple parties within the university?</p> | <p>Notes: The interviewee emphasized that although email and Twitter are primarily used, they are not effective in reaching all students, especially those who do not regularly check these channels. This suggests a potential need for an additional communication channel to increase reach</p> |
| <p>How would you evaluate the level of student attendance at the events you organize? Do you find the number of attendees satisfactory?</p> | <p>The organizing unit usually contacts the university relations department to announce the event through email and social media channels.</p> <p>Notes: Coordination is limited to specific cases, and there is no standardized process. This lack of formal coordination can result in inconsistent event promotion and potentially lower student engagement.</p> |
| <p>Do you think an app that consolidates all university events with features like notifications and calendar integration would be beneficial and attract a larger number of participants?</p> | <p>Attendance varies depending on the type of event, but generally, the numbers are satisfactory.</p> <p>Notes: While the interviewee finds attendance satisfactory for specialized events, she noted that attendance for general events is often lower, indicating that a more targeted approach may be needed for broader events.</p> |
| <p>What challenges do you face when promoting events and encouraging students to attend?</p> | <p>Definitely! It would have a positive impact and significantly boost attendance rates.</p> <p>Notes: The interviewee was very enthusiastic about the potential impact of a centralized app, suggesting that it could streamline communication and prevent students from missing out on events due to information being scattered.</p> <p>Time constraints and delays in setting event dates are common challenges that hinder effective promotion</p> |

| | |
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| | <p>Notes: Challenges include time constraints and the lack of a centralized platform to announce events. The interviewee highlighted that last-minute promotions often result in low attendance.</p> |
| What types of events usually receive the highest level of interest and participation from students? | official celebrations like National Day and other university-wide meetings or gatherings tend to have the highest attendance. |
| What tools or resources do you believe would help improve communication and event organization? | <p>Notes: Larger university-wide events such as official celebrations have the highest participation, while smaller events often struggle to attract students.</p> <p>Having clear and detailed information about each event is crucial for effective communication</p> |
| What are your thoughts on creating a unified platform for communicating with students about events? What features should this platform include? | <p>Notes: Having an easily accessible platform that provides detailed information and reminders for each event could help reduce confusion and ensure that more students are aware of upcoming events.</p> <p>A unified platform that consolidates all events and provides detailed information would be ideal.</p> |
| Do you have any suggestions for additional features or functions that could be added to the app to facilitate event organization and communication with students? | <p>The interviewee believes that a unified platform would be highly beneficial. She suggested features like categorized events, calendar integration, and filtering options to make it easier for students to find relevant events.</p> <p>I think reminder features and notifications would be very effective in boosting attendance and engagement.</p> <p>Notes: The interviewee stressed the importance of reminders and notifications. She believes these features would play a critical role in encouraging students to attend events</p> |

Interview 1 Table

Face-to-face Interview

Interviewee:Mona Alkhalifa

Location : Face-to-face in private room

Interviewer:Layan Alsaykhan

Interview Date:6 October 2024

Start Time:11:18 am

End Time:11:42 am

Objectives:

- To identify the primary communication channels used to promote campus events.
- To understand the roles and responsibilities in disseminating event information within the university.
- To explore the challenges faced in attracting student participation.
- To gather suggestions for improving communication and event management through a centralized application.

Reminders:

The interviewee dependence on the email as the primary communication channels used to promote campus events.

Agenda:

Introduction

Background of the project

Overview of interview

Topic covered :

Question1

Question2

Question3

Question4

Question5

Question6

Question7

Question8

Question9

Question10

Approximate Time :

1 min

2 min

1 min

1 min

2 min

2 min

2 min

1 min

1 min

Summary of major points

Questions from interviewee

Closing

General Observation:

- To identify the primary communication channels used to promote campus events.
- To understand the roles and

| | |
|---|---|
| <p>responsibilities in disseminating event information within the university.</p> <ul style="list-style-type: none"> • To explore the challenges faced in attracting student participation. | |
| <p>Topic uncovered: if the club have a process to follow different than the university events</p> | |
| <p>Interviewee:Mona Alkhailifa</p> <p>Questions: What source do you usually rely on to share event information? (e.g., email, social media platforms)</p> <p>Who is typically responsible for sharing event details? Is there coordination between multiple parties within the university?</p> <p>How would you evaluate the level of student attendance at the events you organize? Do you find the number of attendees satisfactory?</p> <p>Do you think an app that consolidates all university events with features like notifications and calendar integration would be beneficial and attract a larger number of participants?</p> <p>What challenges do you face when promoting events and encouraging students to attend?</p> | <p>Interview Date:6 October 2024</p> <p>Answer and Notes: A: We mainly use email and WhatsApp for promoting events.</p> <p>Notes: The interviewee emphasized that while these channels are effective for certain groups, they are limited in reach. There is a need for more diverse communication channels to attract a larger audience.</p> <p>A: <i>The Student Activities Unit and the Volunteer Unit are typically responsible for promoting events, and yes, there is coordination between these units.</i></p> <p>Notes: There is a good level of coordination between the units, but it is often informal and could benefit from more structured collaboration.</p> <p>A: <i>Yes, I believe the attendance levels are satisfactory.</i></p> <p>Notes: Attendance is generally satisfactory, but the interviewee hinted at variability depending on the type of event. Academic-related events tend to draw larger audiences.</p> <p>A: <i>The primary challenge is that students often have schedule conflicts with their classes.</i></p> <p>Notes: Schedule conflicts are a major barrier to attendance. This suggests a need for features that allow students to see all events and select those that fit their schedules.</p> <p>A: <i>Yes, there is collaboration between different units, and it's usually managed in an organized manner.</i></p> |

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| | <p>Notes: Collaboration exists, but it is often ad-hoc and could be improved with a more systematic approach.</p> |
| What types of events usually receive the highest level of interest and participation from students? | <p>A: <i>Events that are directly related to students' academic fields and interests tend to attract the most participation.</i></p> <p>Notes: Academic and career-related events are highly attended, suggesting that the UniFun app should prioritize promoting these events in its initial rollout.</p> |
| What tools or resources do you believe would help improve communication and event organization? | <p>A: <i>Motivation and incentives are key to improving communication and organization.</i></p> <p>Notes: Offering incentives, such as certificates of participation or extra credit, could boost attendance and engagement.</p> |
| What are your thoughts on creating a unified platform for communicating with students about events? What features should this platform include? | <p>A: <i>I think it's an excellent idea. It should include a calendar feature and notifications.</i></p> <p>Notes: The interviewee suggested additional features like categorization of events by type and interest areas to further enhance usability.</p> |
| Do you have any suggestions for additional features or functions that could be added to the app to facilitate event organization and communication with students? | <p>A: <i>No, I think the features discussed are sufficient.</i></p> <p>Notes: The interviewee was satisfied with the suggested features and did not propose any additional functionalities.</p> |

Interview 2 Table

| | |
|--|---------------------------------------|
| Online Interview | |
| Interviewee: Wajan Alhajri | Interviewer: Layan Alsaykhan |
| Location : Online meeting | Interview Date: 4 October 2024 |
| | Start Time:8:18 pm |
| | End Time:8:42 pm |
| Objectives: | Reminders: |
| • To identify the main channels used for | |

event promotion and their effectiveness.

- To understand the challenges faced in promoting club events and student engagement.
- To explore the potential benefits and features of a centralized platform for event management.
- To gather suggestions for additional app features that could support club activities and collaboration.

The interviewee dependence on the social media platform as the primary communication channels used to promote club events.

Agenda:

Introduction

Background of the project

Overview of interview

Topic covered :

Question1

Approximate Time :

1 min

Question2

2 min

Question3

1 min

Question4

2 min

Question5

2 min

Question6

1 min

Question7

2 min

Question8

1 min

Question9

2 min

Question10

2 min

Summary of major points

2 min

Questions from interviewee

1 min

Closing

1 min

General Observation:

The interviewee, Wajen, was highly engaged and provided detailed responses throughout the interview. She demonstrated a clear understanding of the current event promotion methods and their limitations, particularly emphasizing the lack of formal coordination and challenges in reaching a broader audience. Wajen expressed strong support for the idea of a centralized platform and shared insightful suggestions for features that could enhance communication and collaboration between clubs.

Topic uncovered:

Interviewee:Wajan Alhajri

Questions:

What source do you usually rely on to share event information? (e.g., email, social media platforms)

Club registration process

Interview Date:6 October 2024

Answer and Notes:

A: We mainly use WhatsApp groups. It simplifies the process, as we can send messages easily, and we have a group specifically for announcements.

| | |
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| | <p>Notes: WhatsApp is used for its convenience and ease of communication, but it may not reach all students effectively due to limited group sizes and engagement.</p> |
| Who is typically responsible for sharing event details? Is there coordination between multiple parties within the university? | <p>A: Typically, there's no formal coordination unless it's a major event that requires official correspondence. For regular events, it's managed internally within the club.</p> <p>Notes: This lack of formal coordination suggests that communication is often fragmented, which could lead to missed opportunities for larger collaborative events.</p> |
| How would you evaluate the level of student attendance at the events you organize? Do you find the number of attendees satisfactory? | <p>A: The attendance is acceptable, but we are always looking to increase it and get more engagement.</p> <p>Notes: The interviewee is satisfied with current attendance levels but sees potential for growth, especially in student participation and interaction during events.</p> |
| Do you think an app that consolidates all university events with features like notifications and calendar integration would be beneficial and attract a larger number of participants? | <p>A: Absolutely! I think it's a great idea and would definitely prefer it over the current approach.</p> <p>Notes: Strong support for the proposed application, believing that it would simplify event promotion and make it easier for students to stay informed.</p> |
| What challenges do you face when promoting events and encouraging students to attend? | <p>A: Engagement with posts and understanding the event's purpose are major challenges. Some students don't realize the value or goal of an event just by looking at the posts.</p> <p>Notes: Lack of engagement with promotional materials and unclear messaging are significant challenges. There is a need for more engaging content and clearer communication of event value.</p> |
| :Is there collaboration or communication between different departments or clubs to organize events together? If so, how is this typically managed? | <p>A: Not really, we don't have much collaboration. Most events are organized internally by the club members.</p> <p>Notes: Minimal collaboration between clubs,</p> |

| | |
|---|--|
| | which limits the potential for cross-departmental events. A centralized platform could encourage more joint activities. |
| What types of events usually receive the highest level of interest and participation from students? | <p>A: Events like introductory sessions and closing ceremonies usually attract the most attention.</p> <p>Notes: Introductory and closing events are popular, suggesting that these types of events should be prominently featured in the app's event list.</p> |
| What tools or resources do you believe would help improve communication and event organization? | <p>A: We need an easier mechanism to gather members and create an active and engaged community.</p> <p>Notes: There is a need for tools that facilitate the formation of engaged communities within clubs and across the university, such as chat features or discussion forums</p> |
| What are your thoughts on creating a unified platform for communicating with students about events? What features should this platform include? | <p>A: It's a brilliant idea! It simplifies communication, strengthens relationships and loyalty, and helps avoid the cluttered messaging in apps like WhatsApp.</p> <p>Notes: The interviewee sees the platform as a way to cut through the noise of group chats and make information more accessible and organized</p> |
| Do you have any suggestions for additional features or functions that could be added to the app to facilitate event organization and communication with students? | <p>A: You could link clubs together so students who aren't members of a club but are interested in events can join. This would also help increase attendance and foster connections between clubs.</p> <p>Notes: Linking clubs and creating a network effect could help increase student participation and provide more visibility to smaller or newer clubs</p> |

Interview 3 Table

8.2. Appendix B: Questionnaires

Questionnaires Form

Questionnaires Questions

1. What is your academic year?
 - Freshman

- Sophomore
 - Junior
 - Senior
 - Faculty Member
2. Which of the following sources do you currently use to find information about campus events? (Select all that apply)
- University Website
 - Social Media
 - Word of Mouth
 - Posters or Flyers
 - Other (Please specify)
3. How often do you participate in campus events?
- Never
 - Rarely (1-2 times per semester)
 - Sometimes (3-5 times per semester)
 - Often (6 or more times per semester)
4. Which types of events are you most interested in attending? (Select all that apply)
- Social Events
 - Academic Workshops
 - Seminars
 - Panel Discussions
 - Club Activities
 - Sports Events
 - Other (Please specify)
5. What challenges do you face when trying to stay updated on campus events? (Select all that apply)
- Lack of a centralized source of information
 - Missing event announcements
 - Difficulty finding events that match my interests
 - Other (Please specify)
6. Which of the following features would you find most useful in a campus events app? (Rate on a scale of 1 to 5, where 1 is least useful and 5 is most useful)
- Personalized Event Recommendations
 - Event Notifications
 - Calendar Synchronization
 - Event Filters and Search
 - Club and Organization Follow Options
7. Would you be more likely to attend events if you received notifications tailored to your interests?
- Yes
 - No
 - Maybe
8. How likely are you to use a centralized mobile app for finding campus events?
- Very Unlikely
 - Unlikely
 - Neutral
 - Likely
 - Very Likely
9. How important is ease of use for you when navigating a campus events app?
- Not Important
 - Somewhat Important
 - Neutral
 - Important
 - Very Important
10. Do you have any additional suggestions or features that you would like to see in the UniFun app?

- (Open-ended question)

Questionnaires Answers

Demographic Information: What is your academic year? ما هو سنتك الأكاديمية؟

22 responses

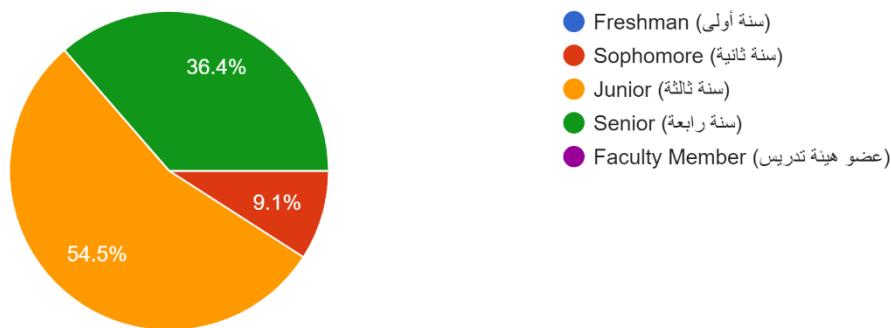


Figure 29

Current Information Sources: (مصادر المعلومات الحالية) Which of the following sources do you currently use to find information about campus events? (اختر كل ما ينطبق) (أ لمعرفة معلومات حول فعاليات الجامعة؟ (اختر كل ما ينطبق))

22 responses

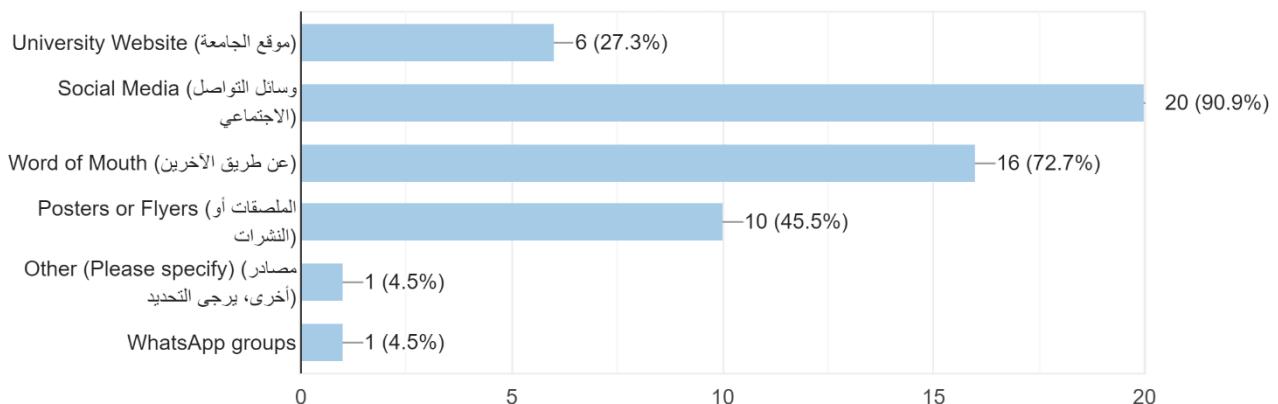


Figure 30

ما مدى المشاركة؟ (How often do you participate in campus events?)

مشاركاتك في الفعاليات الجامعية؟

22 responses

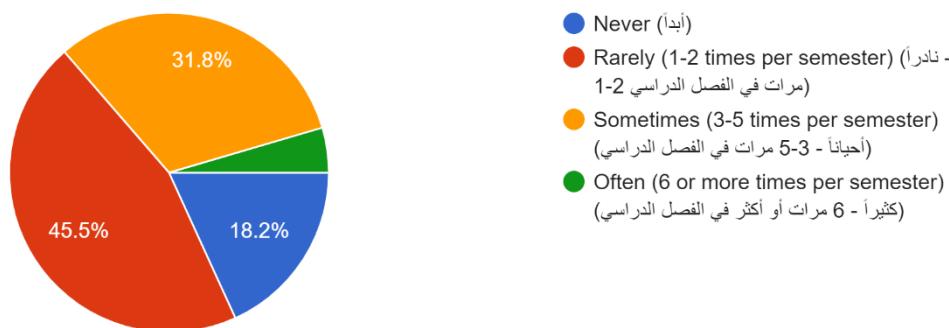


Figure 31

ما هي الفئات المفضلة للفعاليات؟ (Which types of events are you most interested in attending?)

ما هي أنواع الفعاليات التي تهتم بحضورها؟ (اختر كل ما ينطبق) (Select all that apply)

22 responses

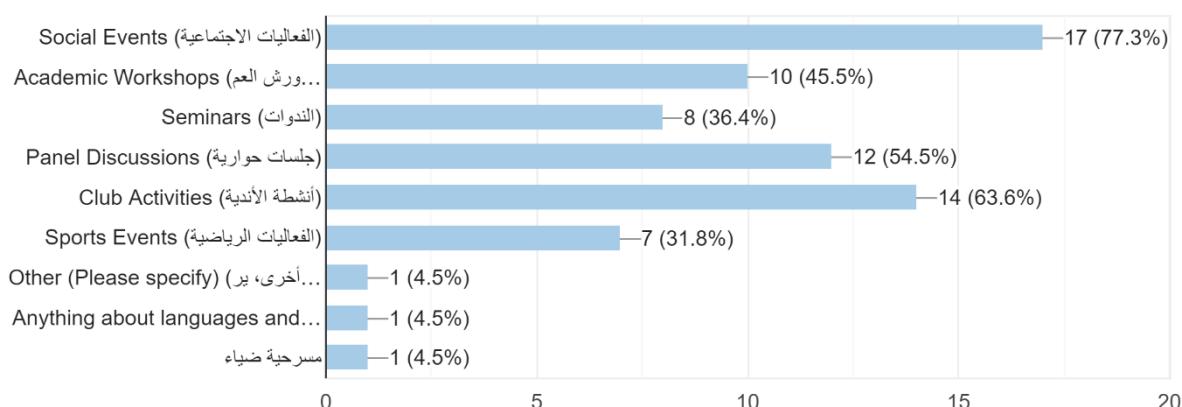


Figure 32

Challenges Faced: "What challenges do you face when trying to stay updated on campus events? (Select all that apply) (اختر كل ما ينطبق)"
 ما هي التحديات التي تواجهها عند محاولة متابعة الفعاليات الجامعية؟ (اختر كل ما ينطبق)
 22 responses

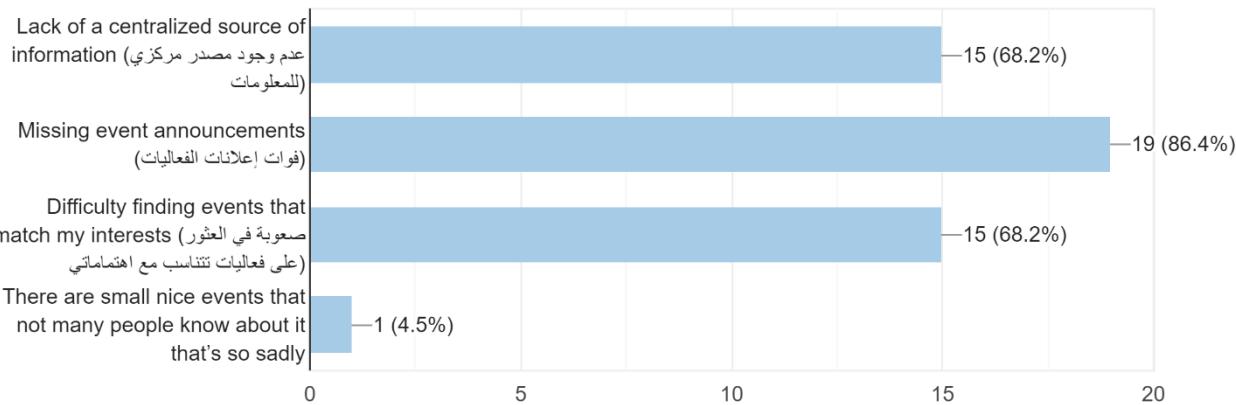


Figure 33

Feature Preferences: "Which of the following features would you find most useful in a campus events app? (Rate on a scale of 1 to 5, where ...ecommendations () تصنيف الفعاليات حسب اهتماماتك () تفضيلات الميزات (Feature Preferences))
 22 responses

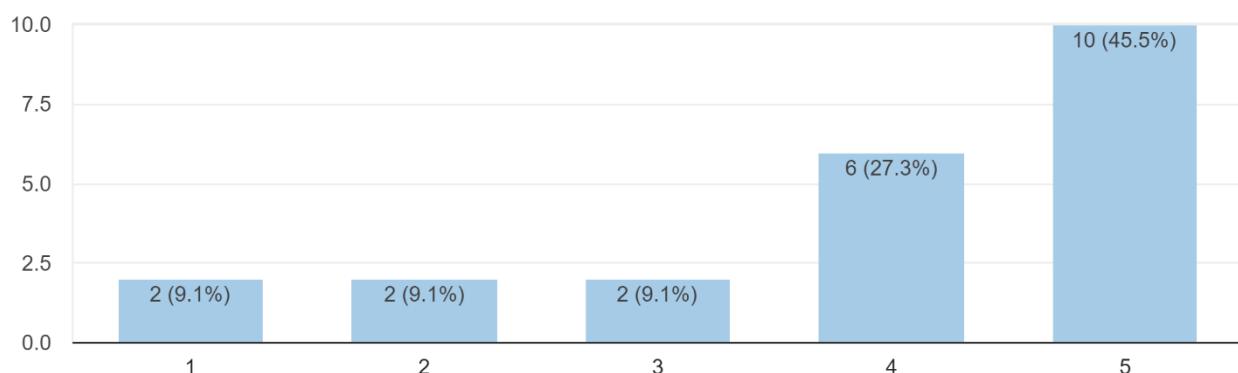


Figure 34

Event Notifications (إشعارات الفعاليات)

22 responses

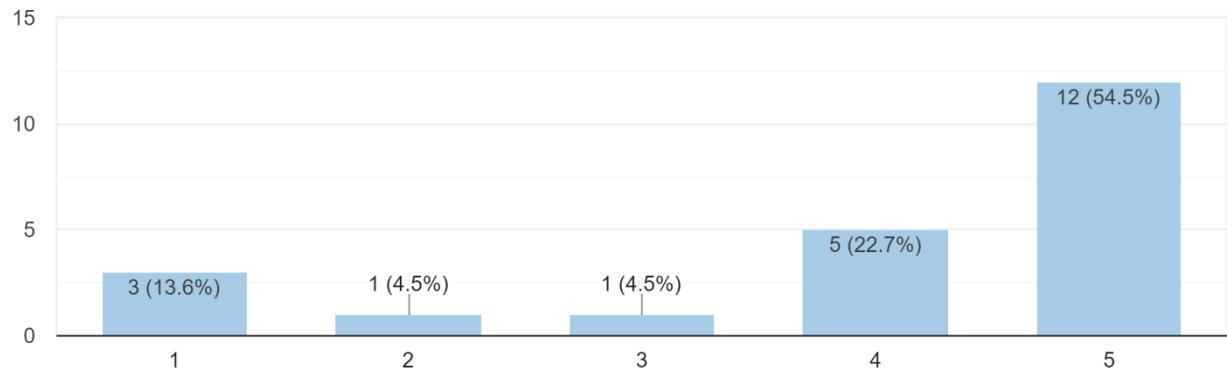


Figure 35

Calendar Synchronization (التزامن مع التقويم)

22 responses

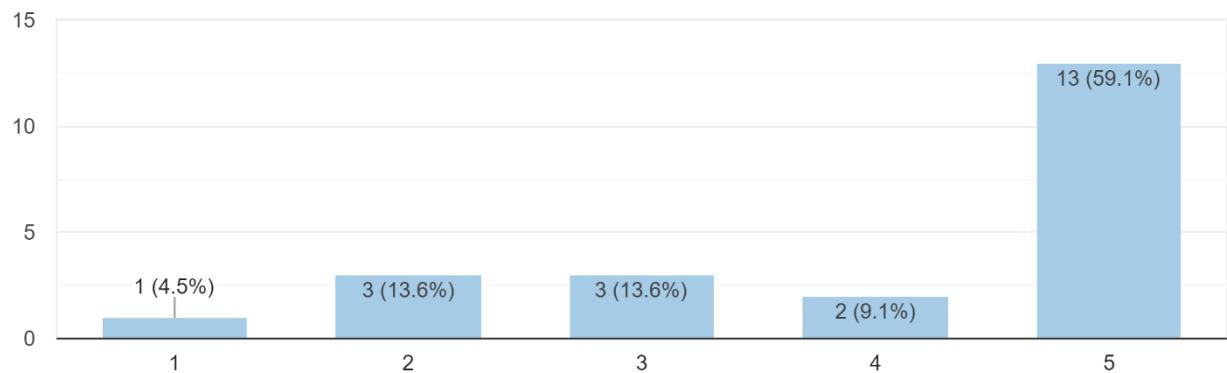


Figure 36

Event Filters and Search (فلاتر البحث للفعاليات)

22 responses

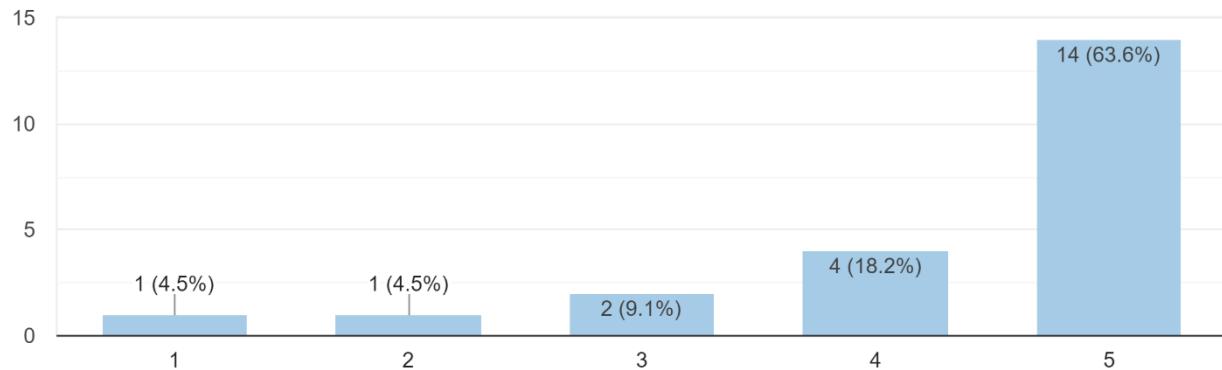


Figure 37

Club and Organization Follow Options (خيارات متابعة الأندية والمنظمات)

22 responses

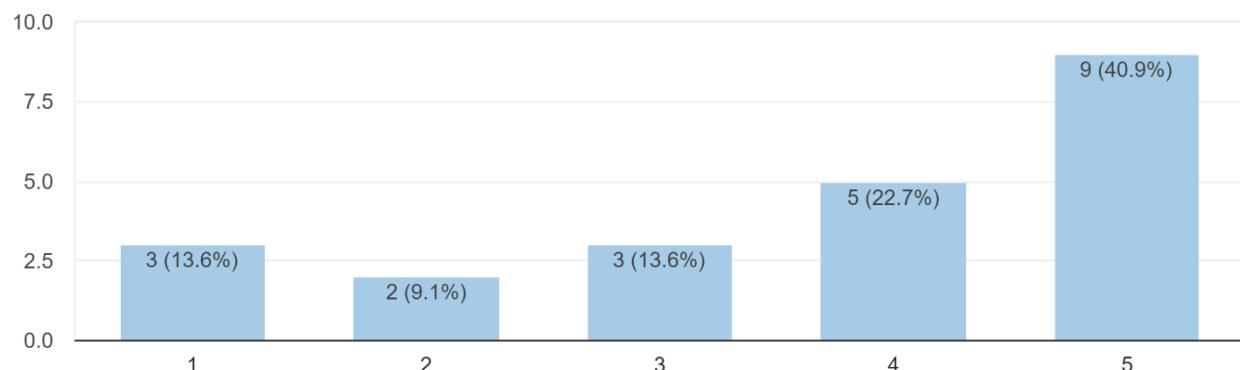


Figure 38

User Engagement: "Would you be more likely to attend events if you received notifications tailored to your interests? هل ستكون أكثر ميلاً لحضور الفعاليات إذا تلقيت إشعارات مخصصة لاهتماماتك؟?
22 responses

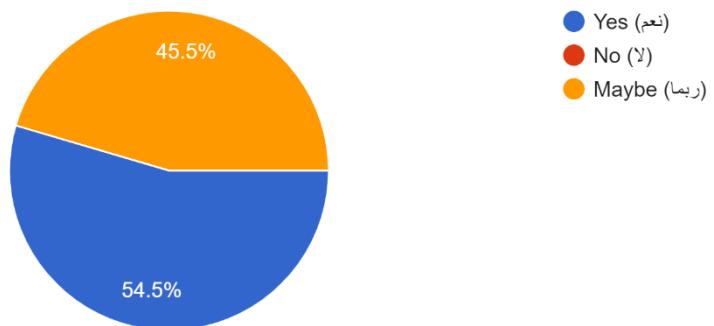


Figure 39

App Usage: How likely are you to use a centralized mobile app for finding campus events? ما مدى احتمالية استخدامك لتطبيق مركزي للبحث عن الفعاليات الجامعية؟
22 responses

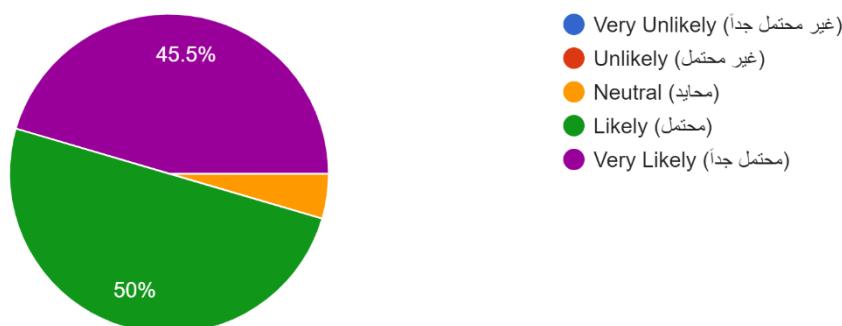


Figure 40

User Experience: (تجربة المستخدم) How important is ease of use for you when navigating a campus events app?

ما مدى أهمية سهولة الاستخدام بالنسبة لك عند تصفح تطبيق فعاليات الجامعة؟

22 responses

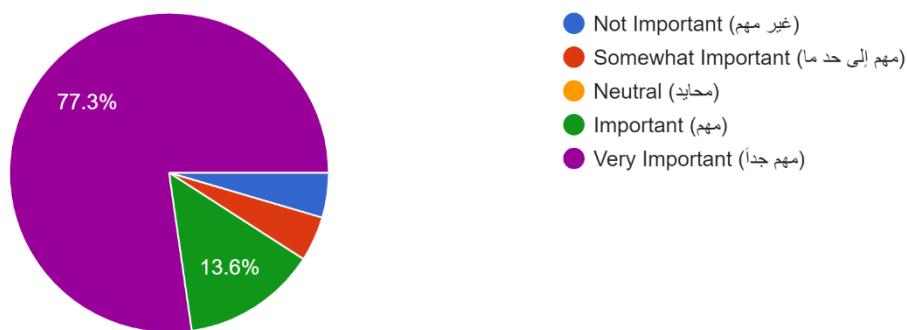
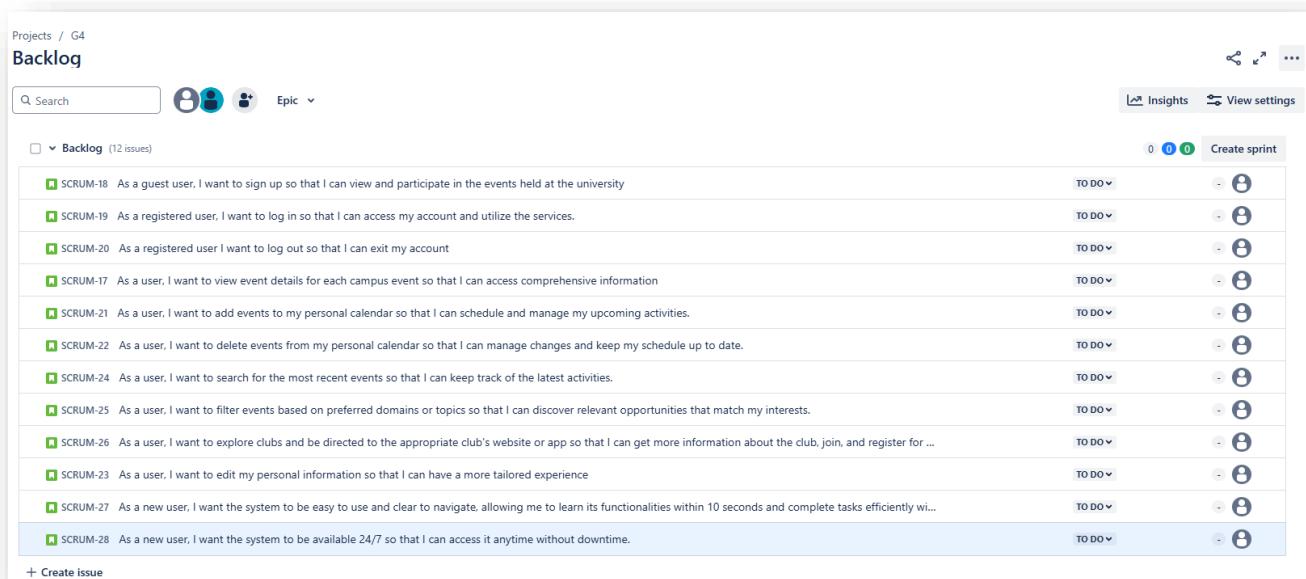


Figure 41

8.3. Appendix C: Jira

<https://320-4.atlassian.net/jira/software/projects/SCRUM/boards/1/backlog>



| Issue ID | Description | Status | Assignee |
|----------|---|--------|----------|
| SCRUM-18 | As a guest user, I want to sign up so that I can view and participate in the events held at the university. | TO DO | |
| SCRUM-19 | As a registered user, I want to log in so that I can access my account and utilize the services. | TO DO | |
| SCRUM-20 | As a registered user I want to log out so that I can exit my account. | TO DO | |
| SCRUM-17 | As a user, I want to view event details for each campus event so that I can access comprehensive information. | TO DO | |
| SCRUM-21 | As a user, I want to add events to my personal calendar so that I can schedule and manage my upcoming activities. | TO DO | |
| SCRUM-22 | As a user, I want to delete events from my personal calendar so that I can manage changes and keep my schedule up to date. | TO DO | |
| SCRUM-24 | As a user, I want to search for the most recent events so that I can keep track of the latest activities. | TO DO | |
| SCRUM-25 | As a user, I want to filter events based on preferred domains or topics so that I can discover relevant opportunities that match my interests. | TO DO | |
| SCRUM-26 | As a user, I want to explore clubs and be directed to the appropriate club's website or app so that I can get more information about the club, join, and register for ... | TO DO | |
| SCRUM-23 | As a user, I want to edit my personal information so that I can have a more tailored experience. | TO DO | |
| SCRUM-27 | As a new user, I want the system to be easy to use and clear to navigate, allowing me to learn its functionalities within 10 seconds and complete tasks efficiently wi... | TO DO | |
| SCRUM-28 | As a new user, I want the system to be available 24/7 so that I can access it anytime without downtime. | TO DO | |

Figure 15: Backlog

The screenshot shows a Jira backlog for project G4. At the top, there's a search bar, user icons, and navigation links for 'Insights' and 'View setting'. Below that, a header for 'SCRUM Sprint 2' indicates 12 issues. The backlog lists 28 user stories, each with a green icon, a title, and a 'TO DO' status indicator. The stories are:

- SCRUM-18 As a guest user, I want to sign up so that I can view and participate in the events held at the university.
- SCRUM-19 As a registered user, I want to log in so that I can access my account and utilize the services.
- SCRUM-20 As a registered user I want to log out so that I can exit my account
- SCRUM-17 As a user, I want to view event details for each campus event so that I can access comprehensive information
- SCRUM-21 As a user, I want to add events to my personal calendar so that I can schedule and manage my upcoming activities.
- SCRUM-22 As a user, I want to delete events from my personal calendar so that I can manage changes and keep my schedule up to date.
- SCRUM-24 As a user, I want to search for the most recent events so that I can keep track of the latest activities.
- SCRUM-25 As a user, I want to filter events based on preferred domains or topics so that I can discover relevant opportunities that match my interests.
- SCRUM-26 As a user, I want to explore clubs and be directed to the appropriate club's website or app so that I can get more information about the club, join, and register for ...
- SCRUM-23 As a user, I want to edit my personal information so that I can have a more tailored experience
- SCRUM-27 As a new user, I want the system to be easy to use and clear to navigate, allowing me to learn its functionalities within 10 seconds and complete tasks efficiently wi...
- SCRUM-28 As a new user, I want the system to be available 24/7 so that I can access it anytime without downtime.

At the bottom left, there's a '+ Create issue' button.

Figure 16: Sprint 2

