



CS319 Term Project

Project short-name: BilBoard

Section 3

Group 3a

Project Analysis Report

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31 October 2021

Table of Contents

1 Introduction	4
2 Proposed System	4
2.1 Overview	4
2.2 Functional Requirements	4
2.2.1 Login Page	5
2.2.2 Register Page	5
2.2.3 Home Page	5
2.2.4 My Events Page	6
2.2.5 Event Page	6
2.2.6 Survey Page	6
2.2.7 Search Button	6
2.2.8 Attendance Code Entering Screen	6
2.2.9 Profile Page	6
2.2.10 Club Page From Students' Accounts	7
2.2.11 Club Page From Board Members'/President's Accounts	7
2.2.12 Add Event Page	7
2.2.13 Event Page From Board Members' Accounts	7
2.2.14 Add Survey Page	8
2.2.15 Club Hierarchy Page	8
2.2.16 Club Sponsors Page	8
2.2.17 Feedback Page	8
2.3 Non-functional Requirements	8
2.3.1 User-Friendly Interface	8
2.3.2 Security	9
2.3.3 Maintainability	9
2.3.4 Reliability	9
2.3.4 Scalability	10
2.4 Pseudo Requirements	10
2.5 System Models	10
2.5.1 Scenarios	10
2.5.1.1 Add Event Scenario	10
2.5.1.2 Taking Attendance Scenario	11
2.5.1.3 Adjust Club Hierarchy Scenario	11
2.5.2 Use-Case Model	13
2.5.3 Object and Class Model	17
2.5.4 Dynamic Models	20
2.5.4.1 Sequence Diagram	20
2.5.4.2 State Diagrams	25

2.5.4.3 Activity Diagrams	27
2.5.5 User Interface	30
Login Page	30
Register Page	30
Main Page	31
Calendar Page	32
Hovering on an Event	32
Event Page Seen by Students	33
Club Page from Student User's Perspective	34
Leave Feedback Screen	35
Surveys Page	35
Attend Event Screen	36
User Profile Settings Page	37
Club General Settings Page	37
Add Event Page	38
Feedbacks Page	39
Survey Settings Page	40
Club Hierarchy Page	41
Club Sponsor(s) Page	42
Administrative Assistant Page	43
Event Page Seen by Board Members	44
3 Glossary	45
4 References	47

1 Introduction

Our application is a cross-platform website application project that is designed for student-centred club activities. This project will be utilized by club members, club presidents, club advisors, board members, administrative assistants, students, and academics. This application offers various options for the users regarding club events & meetings, club management, surveys, daily event notifications.

- Board members, advisor and president can add an event to the system with a specified number of students
- Students can follow the clubs over the application, and turn into club members;
 1. Club members can activate the event notifications
 2. Club members can join the WhatsApp groups of the clubs by link
 3. Club members can be informed about event time and place and make reservations (Face to face and Online Meetings are available)
 4. Club members can participate in surveys
- Board members, advisor and president can arrange surveys
- Board members, advisor and president can take attendance with using a special code arranged for specified each event
- Based on the attendance amount, club members can turn into active members and give a vote for the election

2 Proposed System

2.1 Overview

We firstly discussed on which platform we would like to develop our project. It should be underlined that we could not come out with a decision for this question during our previous meeting, however, after the decision made by instructors regarding web-based projects, we started to draw the baseline of the project for web application with suitable technologies.

2.2 Functional Requirements

There will be 8 numbers of user types: Admin, Club Presidents, Club Board Members, Club Members, Advisor, Administrative Assistant, Academics and Students.

- **Students and Academics** will be able to see and attend events of clubs and become members of the clubs.

- **Club Members** will have the described abilities above and additionally directly see the events of the joined club on the home main thread.
- **Club Board Members** will have the described abilities above and additionally can share, remove and edit events and surveys of clubs.
- **Club President** will have the described abilities above and additionally be able to edit the board members of the club.
- **Admin** is a special position that manages the whole app and is able to give auth to club presidents.
- **Advisor** is a role that each club has one. It should be seen that every club in Bilkent University must be assigned to an academic personnel of the university. With our application each club's advisor's can be formally displayed and can be seen.
- **Administrative Assistant** is a position that arranges the face-to-face event locations and times.

2.2.1 Login Page

On this page, the user will provide the login information to the application in order to join the program. After successful login, the user will be directed to the home page.

2.2.2 Register Page

On this page, potential users will specify the required information into the application to register. After a successful register operation, a confirmation mail is sent to the specified mail. After the user confirms himself/herself, he/she can login to the application.

2.2.3 Home Page

Home Page can be seen as the center point of the program. On this page, the user will be able to see the events that belong to the clubs which the user has joined as a member. In addition, users can see a discover section that includes some events from clubs that users did not join before. Thus, a user can discover other clubs and their activities.

2.2.4 My Events Page

In this page, users can see the events that he/she registered for. The events are clickable and clicking on events redirects users to the event page.

2.2.5 Event Page

A user can reach this page by clicking on an event. In this page, all details about the event provided by the club can be found. Users can have information about event name, image, date, location, and description. Also, whether GE250/251 points will be given can be seen in this page. Moreover, users can ask questions about the event.

2.2.6 Survey Page

In this page, users can see the surveys opened by student clubs. Users can vote in the surveys and submit their votes.

2.2.7 Search Button

All upcoming events and clubs can be found on the search button. If the user wants to see other events besides the events of the clubs he follows, he can use this button. However, some events are exclusive to active members only by clubs. Therefore, they will not be allowed to participate in these events.

2.2.8 Attendance Code Entering Screen

Currently, attendance of the events is usually taken with collecting signatures of the attendees. However, in our application, board members will be able to generate attendance codes for each event and attendees will type these codes in their account. In that way their attendance will be formally taken with our application.

2.2.9 Profile Page

On the profile page, users will be able to see their general account information. If this user has a rank such as “Club Board Member” or “Club President”, they will be able to directly pass the related club’s page from their

profile page. Also, the users will be able to edit/change their preferences via this page.

2.2.10 Club Page From Students' Accounts

This page is the main page of the clubs seen by the students. On this page, all event posts can be seen. In addition, students can join the Whatsapp group of the club, or go to the Instagram account of the club. Moreover, students can become a member of the club by clicking the “Become Member” button. Finally, students can give private feedback about the club.

2.2.11 Club Page From Board Members'/President's Accounts

Board members can edit the club page by using this page. Board members can change profile photo of the club, Whatsapp link, or Instagram link. In addition, board members can edit the event by clicking on the event.

2.2.12 Add Event Page

This page is used for adding an event. A board member uploads a photo of the event, adds event name and description, sets number of participants and sets the event time and place. If the event is online and the user selects “list event after creation”, the event can be seen by the students after the creation of the event. Otherwise, the event becomes unlisted and board members can list the event. If the event is face-to-face, the information about the event is sent to the administrative assistant. If the administrative assistant confirms the place and time, the event becomes unlisted. If the place is used for another event, the assistant sends the event back to the board members and requests change on the place.

2.2.13 Event Page From Board Members' Accounts

This page is the page where board members can edit the event details. If board members set the new information and click the “Submit” button, the new information is processed and can be seen by the students. In addition, if an event's time and place are not appropriate, feedback is sent to board members by the administrative assistant. In this case, board members should edit the event time and place, and submit again. Moreover, board members

can set the visibility of the event. If the event is not visible, the event cannot be seen by students.

2.2.14 Add Survey Page

Board members can manage surveys on this page. So as to add a survey; survey question, survey choices and end date should be specified. When end time comes, the survey automatically removes from students' survey pages. Board members can also see the results of continuing surveys and end the surveys although the end date has not come.

2.2.15 Club Hierarchy Page

This page is accessible by the club president. On this page, the club president can add or remove board members. In order to add a board member, the student's name and ID should be specified.

2.2.16 Club Sponsors Page

Club sponsors can be added or removed by this page. In order to add a sponsor; sponsor name, sponsor logo, amount of donation, and sponsorship type (platinum, gold, silver, bronze) should be specified. To remove a sponsor from the sponsor list, clicking the delete button at the right of the sponsor is enough.

2.2.17 Feedback Page

In this page, board members can see the feedback given for the club. These feedbacks can only be seen by the board members and club presidents. Feedbacks can be deleted.

2.3 Non-functional Requirements

2.3.1 User-Friendly Interface

User-friendly interface will be ensured. This will be achieved by the following: Font size will not be lower than 12. For the navigation, an app bar will be used because it is the common practise. All the related features will be under the

suitable sections. Moreover, if users want to search anything, this app bar will be accessible for everywhere in the site. While waiting for the requests' responses, users will always be notified about the process. If something went wrong from the backend side(anything that has status code 4XX-5XX), users will be informed about that in the user interface. Since our application will be a single page application, it will be much more responsive while users browse our application.

2.3.2 Security

In terms of security, users who are in Bilkent will be eligible to sign up for this application. To provide this, only bilkent emails will be accepted. Security passwords of users will be encrypted. All the requests (except sign in, sign out, forget password requests) which will be made by client side, will be authorized by using JWT(JSON Web Token). These JWTs will be created when users sign in, and will expire in 1 hour. In addition to this, by using CORS(Cross-Origin Resource Sharing), all the requests which are not made from the frontend part will be responded to by CORS error. All the passwords will be at least 8 characters.

2.3.3 Maintainability

For the maintainability, since the application will be done by using OOP(Object Oriented Programming), adding new features or bug fixes will not change the legacy of the code. System will become bigger but code fragments will not grow. In addition to this, the frontend part will be constructed as component-based.

2.3.4 Reliability

One of the most crucial parts of non-functional requirements is reliability for the users. Maximum size of an image which will be uploaded by users can be 2 mb. All the possible bad request responses will be covered for the client side.

2.3.4 Scalability

For scalability, the size of all responses will not exceed 50 kb. If the requested data will grow in time, growing part of the response should be obtained by pagination. This makes it possible to preserve the client side from huge increments in response sizes.

2.4 Pseudo Requirements

These are the pseudo requirements of the application.

1. Implementation language will be Java and Java 8 will be used.
2. For the mailing, google mail will be opened and Mails will be sent through this mail by using IMAP access.
3. Model Mapper library will be used to provide object transformation between the business layers.
4. In the database, MySQL which is relational will be used.
5. For the client side, React which is one of the biggest JavaScript frameworks will be used.
6. For tracing and controlling changes, GitHub will be used as a version control system.
7. Backend of the system will be deployed to AWS(Amazon Web Service)'s Elastic Beanstalk. It will work on the Amazon Corretto 8 machine. Database of the system will also be placed on the same machine.
8. Build of the backend part will be taken as a Jar file.
9. Frontend part of the system will be deployed to Google Firebase Hosting service.
10. Build of the frontend part will be taken as a single page build.
11. Application's target will be mainly Chrome, Safari, Firefox and Internet Explorer.

2.5 System Models

2.5.1 Scenarios

2.5.1.1 Add Event Scenario

- 1.Name: Add Event
- 2.Participating Actor: Club Board Member, Administrative Assistant

- 3.Entry Condition: Being Board Member/Advisor
- 4.Exit Condition: Event is uploaded to the system or event add request is denied by the Administrative Assistant.
- 5.Flow of Events:
 1. Club Board Member clicks the “Add Event” button which is located in the Club Profile Page.
 2. Club Board Member needs to enter all of the following information: Title of the Event, Description of the Event, Date of the Event, Location of the Event (if it is an online event, meeting link will be passed; else room and the building information will be passed), maximum number of participant capacity. the artifact’s type, pick contributors, add notes and categorize the artifact’s purpose.
 3. Club Board Member clicks the “Add” button. If the event is online, the process will be completed. However, if it is a face to face event, the Administrative Assistant must approve the room request.

2.5.1.2 Taking Attendance Scenario

- 1.Name: Taking Attendance
- 2.Participating Actor: Club Board Member, Attendees (they can be “Non-Member”, “Club Member, or Active Member”)
- 3.Entry Condition: Being Club Board Member. Maximum attendees capacity should not be exceeded
- 4.Exit Condition: Attendance data is sent to the system.
- 5.Flow of Events:
 1. Club Board Member activates the attendance code which is special for that event and shares them with the attendees via using projector or whiteboard.
 2. In the limited amount of time, attendees must enter the shared code to the application.
 3. If the attendee’s code is correct, his/her attendance will be valid.

2.5.1.3 Adjust Club Hierarchy Scenario

- 1.Name: Adjust Club Hierarchy
- 2.Participating Actor: Club President
- 3.Entry Condition: None
- 4.Exit Condition: New Club Hierarchy data will be sent to the system.
- 5.Flow of Events:
 1. Club President clicks the “Club Hierarchy” button which is located in the Club Profile page.

2. If the Club President would like to add a new Club Board Member, he/she needs to type the new Club Board Member's ID and the Name and click the "Add" button. Else, he would like to delete an existing Club Board Member, he should select the corresponding trash icon.

3. Adding/Deleting Club Board Member(s) will be completed.

- 1.Name: Add Survey
- 2.Participating Actor: Club Board Member
- 3.Entry Condition: Being Board Member/Advisor
- 4.Exit Condition: New Survey data will be sent to the system.
- 5.Flow of Events:

1. Club Board Member clicks the "Surveys" button which is located in the Club Profile page.

2.In this page, Club Board Members must specify the survey question. In order to add new choices, he/she can use the "Add Choice" button.

3. The end date of the survey must be selected.

4. After every needed information is specified, Club Board Members can press the "Add Survey" button to publish it.

2.5.2 Use-Case Model

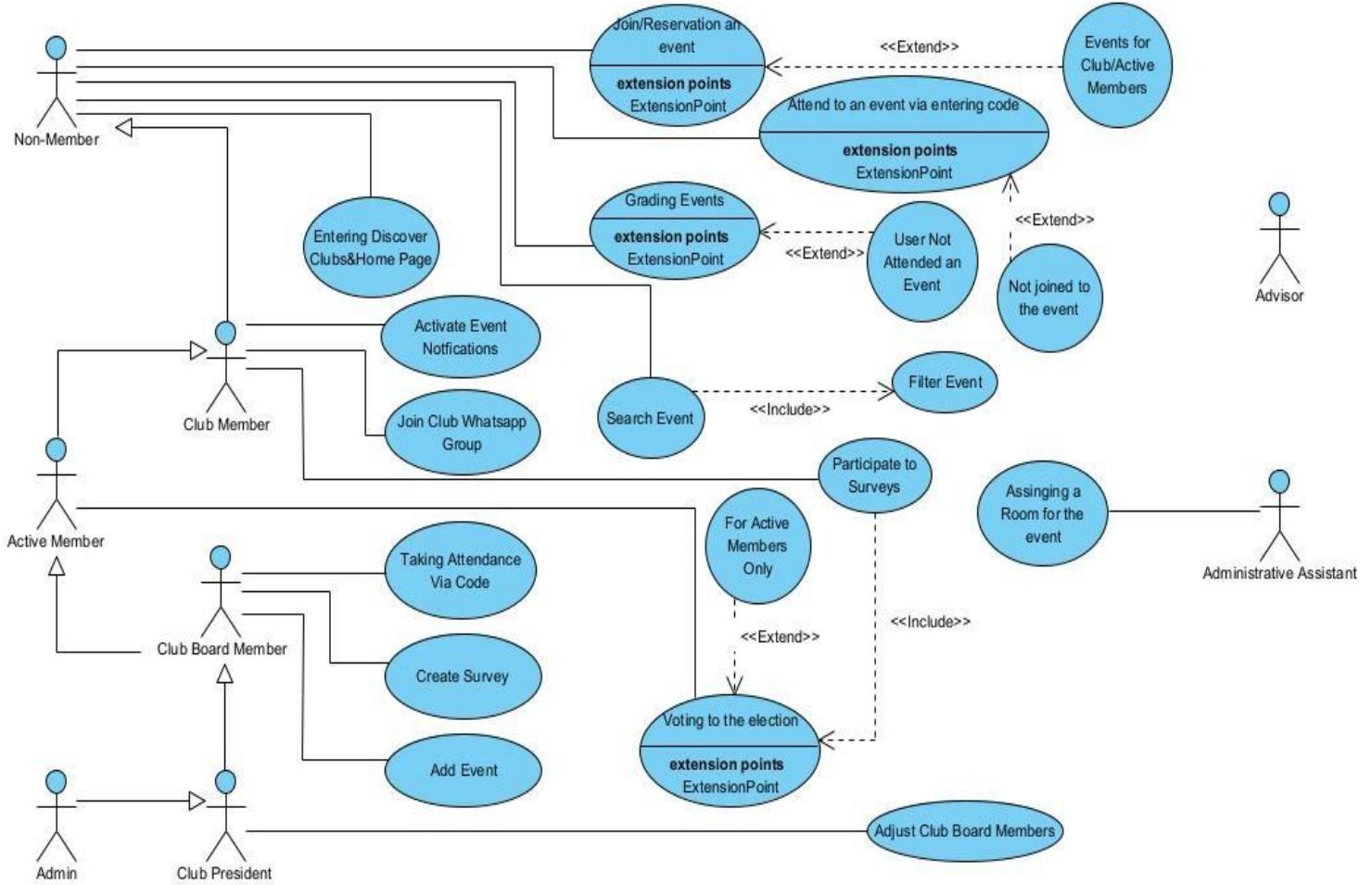


Figure 1: Use Case Diagram

In the user case diagram above, it should be seen that there is a user hierarchy for “Non-member”, “Club Member”, “Active Member”, “Club Board Member”, “Club President”, and “Admin” roles. Each role is enclosed by the other one who is below them according to the hierarchy order.

Non-Member: A person from Bilkent University who is not participating in any club can join the events of the clubs if the owner club the event will not put a prerequisite role for that event. Also if the user joins an event, during the event his/her attendance can be taken formally by using the “entering code” procedure. Also after the event is finished, he/she will be able to grade the event out of 5. Last but not least, while they are searching events, they will be able to filter in the events by their attributes.

Club Member: First of all the “Club Member” role will have every feature that is available for the “Non-Member” role. However, because they are members of a specific club, they can turn on the club notifications to get information about incoming events automatically. Also, if their club shares a Whatsapp group link, they will be able to see the link. Furthermore, they also will be able to join the surveys of their clubs.

Active Member: After a “Club Member” attends a specific amount of club events, they will become an “Active Member” and they will have every feature that is available for the “Club Member” role. Other than that an “Active Member” will be able to participate in Club President Election.

Club Board Member: “Club Board Member” role will have every feature that is available for the “Active Member” role. Furthermore, they will be able to create events and surveys. They also will be able to generate attendance codes and take formal attendance of the club events.

Club President: “Club President” role will have every feature that is available for the “Club Board Member” role. As an extra he/she will be able to adjust the club hierarchy and club board members of the club.

Admin: “Admin” role will be the most authorized role in our application. One of the critical mission of the admins is to assign selected presidents to their clubs and assign Advisors to related club.

Administrative Assistant: This role is one of the special role that is outside the user role hierarchy. This role basically will be used to adjust rooms for planned events.

Advisor: “Advisor” role is used to show the academic personnels that are connected to one of the clubs of the Bilkent University.

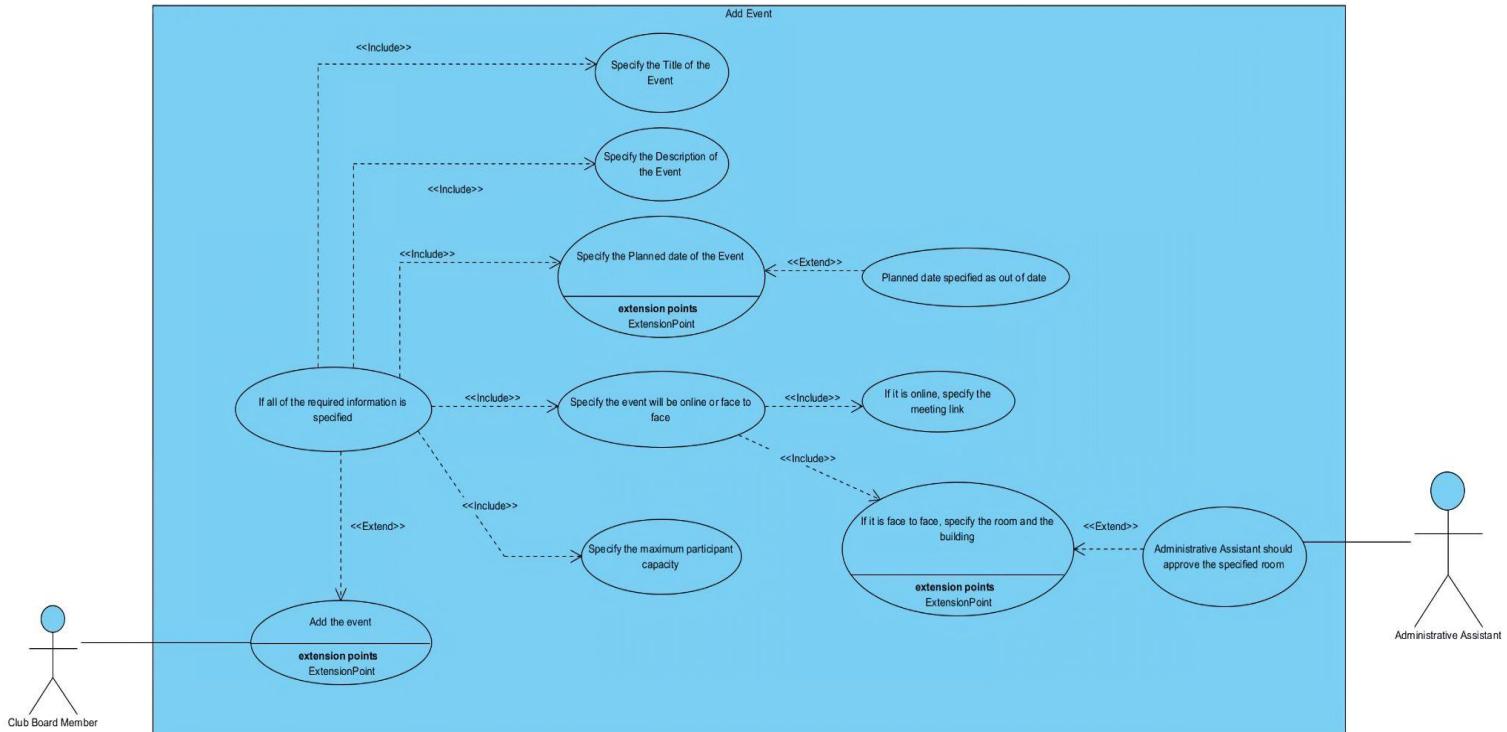


Figure 2: Use Case Diagram of Add Event

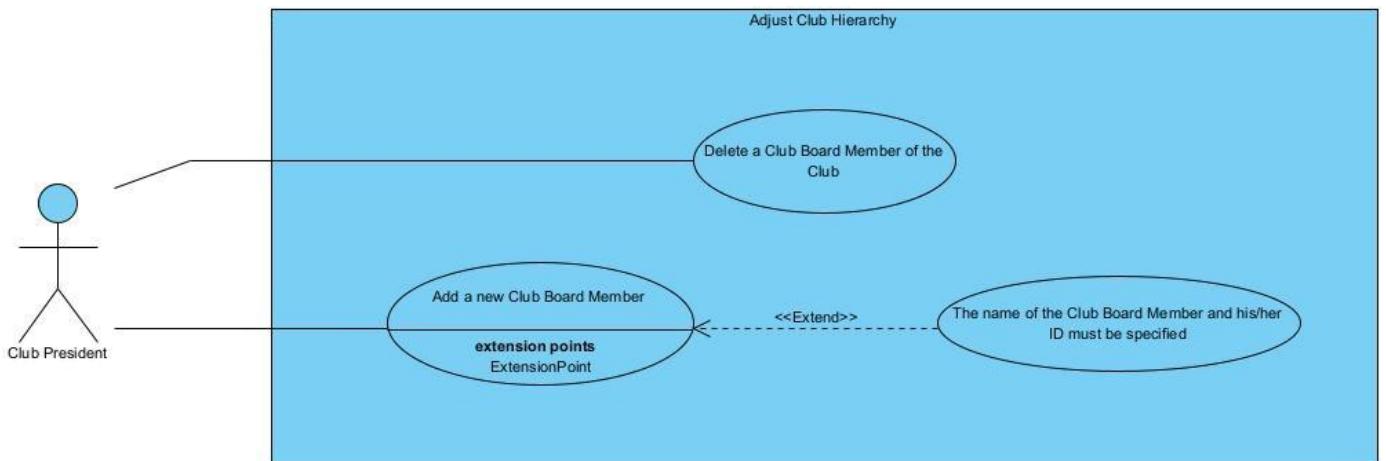


Figure 3: Use Case Diagram of Adjust Club Hierarchy

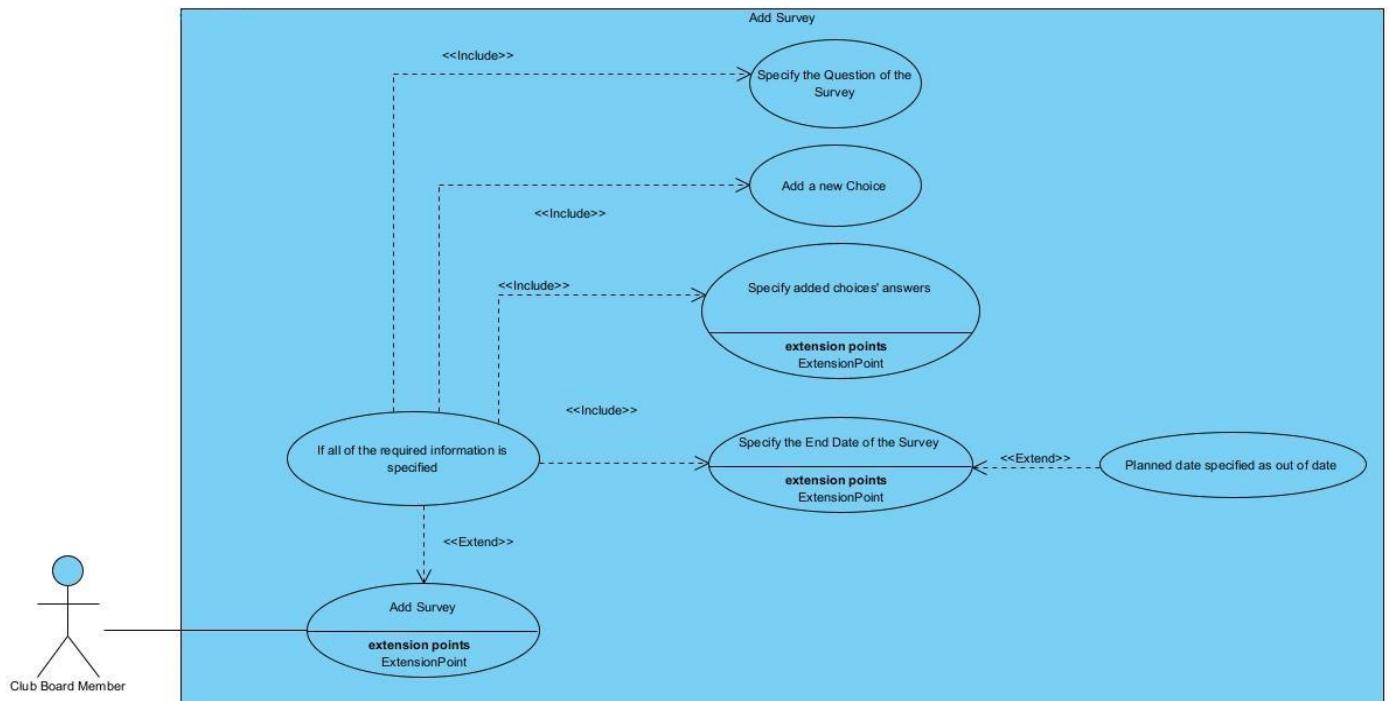


Figure 4: Use Case Diagram of Add Survey

2.5.3 Object and Class Model

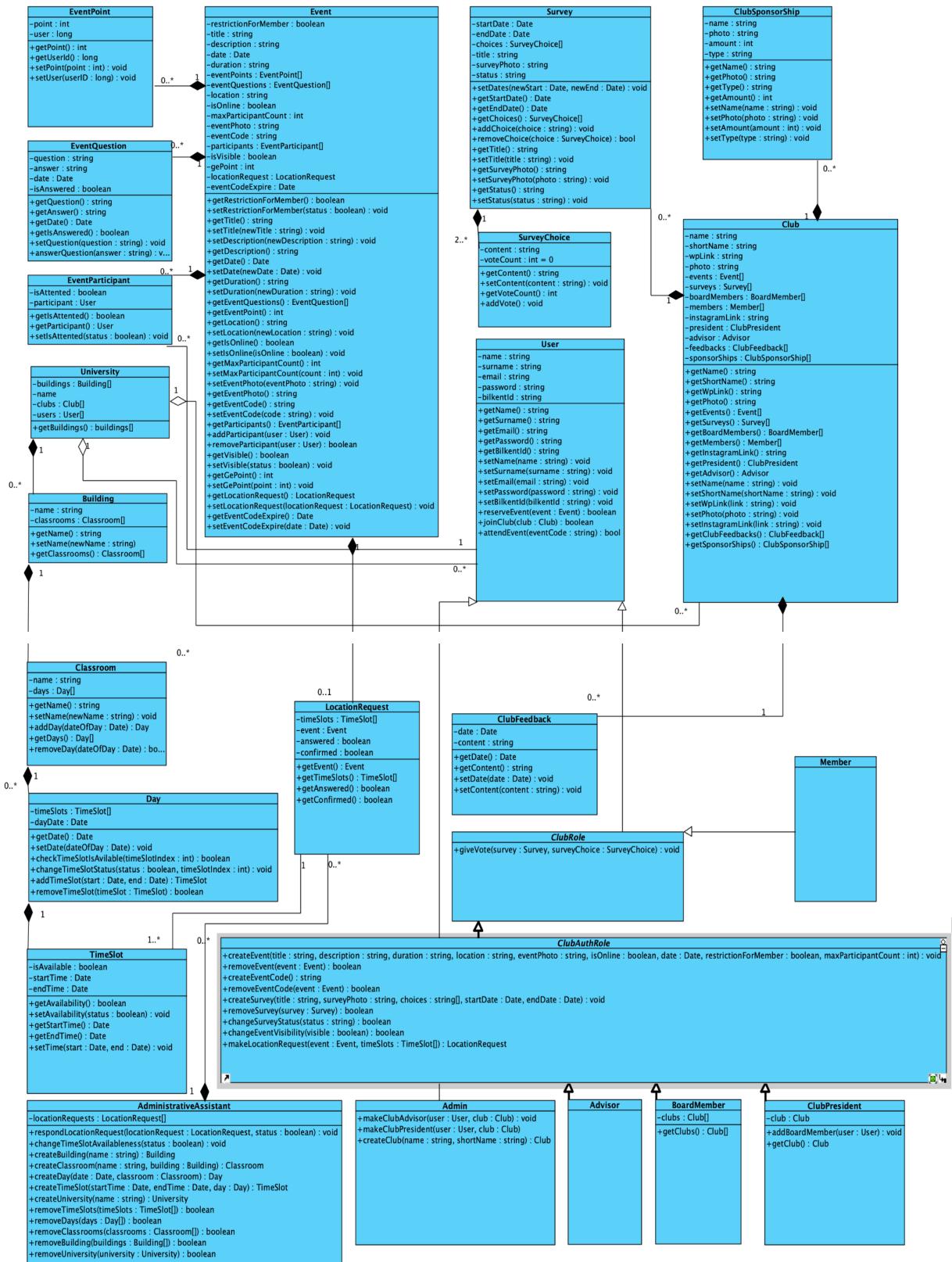


Figure 5: Class Diagram

The class models of this application are given above. Application will have 24 classes. These classes are demonstrations of all objects in the application. In this diagram, all relations between the objects can be viewed.

User Class: User class is the base of all user role objects which means it is the superclasses of all user-relative classes. All the users in the application will have properties and abilities which are determined in the User class. The roles that are students and academics can be constructed directly using this class in the application.

AdministrativeAssistant Class: This class is for the initialisation of the administrative assistant role. Administrative assistants have a responsibility to schedule event places.

ClubRole Class: This is an abstract class to differentiate other users from club users. This abstract class gives the ability to vote in club surveys to all club roles. It is the super classes of the Member Class and ClubAuthRole Abstract Class.

Member Class: This class is the subclass of the ClubRole Abstract Class. All the members of the clubs will be constructed from this class.

ClubAuthRole Class: This is another abstract class that the application has. This abstract class is to distinguish club authorization roles to other roles. It is the subclass of the ClubRole and superclass of the ClubAdvisor, Club President and BoardMember Classes. This class provides access to edit, create, delete events and surveys of the club.

Advisor Class: Each club has an advisor. This class is for the construction of Advisor users.

BoardMember Class: This class is for the formation of the board members of the club. It is a subclass of the ClubAuthRole Abstract Class.

ClubPresident Class: This class is for creating club president objects in the application. Club presidents have the ability to add/remove board members from the club in addition to ClubAuthRole Abstract Class abilities.

Admin Class: This class gives access to determine club advisors, club presidents and administrative assistants in the application.

Club Class: This class is for the construction of the club objects. Under the club, there can be multiple events, members, surveys, board members, and sponsors.

Survey Class: This class is for creating surveys of the clubs. It can have 2 to n options.

SurveyChoice Class: This class is to create survey options under the survey object. It consists of the content of the option and the number of people who choose that option.

Event Class: The event class is the object of the club events that consist of lots of data. Events will be customizable in this application. It has other objects like Event Question, Event Point, Event Participant, etc.

EventQuestion Class: The event question is for users to ask their event-related questions before the event. After the questions are answered they will be visible to all.

EventPoint Class: After each event, participants that attended the event can give points to the event. Cumulative calculations of these points will be displayed on the profile page of the club.

EventParticipant Class: In order to determine the activeness of members of the clubs, each event participant should be followed. This is why the application needs an Event Participant object.

ClubFeedback Class: Each club will have anonymous feedback to give information to possible members. This class is for creating these feedback objects.

University Class: All these objects are the leaves of the University objects. Classes, clubs, etc. are in the University. This class is for the construction of University objects.

Building Class: Each classroom is in a building therefore this class is for creating buildings. This object will have multiple classes and a name.

Classroom Class: Classroom Class is to trace the daily status of the classrooms for the events.

Day Class: Day Class is to follow daily time slots for each class.

Timeslot Class: The timeslot Class is for the construction of timeslots. These time slots can be reserved for events.

LocationRequest Class: For face-to-face events, clubs have to reserve time slots. For this purpose, location requests can be created. If administrative assistants accept, time slots will be reserved for that event. In order to trace these requests, LocationRequest Class can be used to create these objects.

ClubSponsor Class: Clubs may have sponsorship agreements. To construct these agreements in object base, ClubSponsor Class is needed.

2.5.4 Dynamic Models

2.5.4.1 Sequence Diagram

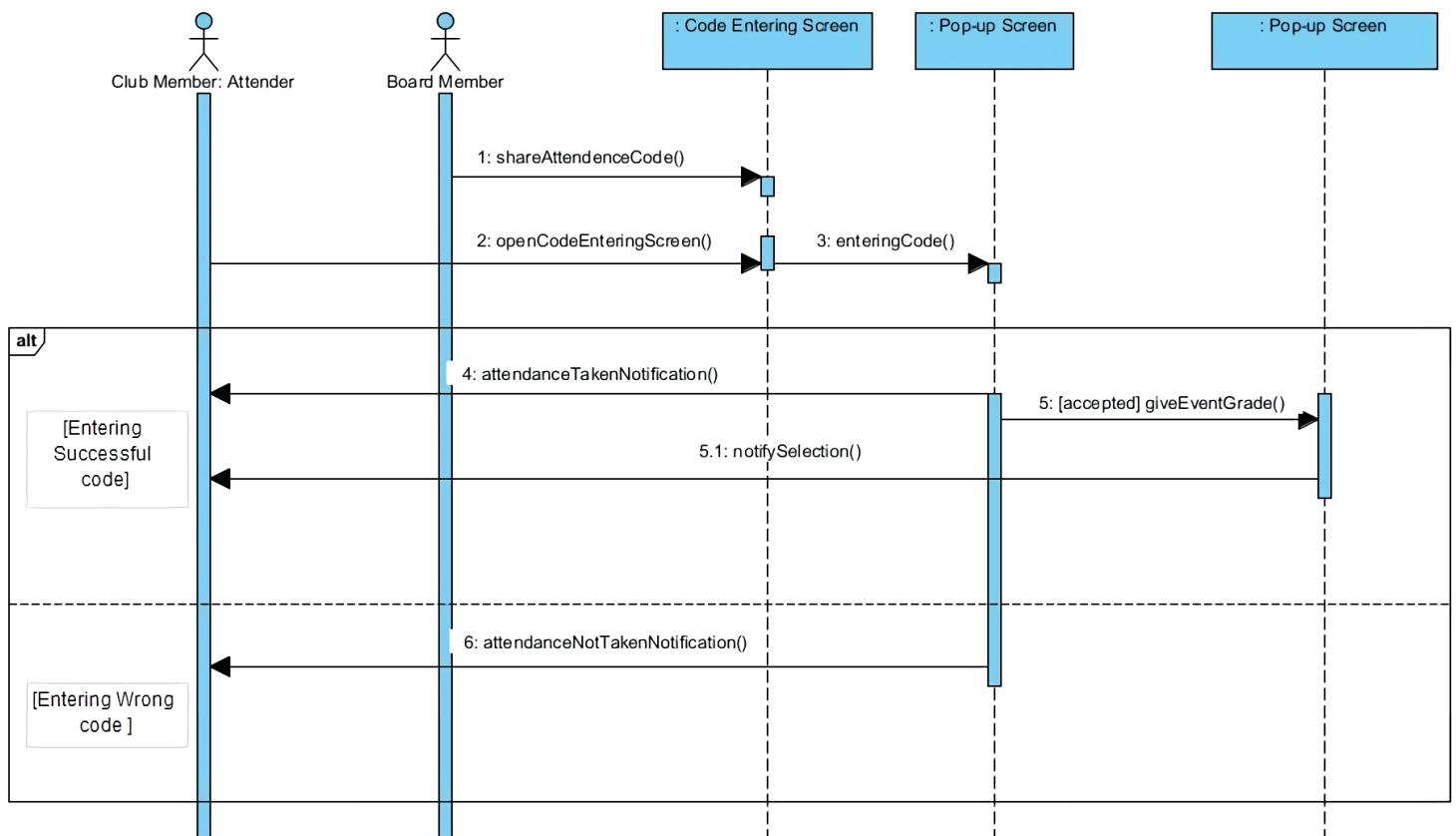


Figure 6: Sequence Diagram - Event Case

When an event is taking place, in the beginning of the event “Board Member” will share attendance code with the audience. At the same time each attendee of the event will open the code entering screen of the application and type in the shared code. After that a pop-up screen will appear and notify the attendee about whether the code is accepted or not. At the end of the event, attendees will be directed to give feedback grade to the event and then,

another pop-up screen will notify them about the grading process is completed successfully.

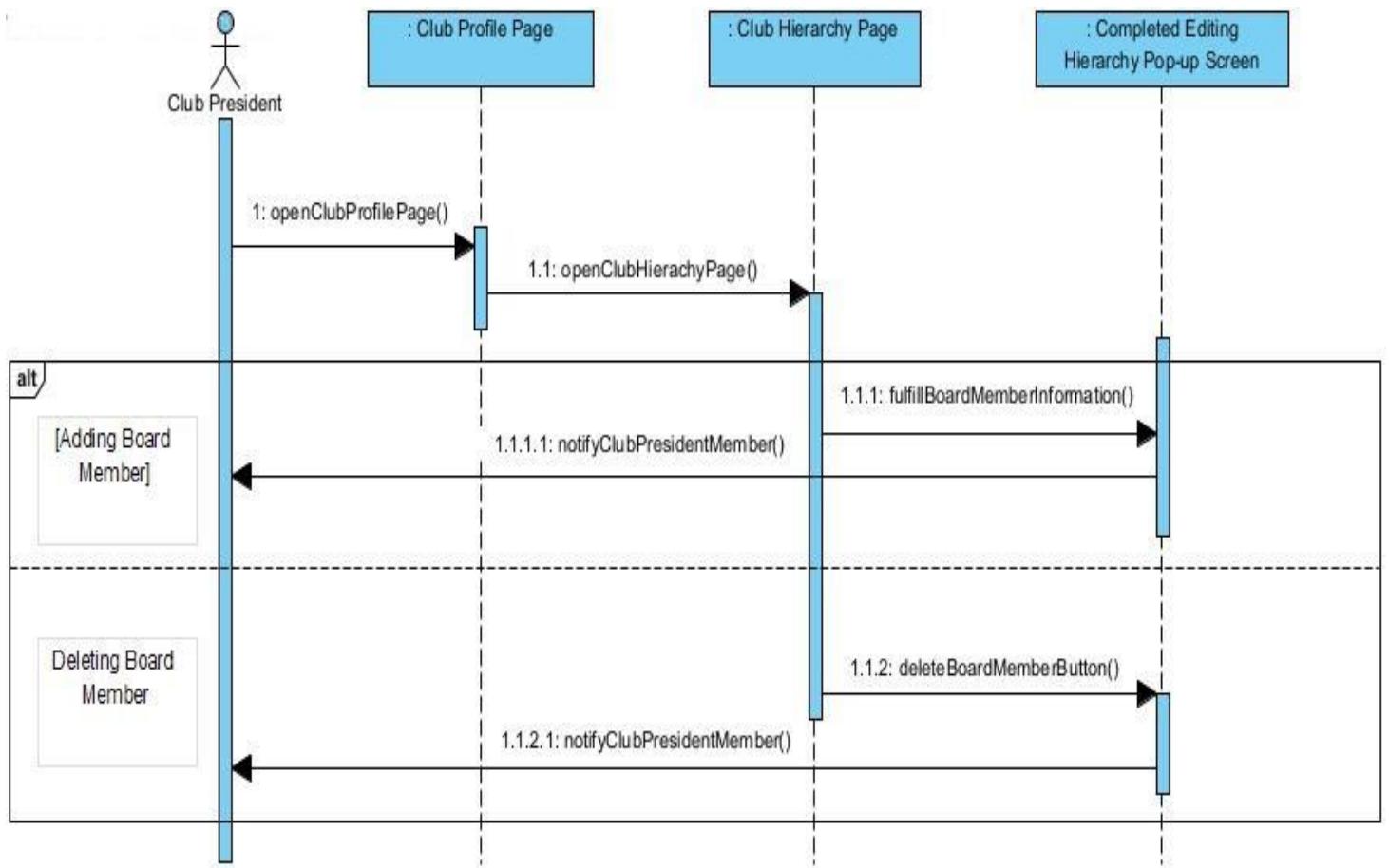


Figure 7: Sequence Diagram - Adding Board Member Case

In our web application adjusting club hierarchy procedure will be carried out by the president of the club. He/she first needs to go to the Club profile page and select the Club Hierarchy button to see the Club Hierarchy Settings page. In this page, if the president would like to add a new board member to the club, he should fulfill the information of the new board member and submit it. After that, a pop-up screen will notify the president about a new board member being added to the club hierarchy. If the president would like to delete a board member of the club, he can basically press the trash symbol of that board member. After that, a pop-up screen will notify the president that the board member is deleted.

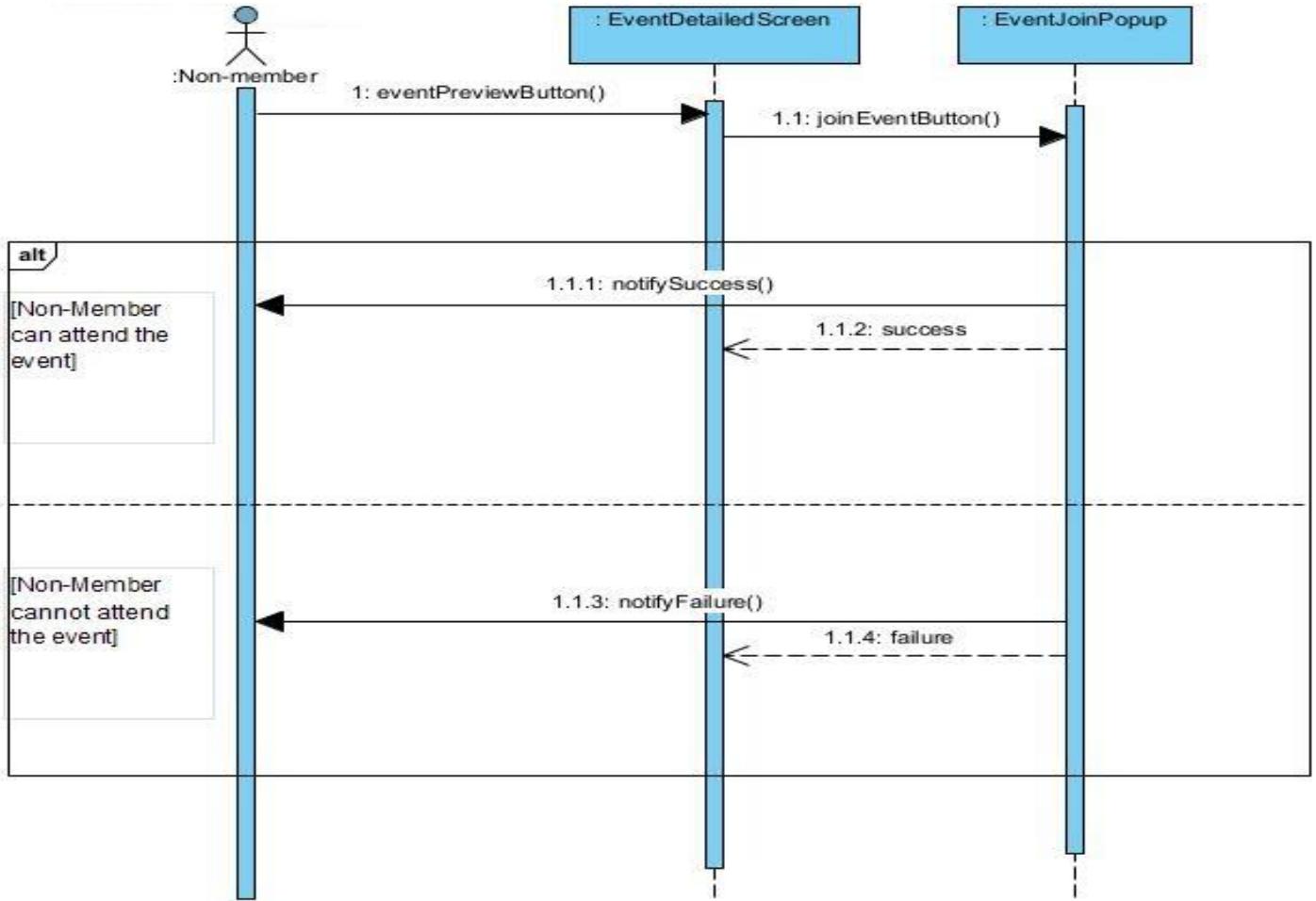


Figure 8: Sequence Diagram - Attending an Event Case

If a user of our web application would like to participate/join an event, he/she can press that event's card to get a detailed event page. On this page, there will be a button that says "participate". If that event can be joined by that specific user, a pop-up screen will notify them about the success. Else, that event cannot be joined by that user and a pop-up screen will let the user know about the situation. For example, an event for only active members cannot be joined by a standard club member.

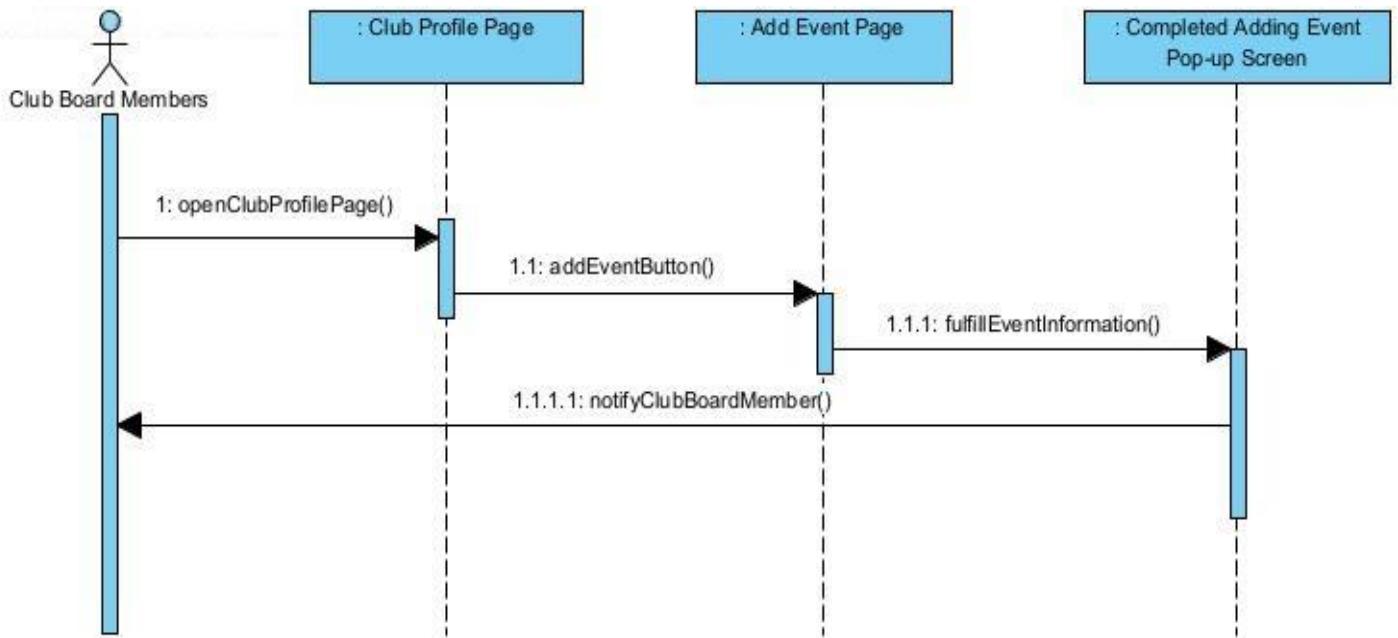


Figure 9: Sequence Diagram - Adding an Event Case

When a club board wants to add a new event to the club, he/she first needs to open the club profile page and then go through with the “add event” button. In the “add event page”, the user will fulfill the required event information such as its name, its duration, its date, etc. After he/she submits the required information, a pop-up screen will notify the user about adding an event is successful.

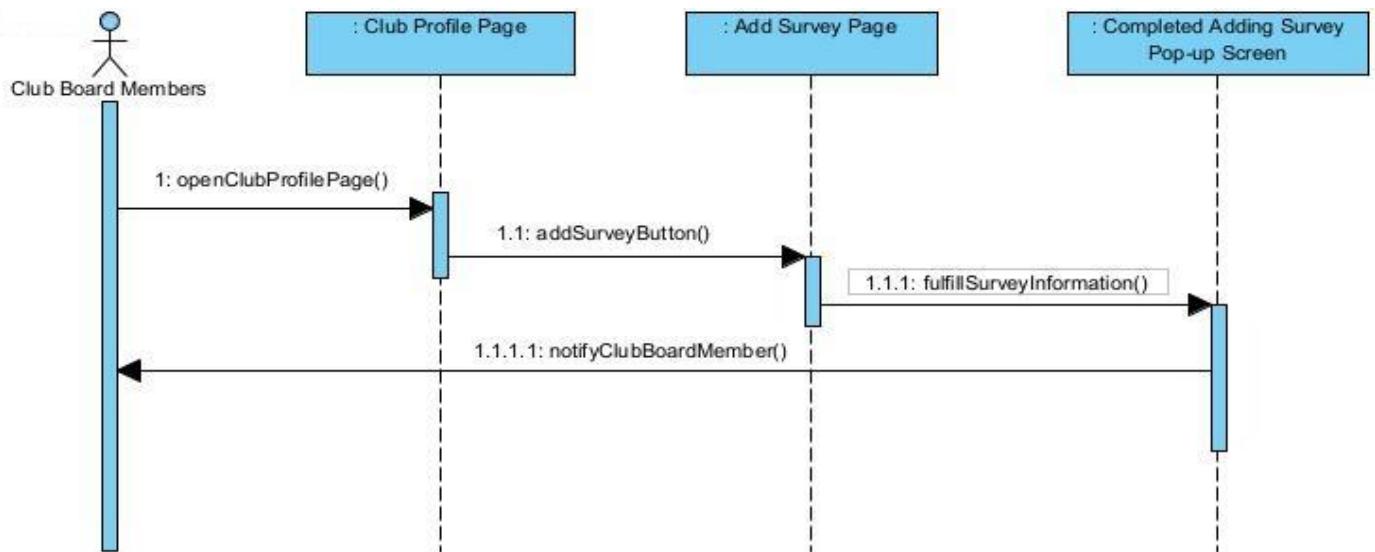


Figure 10: Sequence Diagram - Adding a Survey Case

When a club board member wants to add a new survey about the club, he/she first needs to open the club profile page and then go through with the “add survey” button. In the “add survey page”, the user will fulfill the required survey information such as its question, the potential choices. After he/she submits the required information, a pop-up screen will notify the user about adding a survey is successful.

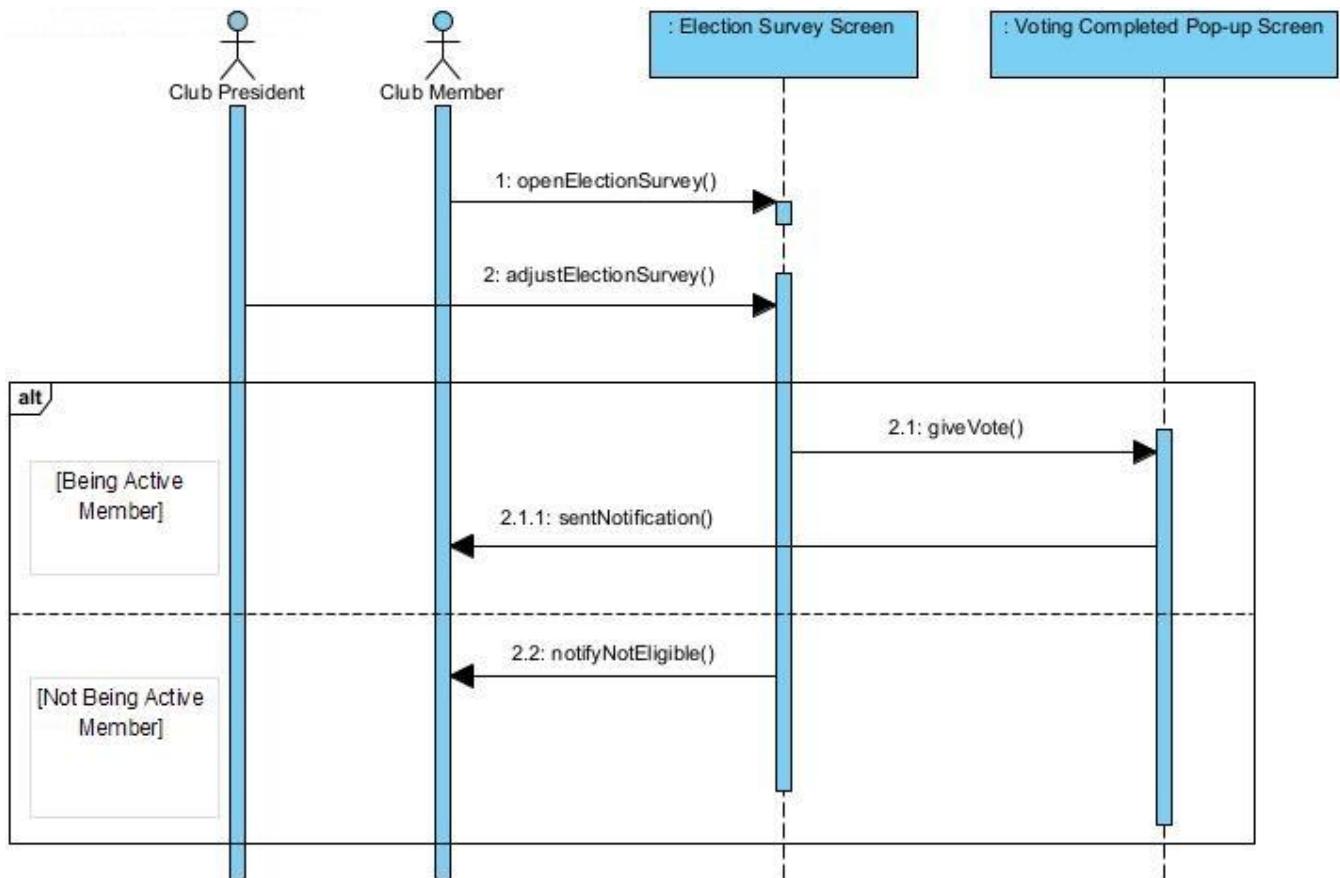


Figure 11: Sequence Diagram - Voting for Election Case

Club president election can be seen as another survey that is only available for the active members only. Also election surveys only can be created by the club president himself/herself. After a survey is created Club Members will open the election survey screen and if they are not active members a pop-screen will notify users about this situation. But if they are eligible to give a vote, another pop-screen will notify the user about their vote has been taken.

2.5.4.2 State Diagrams

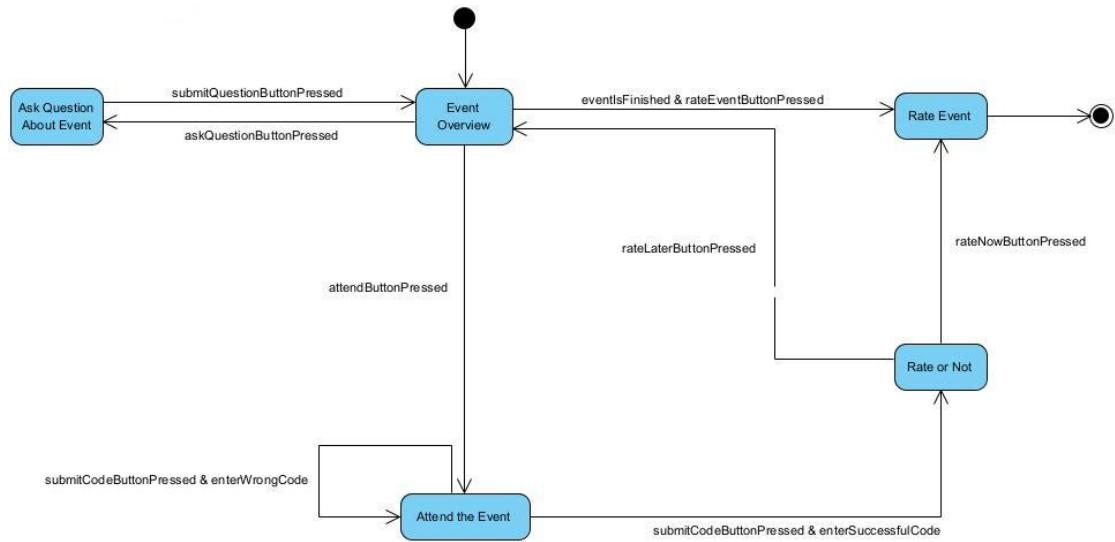


Figure 12: State Diagram - Event Operations by Attendees Case

This state diagram shows the event overview operations of a student. A student can ask questions about a specific event. In addition, students can attend the event by clicking a button and entering the event's code given by board members. If the event code is wrong, an error is shown and the state does not change. After entering the correct event code, students can rate the event, or rate it later.

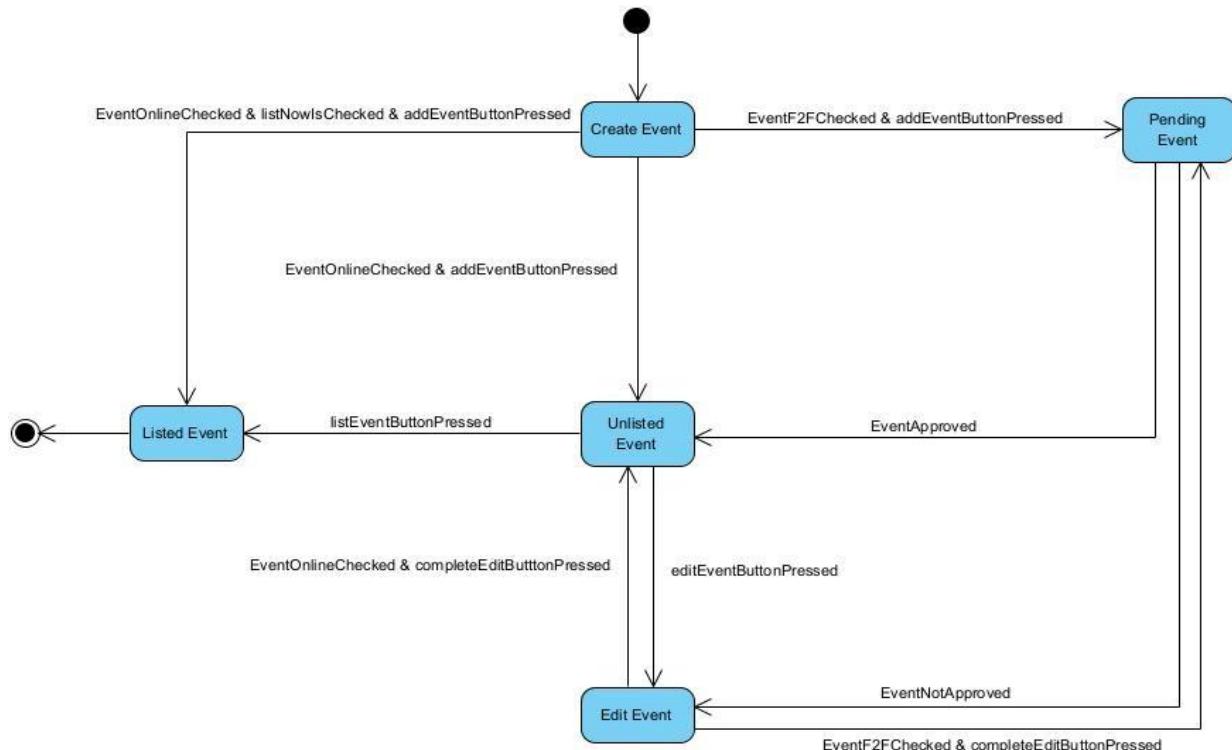


Figure 13: State Diagram - Creating an Event Case

A board member can create an event. There are several options regarding creating an event. An event can be online or face to face. If the event is online, and board members prefer to list the event after creation, the event is automatically listed on the club page. Otherwise, the event becomes unlisted and ready to list. If the event is face-to-face, the board member selects a preferred classroom and time slot. The event is sent to the administrative assistant in order to approve the meeting place and time. If the event is approved, the event becomes unlisted. Else, the administrative assistant sends the event back to edit the preferred place. A board member can also edit an unlisted event. Unlisted events can be listed by board members.

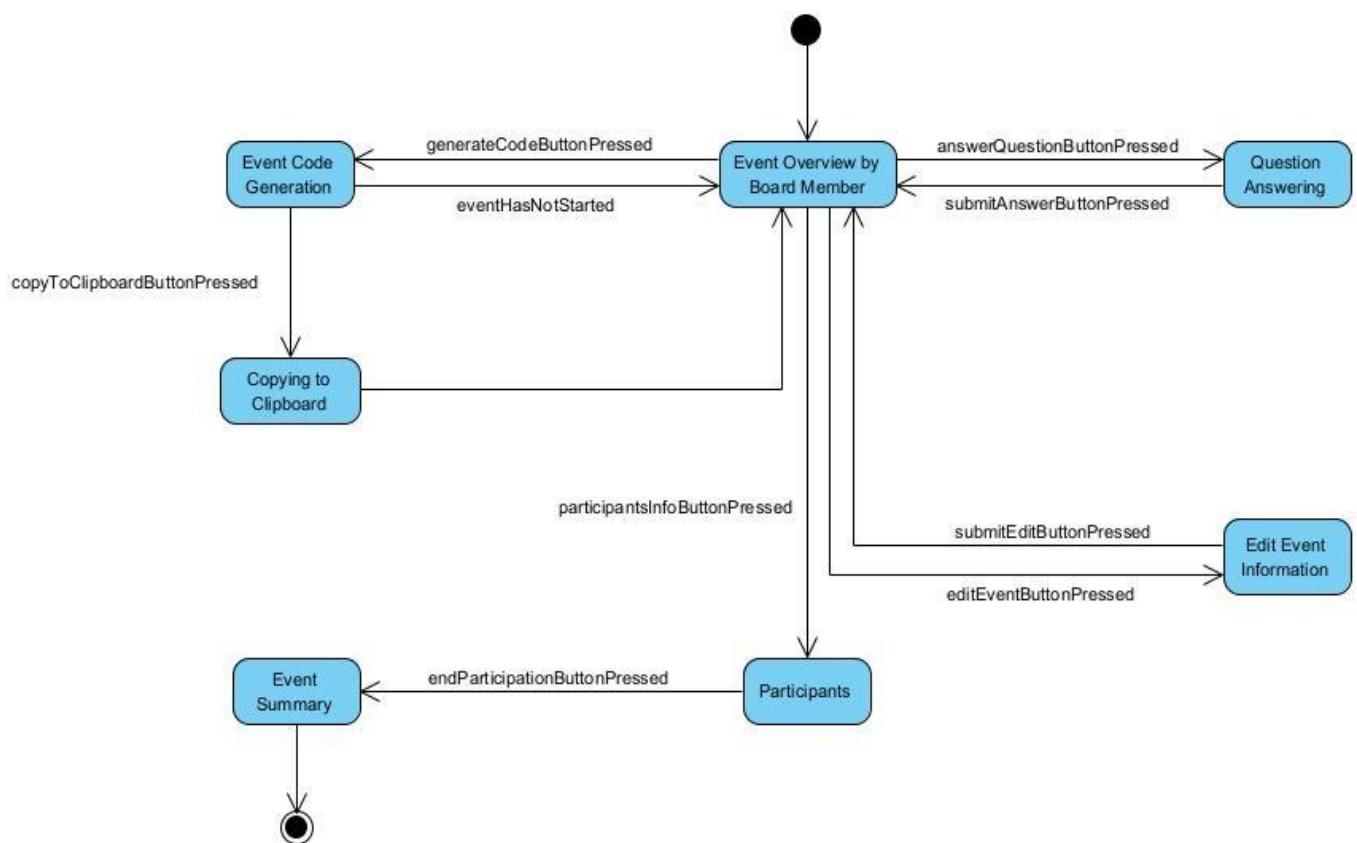


Figure 14: State Diagram - Event Overview by Board Member Case

Overview of an event includes several operations. A board member can answer questions about the event. In addition, board members can edit information about the event. The main operation in the overview is code generation. A board member can generate a participation code for students and copy it to the clipboard. However, board members cannot generate a code before event time comes. While students are joining the event by

entering the event code, board members can see the live status of participation. If a board member clicks “End Participation”, the generated code becomes invalid and an event summary appears on the application.

2.5.4.3 Activity Diagrams

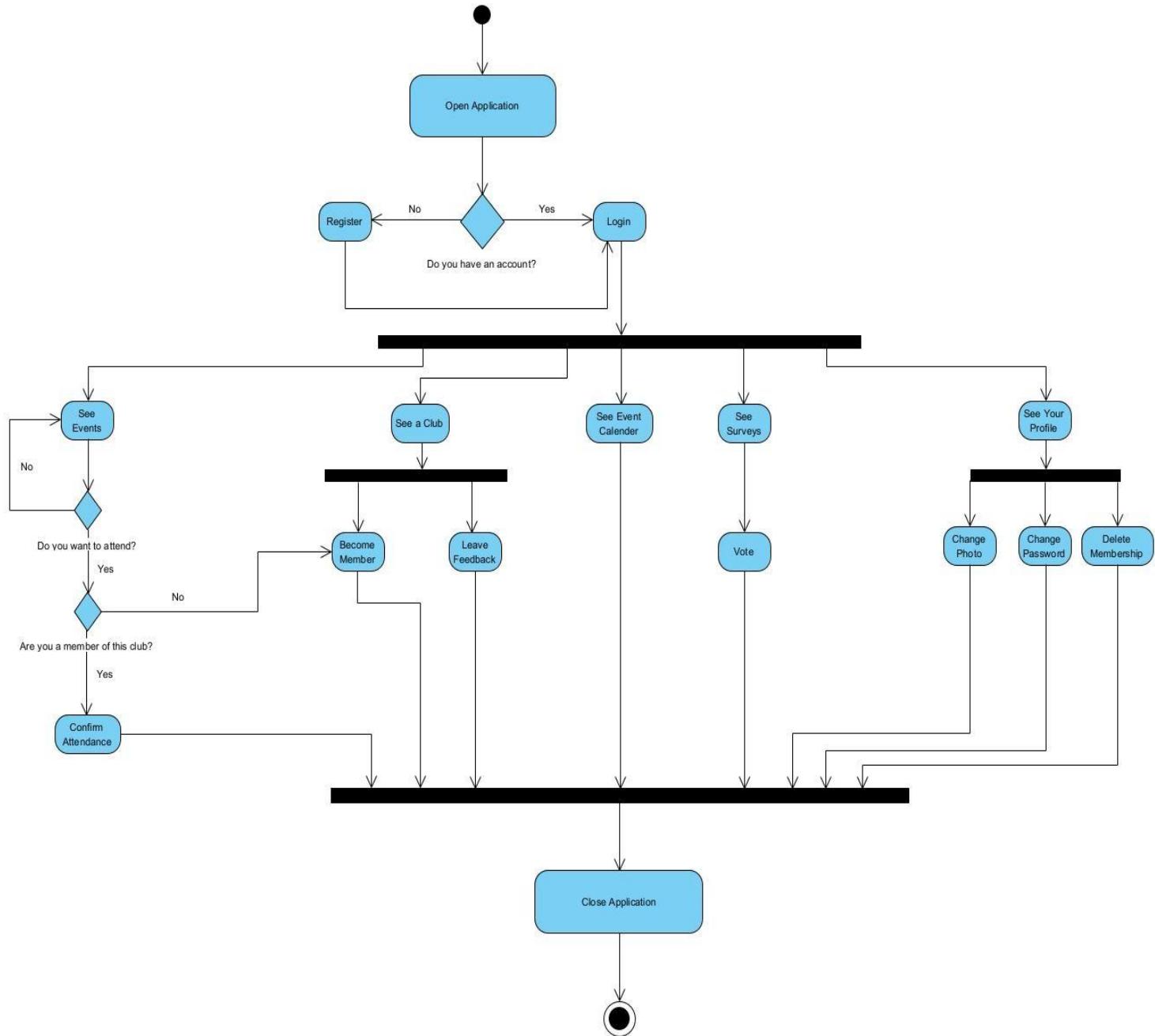


Figure 15: Activity Diagram - Opening Application Case

When a student opens the application, a login screen welcomes the user. If the student has an application account, he/she can immediately sign in to the account. However, if he/she does not have an account, he/she should go to the register page. After signing up to the website, he/she will again go to the login page.

On the main page, events of the clubs are displayed. Addition to that, the student can search for a club, see his/her event calendar, see existing surveys and see his/her profile. If the upcoming event attracts his/her attention, he/she can see the details of the event and have his/her name on the participants list by confirming his/her attendance. If there is a restriction by the club that only the members of the club can attend the event, then the student should become a member of the club first.

In the club details page, a student can become a member or a member of a club can leave feedback. In the event calendar page, there is a list of events that a student will attend and the past events that a student has already attended. In the surveys page, a student can participate in the club surveys that he/she is a member of. In the profile page, a student can change his/her profile photo, password and he/she can delete his/her club memberships.

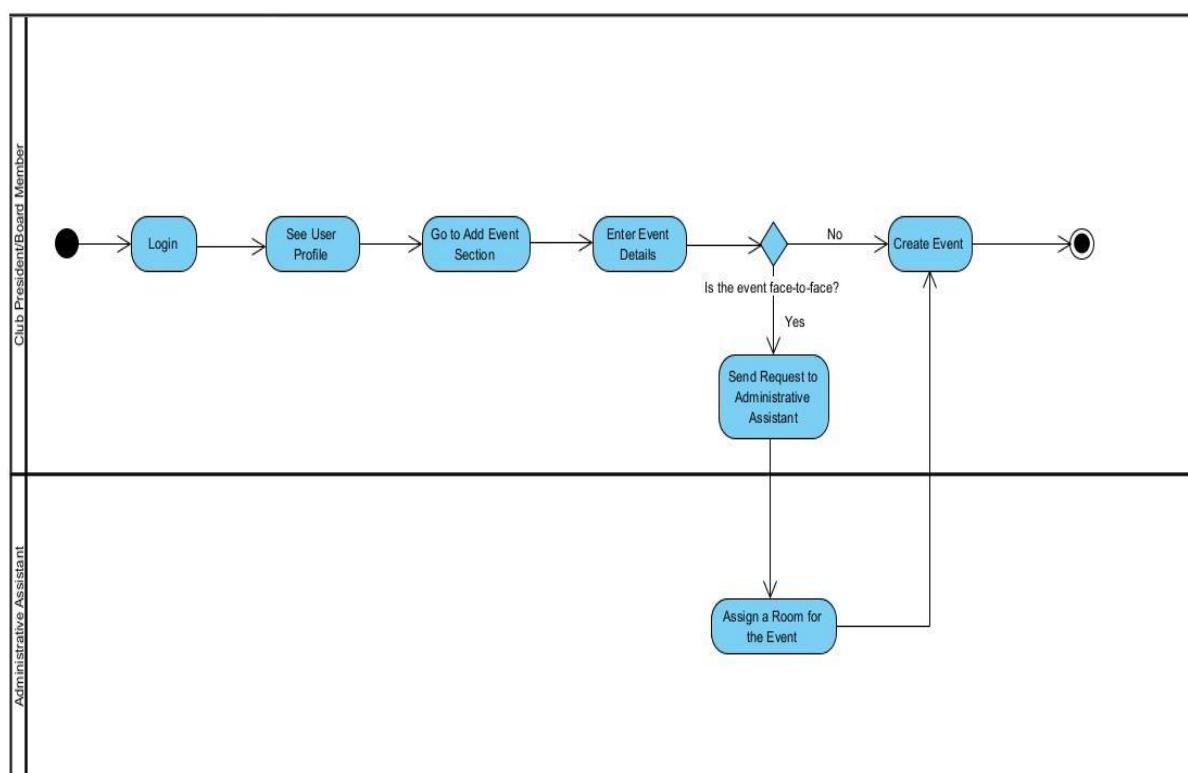


Figure 16: Activity Diagram - Opening Event Page From User Profile Case

1. In order to create an event, a board member or the club president should login to his/her account and go to the club profile.
2. In the add event section, he/she should enter event details as well as the event's face-to-face or online information.
3. If the event will be held online, he/she can immediately announce the event. However, if the event will be face-to-face, firstly, the board member or the club president have to send a request to the administrative assistant for a suitable room for the event.
4. After the administrative assistant reserves a room for the event, the club can announce the event for the students and the event creation process ends.

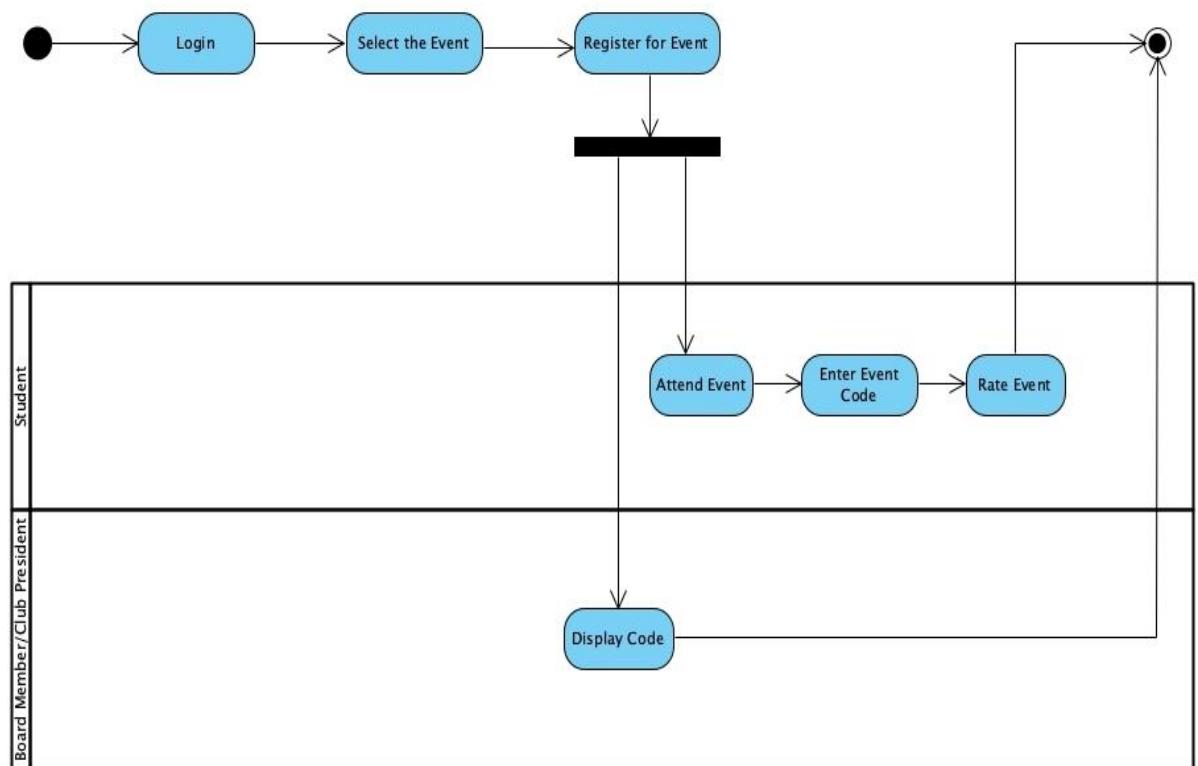
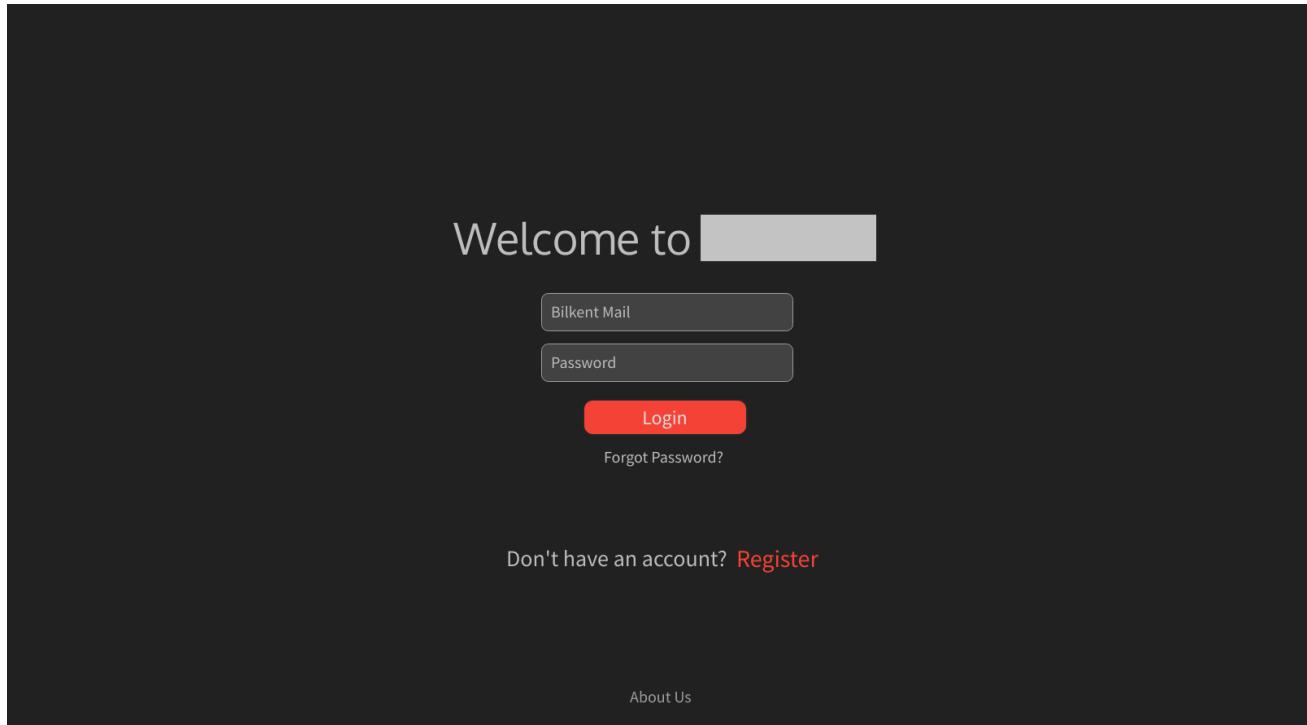


Figure 17: Activity Diagram - Attending an Event Case

1. When the event time comes, either the students or the board members should login to their application account and select the event.
2. In this page, the board members or the club president should create and display the code for the students to take attendance.
3. The students that attended the event should enter this code from this page to confirm their attendance. After the event, students can rate the event from this page again.

2.5.5 User Interface

Login Page



Welcome to [REDACTED]

Bilkent Mail

Password

Login

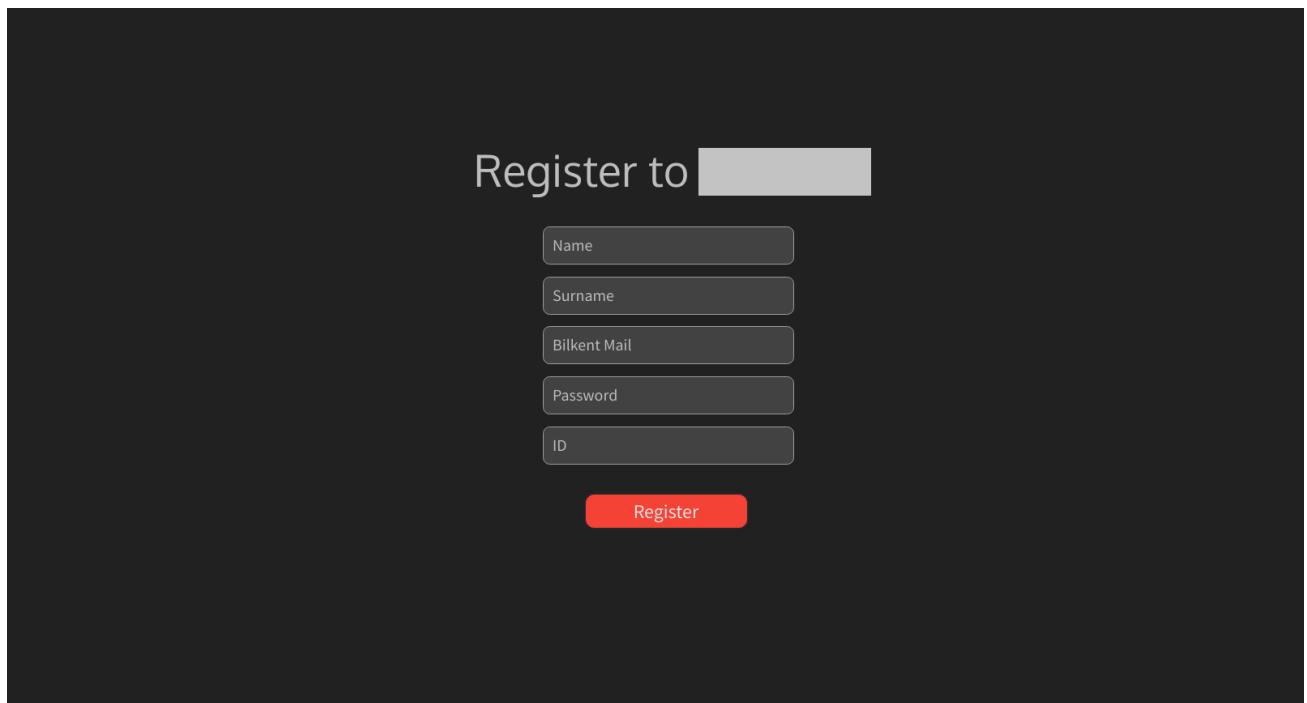
Forgot Password?

Don't have an account? [Register](#)

About Us

A screenshot of a login page. The background is dark. At the top center, it says "Welcome to [REDACTED]" in white. Below that are two input fields: "Bilkent Mail" and "Password", both with placeholder text. A red "Login" button is centered between them. Below the button is a link "Forgot Password?". At the bottom center, it says "Don't have an account? [Register](#)". At the very bottom center, there is a small link "About Us".

Register Page



Register to [REDACTED]

Name

Surname

Bilkent Mail

Password

ID

Register

A screenshot of a register page. The background is dark. At the top center, it says "Register to [REDACTED]" in white. Below that are five input fields: "Name", "Surname", "Bilkent Mail", "Password", and "ID", all with placeholder text. A red "Register" button is centered below the input fields.

Main Page

The screenshot displays the main page of a platform for clubs and events. At the top, there is a red header bar with a search bar containing the placeholder "Search clubs and events", an "Attend an Event" button, and icons for a clipboard, a folder, and a user profile. Below the header, the page is divided into two main sections: "Events of Following Clubs" and "Discover".

Events of Following Clubs: This section shows five event cards for "Career 101" at "IEEE Bilkent". Each card includes a thumbnail of a person, the event name, the club name, the date (22 Şubat 2021), the time (14:00 - 15:00), and the location (Bilkent Üniversitesi). A "See All" button is located in the top right corner of this section.

Discover: This section also shows five event cards for "Career 101" at "IEEE Bilkent", identical to the ones in the "Events of Following Clubs" section. A "See All" button is located in the top right corner of this section.

Students can attend an event by clicking the “Attend an Event” button on the top. “See All” buttons in this screen provide all events of following clubs, or events of clubs which the student is not a member of that club, in another screen. Also, the search bar will always be in the navbar. Students can search events and clubs using the search bar.

Calendar Page

The screenshot shows a mobile application interface for managing clubs and events. At the top, there is a search bar with the placeholder "Search clubs and events". To the right of the search bar are three circular icons: a clipboard, a calendar, and a user profile. Below the search bar, the title "Future Events" is displayed, followed by a "See All" link.

Two event cards are visible under the "Future Events" section:

- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00
- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00

Below the "Future Events" section, the title "Past Events" is displayed, followed by a "See All" link.

Five event cards are visible under the "Past Events" section:

- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00
- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00
- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00
- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00
- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00

Hovering on an Event

The screenshot shows the same mobile application interface as the previous one, but with a specific event card enlarged and highlighted. The event card for "Career 101" (IEEE Bilkent) on 22 Şubat 2021, 14.00 - 15.00 has its photo enlarged and centered, and its details are more clearly visible:

Career 101 (IEEE Bilkent) - Online Event, CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, Kariyer.net, Kariyer Danışmanı, 22 Şubat 2021, 14.00 - 15.00

Below the enlarged event card, the "Past Events" section is visible, followed by a "See All" link.

Five event cards are visible under the "Past Events" section:

- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00
- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00
- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00
- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00
- Career 101** (IEEE Bilkent) - CV Guide, Bilkent Üniversitesi, zoom, Tuba Karadağ İyieku, 22 Şubat 2021, 14.00 - 15.00

If a user hovers on an event, event photo enlarges and event location becomes visible.

Event Page Seen by Students

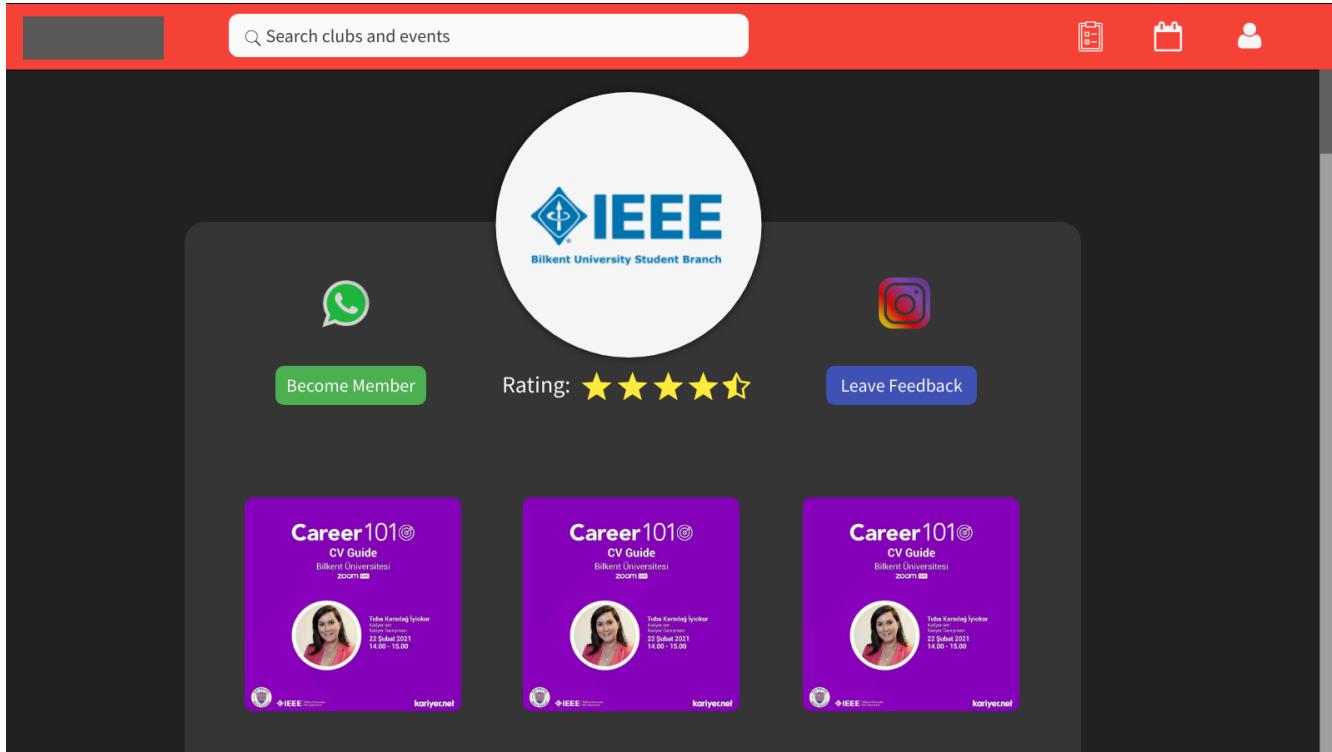
The screenshot shows a mobile application interface. At the top, there is a red header bar with a search bar containing the placeholder "Search clubs and events", an "Attend an Event" button, and three icons: a clipboard, a calendar, and a user profile.

The main content area has a dark background. On the left, there is a purple rectangular card for an event titled "Career101 CV Guide". The card includes the text "Bilkent Üniversitesi zoom LIVE", a circular profile picture of a woman (Tuba Karadağ İyioğur), and event details: "22 Şubat 2021 14.00 - 15.00". Logos for Bilkent University and IEEE are at the bottom of the card, along with the website "kariyer.net".

On the right side of the screen, there is a "Description of the event" section with placeholder text about labor rights, followed by an "Event Location" section. Below these, there is a "Q & A" section containing three questions and answers, each in a grey box. At the bottom right of the Q&A section is a red "Ask a Question" button.

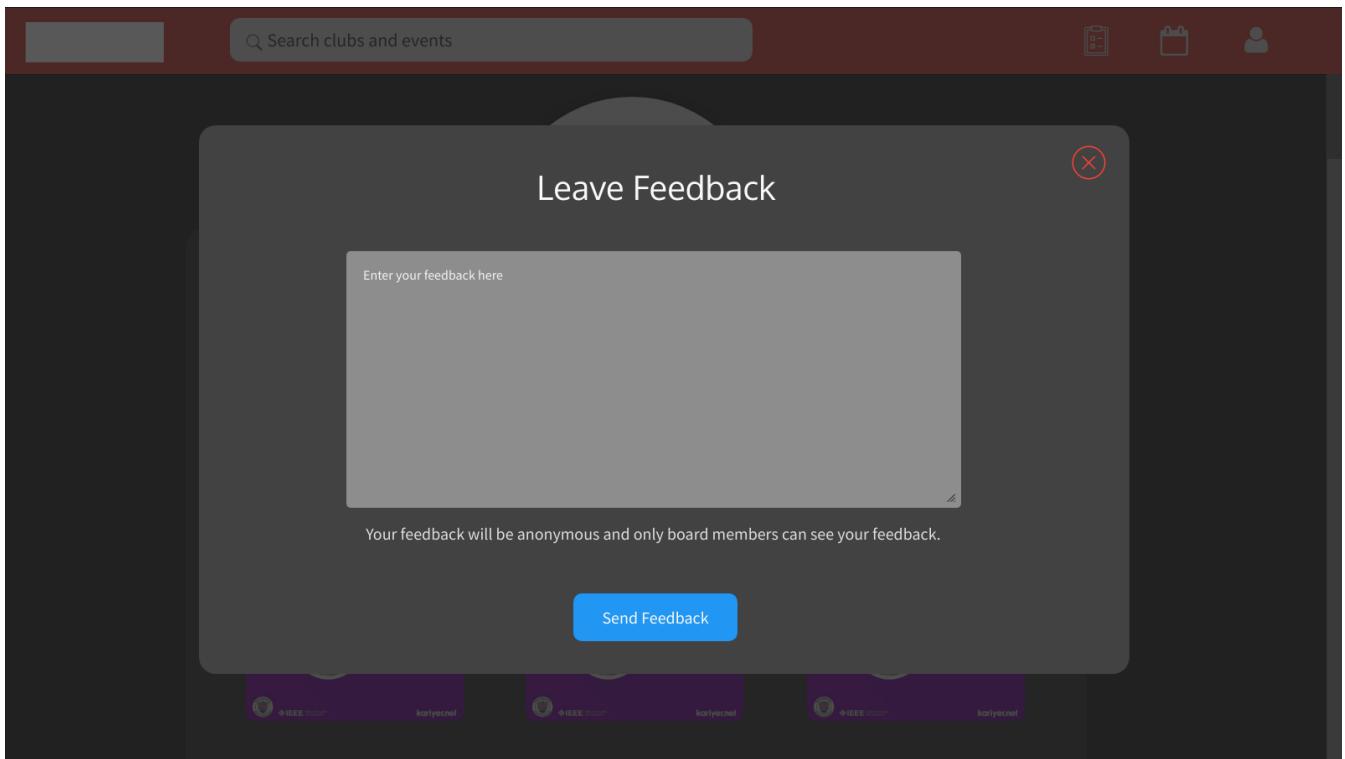
When a user clicks on an event in one of the pages above, this event screen meets the user. The user can ask questions about the event and register the event. If the user has already registered for that event, he/she can unregister.

Club Page from Student User's Perspective



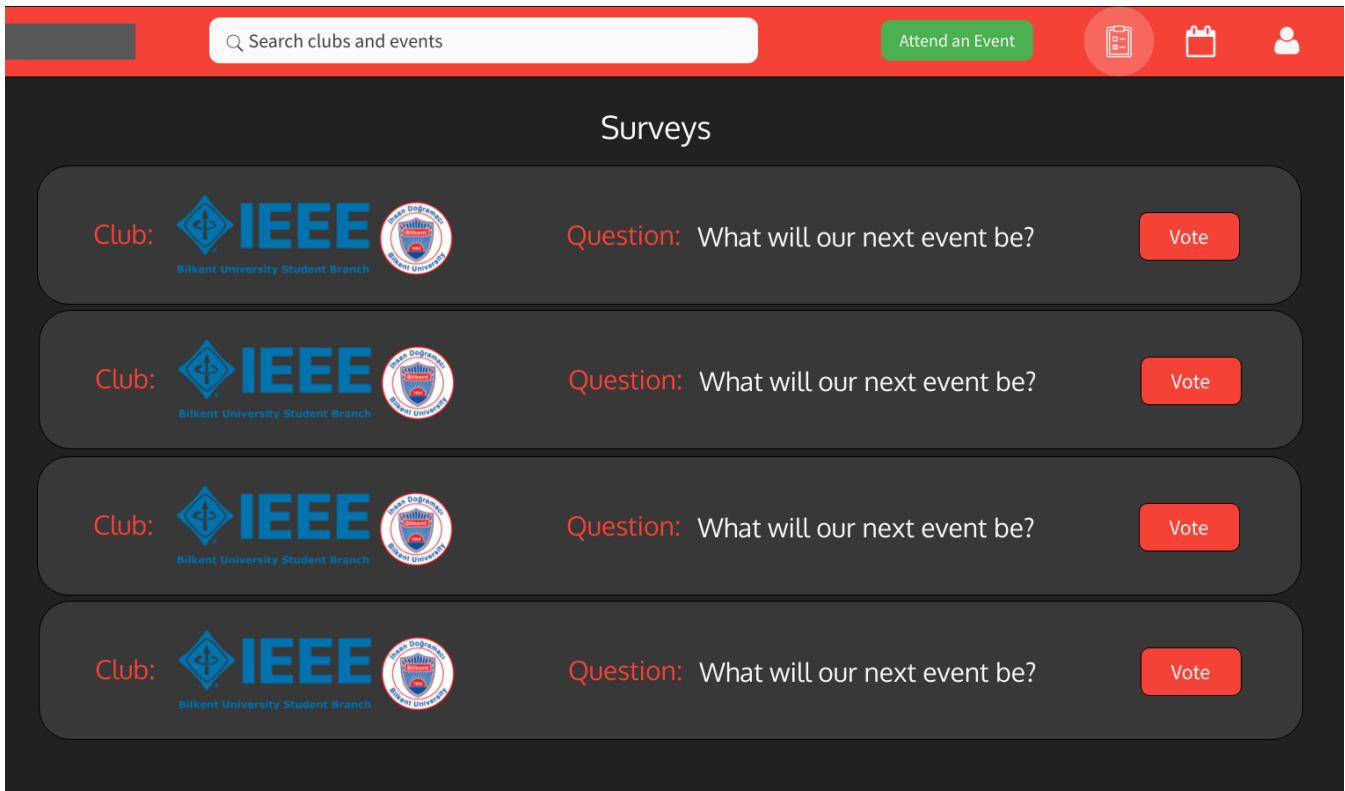
There are several functionalities of this page. If a user clicks WhatsApp or Instagram logo, he/she will be directed into the WhatsApp group of the club or Instagram page of the club. In addition, the average event rating can be seen on this screen. Users can also reach events by using this screen.

Leave Feedback Screen



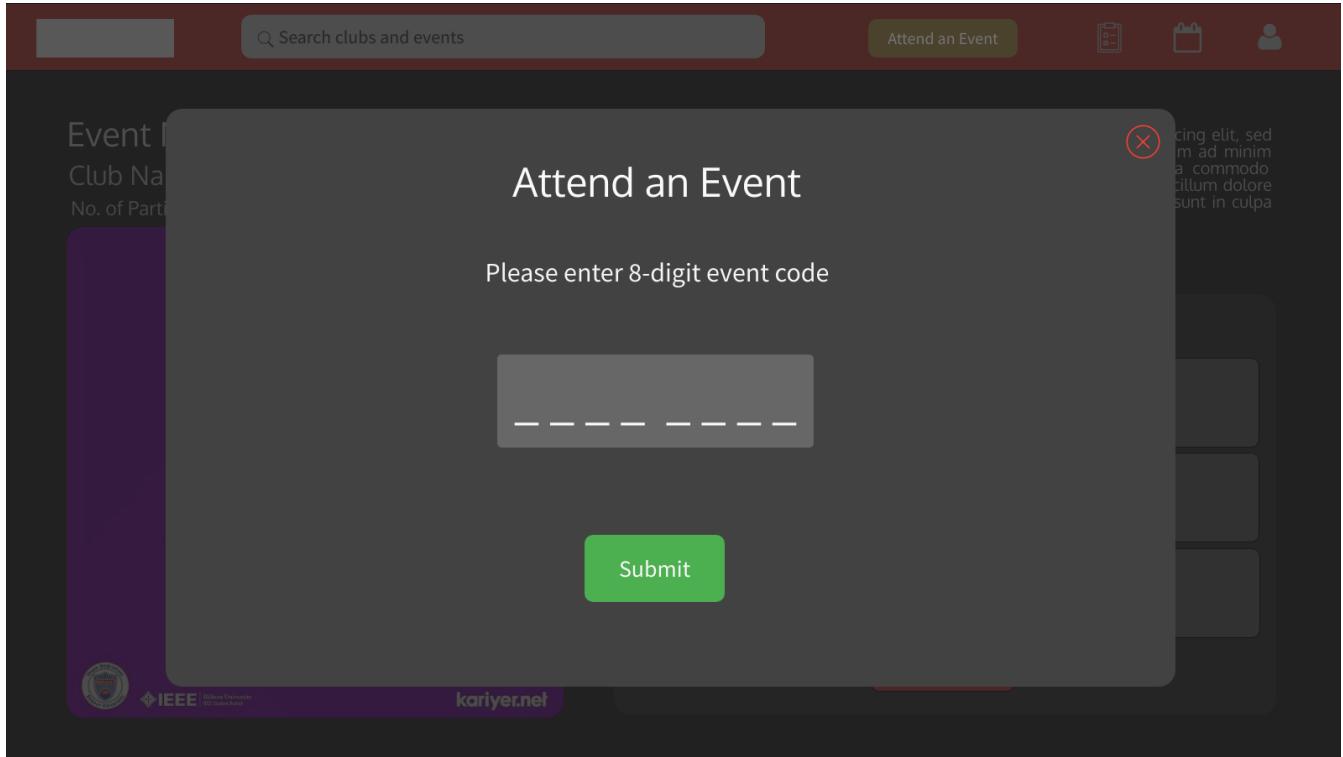
A screenshot of a mobile application interface titled "Leave Feedback". At the top, there is a search bar with the placeholder "Search clubs and events" and three icons: a clipboard, a calendar, and a person. Below the search bar is a large central box with a red "X" icon in the top right corner. Inside this box, the title "Leave Feedback" is centered above a text input field with the placeholder "Enter your feedback here". Below the input field, a message states "Your feedback will be anonymous and only board members can see your feedback." At the bottom of the central box is a blue "Send Feedback" button. The background of the entire screen is dark, and at the very bottom, there are three small purple rectangular cards, each featuring the IEEE logo and the text "karive.net".

Surveys Page



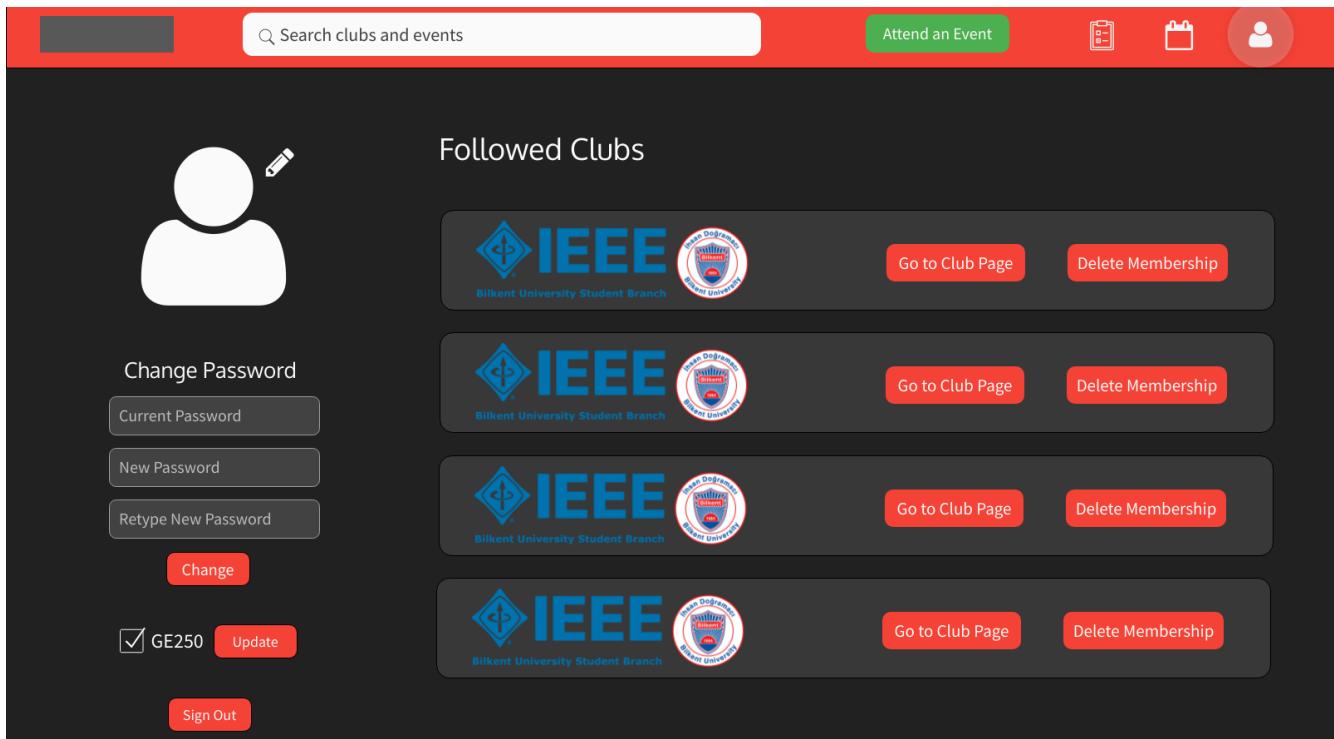
A screenshot of a mobile application interface titled "Surveys". At the top, there is a search bar with the placeholder "Search clubs and events" and four icons: a clipboard, a calendar, a person, and a gear. Below the search bar is a title "Surveys". The main content area displays four survey entries, each in a rounded rectangular card. Each card contains the text "Club: IEEE Bilkent University Student Branch" next to the IEEE logo and the university's crest. To the right of this information is the question "Question: What will our next event be?" followed by a red "Vote" button. The cards are separated by thin horizontal lines.

Attend Event Screen



A student can attend an event and become “attended” in the system. Also, GE250/251 points are not given if the student does not attend with code. If the code is wrong, the system warns the student. This screen appears when a student clicks the “Attend an Event” button on the navbar.

User Profile Settings Page



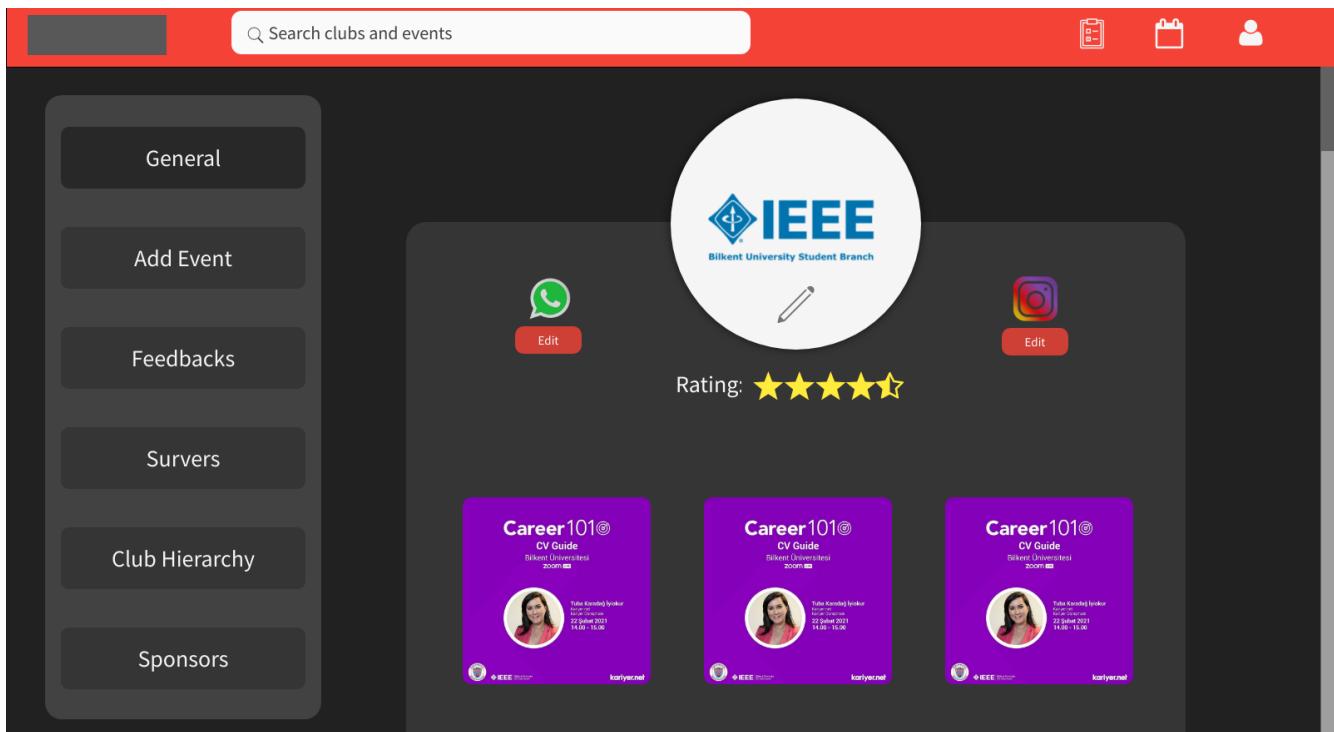
This screenshot shows the User Profile Settings Page. At the top, there is a search bar with the placeholder "Search clubs and events" and a green "Attend an Event" button. On the right, there are icons for a clipboard, a bag, and a user profile. Below the header, there is a section titled "Followed Clubs" with a large white user icon containing a pencil. Underneath, there are four cards, each representing a club membership:

- IEEE Bilkent University Student Branch**: Includes a "Go to Club Page" and "Delete Membership" button.
- IEEE Bilkent University Student Branch**: Includes a "Go to Club Page" and "Delete Membership" button.
- IEEE Bilkent University Student Branch**: Includes a "Go to Club Page" and "Delete Membership" button.
- IEEE Bilkent University Student Branch**: Includes a "Go to Club Page" and "Delete Membership" button.

On the left side of the main content area, there is a "Change Password" form with fields for "Current Password", "New Password", and "Retype New Password", followed by a "Change" button and a checked checkbox for "GE250" with an "Update" button. At the bottom left is a "Sign Out" button.

A user can change his/her password, set GE250/251 status, and manage memberships.

Club General Settings Page



This screenshot shows the Club General Settings Page. At the top, there is a search bar with the placeholder "Search clubs and events" and a green "Attend an Event" button. On the right, there are icons for a clipboard, a bag, and a user profile. On the left, there is a sidebar with the following buttons:

- General
- Add Event
- Feedbacks
- Survers
- Club Hierarchy
- Sponsors

On the right, there is a large circular profile picture of the IEEE Bilkent University Student Branch, which can be edited. Below it, there is a rating of five stars. At the bottom, there are three cards for "Career101@ CV Guide" events:

- Career101@ CV Guide** (Bilkent University, zoom) by Tuba Korkut Soyluk, 22.08.2021, 14:00 - 15:00
- Career101@ CV Guide** (Bilkent University, zoom) by Tuba Korkut Soyluk, 22.08.2021, 14:00 - 15:00
- Career101@ CV Guide** (Bilkent University, zoom) by Tuba Korkut Soyluk, 22.08.2021, 14:00 - 15:00

General settings can be done in this screen (Change profile picture, edit WhatsApp and Instagram link etc.)

Add Event Page

The screenshot shows a mobile application interface for adding an event. At the top, there is a red header bar with a search bar containing the placeholder "Search clubs and events". To the right of the search bar are three icons: a clipboard, a calendar, and a user profile. Below the header is a sidebar on the left with a dark background and white text, listing several options: General, Add Event, Feedbacks, Surveys, Club Hierarchy, and Sponsors. The main content area has a dark background with white text and features a large circular button in the center containing a white plus sign (+). To the right of this button, the title "Add Event" is displayed. Below the title are fields for "Title" (with a placeholder "Describe the event briefly"), "Description" (with a placeholder "Describe the event briefly"), "Date" (set to "12 May 2016" with a calendar icon), "Select Time" (with a dropdown arrow), "Location" (with radio buttons for "Face to face" and "Online" where "Online" is selected), "Click to add photo" (with a placeholder "Paste zoom link here"), "No. of Participants" (with a placeholder "0"), and a red "Add" button at the bottom right.

A board member should give all information about the event that will be added. If one of the specifications (photo, title, description, date&time, location, number of participants) is missing, the board member cannot add the event. If the event is online, the event can be listed automatically.

Feedbacks Page

The screenshot shows a mobile application interface for managing club events. At the top, there is a red header bar with a search bar containing the placeholder "Search clubs and events". To the right of the search bar are three icons: a clipboard, a calendar, and a user profile.

The main content area displays four feedback entries, each consisting of a title, a timestamp, a short preview of the content, and a delete icon. The sidebar on the left contains a vertical list of menu items: General, Add Event, Feedbacks (which is highlighted in white), Surveys, Club Hierarchy, and Sponsors.

- A feedback was given** at 20 October 2021
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc maximus, nulla ut commodo sagittis, sapien dui mattis dui, non pulvinar lorem felis nec erat Delete
- A feedback was given** at 20 October 2021
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc maximus, nulla ut commodo sagittis, sapien dui mattis dui, non pulvinar lorem felis nec erat Delete
- A feedback was given** at 20 October 2021
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc maximus, nulla ut commodo sagittis, sapien dui mattis dui, non pulvinar lorem felis nec erat Delete
- A feedback was given** at 20 October 2021
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc maximus, nulla ut commodo sagittis, sapien dui mattis dui, non pulvinar lorem felis nec erat Delete

Feedbacks were designed for general comments about the club. In order to provide privacy, all feedbacks are anonymous. However, feedback time is visible because a problem may be fixed after the feedback given.

Survey Settings Page

The screenshot shows a mobile application interface for managing surveys. At the top, there is a red header bar with a search bar containing the placeholder "Search clubs and events". To the right of the search bar are three icons: a clipboard, a calendar, and a user profile.

The main content area has a dark background. On the left, there is a vertical sidebar with several buttons:

- General
- Add Event
- Feedbacks
- Surveys
- Club Hierarchy
- Sponsors

In the center, under the heading "Active Surveys", there are three cards, each representing a survey:

- What will our next event be?**
Planned End date: 28 Oct 2021
Buttons: End Survey, See Results
- What will our next event be?**
Planned End date: 28 Oct 2021
Buttons: End Survey, See Results
- What will our next event be?**
Planned End date: 28 Oct 2021
Buttons: End Survey, See Results

Below the active surveys, there is a section for adding a new survey:

Add Survey

Survey Question
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc maximus, nulla ut commodo sagittis, sapien dui mattis dui, non pulvinar lorem felis nec erat

Choices
 Choice 1
 Choice 2
Choice Name
Add Choice

End Date
04 Nov 2021

Add Survey (green button)

All surveys are managed on this page. Current results of active surveys can be seen, or they can be ended. New surveys also can be added in this screen. All information should be provided in order to create a survey.

Club Hierarchy Page

The screenshot shows a mobile application interface for managing club events and hierarchy. At the top, there is a red header bar with a search bar containing the placeholder "Search clubs and events". To the right of the search bar are three icons: a clipboard, a calendar, and a user profile.

The main content area has a dark background. On the left, there is a vertical sidebar with rounded corners containing six buttons: "General", "Add Event", "Feedbacks", "Surveys", "Club Hierarchy" (which is highlighted in red), and "Sponsors".

In the center, the IEEE logo is displayed above the text "Bilkent University Student Branch".

Below the logo, the text "President" is followed by "Example Person". Under "Board Members", there is a list of four names: "Example Person1", "Example Person2", "Example Person3", and "Example Person4", each with a small trash can icon to its right.

At the bottom, there is a section titled "Add Board Member" with input fields for "Name" and "Bilkent ID", and a red "Add" button.

Board member information is provided here by the club president. If a president makes someone a board member, this member can have access to club settings.

Club Sponsor(s) Page

The screenshot shows a mobile application interface for managing club sponsors. The top navigation bar includes a search bar with placeholder text "Search clubs and events" and icons for a clipboard, calendar, and user profile. On the left, a vertical sidebar lists menu items: General, Add Event, Feedbacks, Surveys, Club Hierarchy, and Sponsors, with "Sponsors" currently selected. The main content area is titled "Sponsors" and displays four entries:

Logo	Name	Money	Type
	Garanti BBVA	Name: Garanti BBVA Money: 10.000 TL	
	kariyer.net	Name: kariyer.net Money: 5.000 TL	
	TÜRKSAT	Name: Türksat Money: 3.000 TL	
	Nescafe	Name: Nescafe Money: 1.000 TL	

Below the table, there is a row of buttons: a large white button with a black plus sign, a "Select" dropdown menu, and a green "Add" button.

Club sponsors are important for clubs because clubs can organize events with the help of them. There are four types of sponsors: Platinum, Gold, Silver, and Bronze. Sponsors are classified according to their type of sponsorship.

Administrative Assistant Page

The screenshot shows a web application interface for administrative assistants. At the top, there is a red header bar with a user profile icon on the right. Below the header, the title "Room Requests" is displayed. The main content area contains four identical request cards, each representing a room assignment for an IEEE event.

Event Logo	Event Name	No. of participants	Preferred room	Action
	kariyer.net example event	40	BZ-02	Assign Room
	kariyer.net example event	40	BZ-02	Assign Room
	kariyer.net example event	40	BZ-02	Assign Room
	kariyer.net example event	40	BZ-02	Assign Room

This page is designed for administrative assistants. An administrative assistant can assign room for events. If the preferred room is full at the specified time, the assistant sends the request back and waits for a new request with a different room.

Event Page Seen by Board Members

The screenshot displays a mobile application interface for managing events. At the top, there is a red header bar with a search bar containing the placeholder "Search clubs and events". To the right of the search bar are three icons: a clipboard, a calendar, and a user profile. Below the header, the main content area has a dark background.

Event Name: Career101 CV Guide

Club Name: Bilkent Üniversitesi

No. of Participants: [Placeholder for a number]

Event Description: Description of the event: Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

Edit Event button (red button with white text)

Event Location: [Placeholder for location]

Questions:

- Q: Will GE250/251 points be given ? **Answer**
- Q: Will GE250/251 points be given ? **Answer**
- Q: Will GE250/251 points be given ? **Answer**

Career101 CV Guide
Bilkent Üniversitesi
zoom LIVE

Tuba Karadağ İyikur
Kariyer.net
Kariyer Danışmanı
22 Şubat 2021
14.00 - 15.00

kariyer.net

Bilkent University IEEE Student Branch

This page is the core of an event. A board member can generate attendance code if the event time has come. Also, question answering is done on this screen. Moreover, if a board member clicks on the “Edit Event” button, the information of the event can be edited.

3 Glossary

AWS(Amazon Web Service): Amazon Web Services (AWS) is quite comprehensive. It is almost the most widely used cloud platform in the world (more than 200 services in data centers around the world). Developing companies, especially those who want to achieve this development fast, use the AWS cloud platform for better production by reducing costs with agile software [2].

EBS(Elastic Beanstalk): AWS Elastic Beanstalk makes it easy for software developers to take control of their applications on the AWS cloud platform. All that is required in this innovation is for the developer to install the desired applications. Elastic Beanstalk handles all the details of the deployment, such as controlling the application, snapshots, scaling, etc [3][4].

RDS(Relational Database System): Amazon Relational Database Service (Amazon RDS) is a service that enables and makes available the database setup and operation on the cloud platform. This database management saves both cost and time by providing self-scaling capacity. At the same time, this database service provides the ability to use the features of MySQL, MariaDB, Oracle, SQL Server or PostgreSQL databases. One of its most important features is that it automatically backs up the database created by the user and keeps it up-to-date.

JWT(JSON Web Token): JWT(JSON Web Tokens), JSON-based RFC 7519 standard, is an open standard that provides data exchange between the parties using the application. It enables the creation and sending of the requested data between the server and the client. Widely used in the world, JWT allows users to protect user rights such as web service security, cyber security, and authentication [5].

CORS(Cross-Origin Resource Sharing): In the context of web browsers, a site can normally only allow XMLHttpRequest* (also called ajax) addresses in their domain. Some sites may want to allow requests from other domains. This is called Cross-Origin Resource Sharing (CORS). This is done with the access-control-allow-origin header. A web page can freely add cross-root images, style sheets, and videos [6].

IMAP(Internet Message Access Protocol): With the increasing use of the internet, the need to send emails over the internet has emerged due to the difficulty of accessing the internet and the need for speed. To meet this need, IMAP is an email protocol for exchanging mail over the internet and provides an application layer that allows local users to access a remote email server [7].

4 References

- [1] Object-Oriented Software Engineering, Using UML, Patterns, and Java, 2nd Edition, by Bernd Bruegge and Allen H. Dutoit, Prentice-Hall, 2004, ISBN: 0-13-047110-0.
- [2] K. Yadav, "What is AWS and What can you do with it". [Online]. Available: <https://medium.com/@kunalyadav/what-is-aws-and-what-can-you-do-with-it-395b585b03c>. [Accessed: 29 October 2021].
- [3] "AWS Elastic Beanstalk". [Online]. Available: https://aws.amazon.com/elasticbeanstalk/?nc1=h_ls. [Accessed: 29 October 2021].
- [4] B. Lutkevich , "Amazon RDS (Relational Database Service)". [Online]. Available: <https://searchaws.techtarget.com/definition/Amazon-Relational-Database-Service-RDS>. [Accessed: 29 October 2021].
- [5] "Introduction to JSON Web Tokens". [Online]. Available: <https://jwt.io/introduction>. [Accessed: 29 October 2021].
- [6] "Cross-Origin Resource Sharing (CORS)". [Online]. Available: <https://developer.mozilla.org/en-US/docs/Web/HTTP/CORS>. [Accessed: 29 October 2021].
- [7] "Internet Message Access Protocol (IMAP)". [Online]. Available: <https://www.gartner.com/en/information-technology/glossary/imap-internet-message-access-protocol>. [Accessed: 29 October 2021].