



# Requirements Documents

**CRAISELION : Handong Team Meeting Archiving  
and Exchange Web Platform**

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# **1 Introduction**

## **1.1 Project Background**

Handong University hosts a variety of Residential Colleges (RCs), within which numerous team meetings are regularly held. These meetings play a crucial role in fostering community formation and interaction among students. However, the current system faces several significant challenges.

First, there are difficulties in exchanging information between teams within the same RC, and even more so between different RCs. This lack of interaction within and between RCs hinders the development of a community-centered culture at Handong, which the university aims to promote.

Second, there is a scarcity of guidance provided to team leaders, leading to challenges in leadership and team management. This situation diminishes the efficiency and effectiveness of team activities, negatively affecting student engagement and enthusiasm.

Third, the preservation of materials and information generated during team meetings throughout the year is not adequately addressed. Due to the absence of a proper archiving system, important documents are often lost, posing significant challenges to long-term project management and the reuse of materials.

## **1.2 Solution**

To resolve these issues, we propose a web platform that facilitates communication and exchange among teams or RCs and preserves information and materials related to team meetings, thereby aiding in the development of the entire community at Handong University. This platform will serve as an essential resource for the student support team and the students (team executives), who are the main stakeholders, in enhancing the team culture and leadership development within Handong University.

## 2. Requirements Discovery

### 2.1 Interview

#### 2.1.1 Interview Form for Students

What is your name and student number?

 Please write your answer

Have you ever been a team leader?

 Please write your answer

If you have been a team leader, what aspects did you find challenging?

 Please write your answer

If you have not been a team leader, which parts do you think might be challenging?

 Please write your answer

What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)

 Please write your answer

What content in the team meetings did you find beneficial?

 Please write your answer

What value does the team meeting time hold for you?

 Please write your answer

How much do you contribute to the team meetings? - Please rate on a scale of 1-5

 Please write your answer

If your rating is 1-2, what is the reason for this?

 Please write your answer

**If your rating is 4-5, what is the reason for this?**

 Please write your answer

**What differences do you think exist between the roles of senior students and freshmen in team meetings?**

 Please write your answer

**Would you be interested in using a school service that records and shares team meetings?**

 Please write your answer

**Please feel free to say anything else you'd like.**

 Please write your answer

## 2.1.2 Interview & Answers From Students

These are summarized answers. You can see the detailed answer in the [appendix](#).

All Interviewees: 15 Handong students

**If you have been a team leader, what aspects did you find challenging? / If you have not been a team leader, which parts do you think might be challenging?**

💡 *Social interaction and cultural adaptation, Repetitive Team Contents, Difficulty of finding team meeting requirements, Managing a large team without good information and creating a good atmosphere, Motivating disengaged members and lacking proper recognition and support for team leaders, Dealing with disengagement and lack of motivation in team members*

**What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)**

💡 well conducted overall

**What content in the team meetings did you find beneficial?**

💡 Outside activities, Team barbecue, Stock (Virtual Investing) Games, movie posters imitating, In-campus BattleGround games, etc.

**What value does the team meeting time hold for you?**

💡 Building community and valuing sacrifices; feels it's becoming more of a class requirement. It is a community united in God, where each other's sacrifices are valued. However, its significance is diminishing and it's increasingly viewed merely as part of the coursework.

**What differences do you think exist between the roles of senior students and freshmen in team meetings?**

💡 Freshmen are expected to bring vitality to the team, while seniors should actively work on improving and maintaining a good team atmosphere, taking some responsibility outside of meetings to foster better relationships with team members and freshmen.

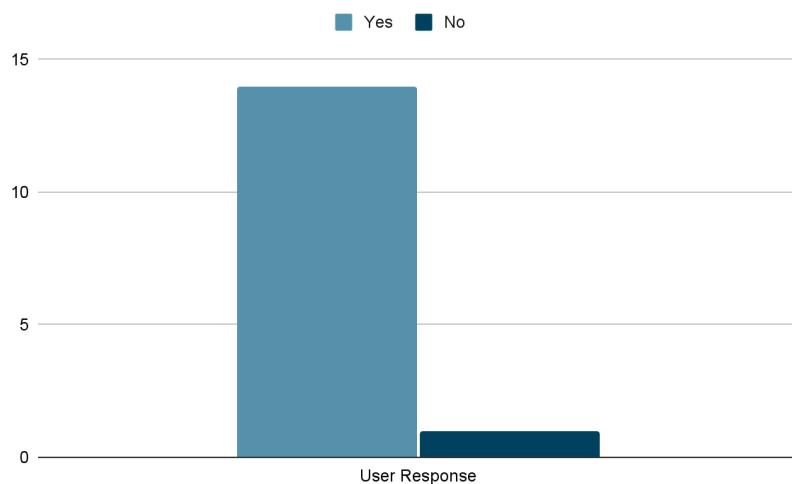
**Would you be interested in using a school service that records and shares team meetings?**

 I might use it if available, it could be a great substitute for team SNS. However, features such as a points (ranking) system, archiving team meeting content, and storing memories should be well managed.

### 2.1.3 Data From Interview

Interviews showed positive results about the Team Meeting Archiving and Exchange Web Platform.

This graph shows the number of students who reacted positively to using the new web service platform.



Their requirements features are the following:

- Post uploads and shares through the team
- Share team meeting contents
- Team meeting matching feature
- Team photo gallery
- Scrap and archiving feature
- RC / Team-based ranking system

## 2.1.4 Open Interviews with Professor

Prof: JC

Mainly discussed about the role of the professor in the team meeting

- It seems more important to understand the executives' and participants' requirements rather than focusing on the professor as a stakeholder
- Professors usually just follow the students' decision
- Privacy issues need to be considered
- Student Support Team(학생지원팀) can be other stakeholders instead of professors of the project

## 2.2 Stories and Scenarios

### 2.2.1 Becoming a Team Leader at Sophomore

**Context:** Jihoon, a sophomore at Handong University, has recently been elected as the leader. Despite his enthusiasm, Jihoon feels overwhelmed by the responsibilities and unsure about how to access past team documents and find new members who can bring fresh ideas.

**Story:** Curious about past projects and meeting minutes, Jihoon clicks on "Stored Team Contents". The platform displays a folder structure categorized by year and type of content. Jihoon opens the folder and downloads documents related to a successful campus recycling initiative, gaining insights into strategies and outcomes.

Feeling the need for guidance on leadership, Jihoon visits the "Resources for Team Leaders" section. Here, he finds basic information about preparing team meetings, contacting faculty, and checking important occasions in the team meeting. Also, there was content like training materials, recorded webinars, and articles on effective leadership, project management, and team dynamics. He watches a webinar titled "Transformative Leadership in University Teams," which includes tips from faculty and experienced student leaders. Jihoon takes notes on engaging team members and fostering a collaborative environment.

### 2.2.2 Finding Other Team to Interact

**Context:** Hye-jin logs into Handong University's web platform and navigates to the "Team Matching Service," specifically to the section designed for existing teams seeking inter-team activities.

**Story:** She tried to create a match with another team. She uploaded his team information and available time. Other teams can view the match request and express their interest directly through the platform. Hye-jin monitors incoming responses and messages from team captains. Hye-jin uses the platform to communicate with interested team captains to finalize the dates and details of the matches. They discuss the rules, format, and venue,

ensuring clarity and agreement on all fronts. She organizes a schedule and shares it with both her team and the other teams.

After a friendly match, both teams uploaded photos to share their activity through the Handong community.

## 2.3 Existing System Feature

According to the requirements from the interview, we could find existing systems with the desired functionality. We could refer to these sites to analyze the requirements.

The collage includes the following components:

- Figure 1:** Home Page of a system showing a grid of images related to cycling.
- Figure 2:** Home Page of a system featuring a cartoon character and the text "HEY YOU MEET YOU".
- Figure 3:** My info Page showing a profile picture, name (SJCAPTAIN), and various account settings.
- Figure 4:** Team meeting matching board Page displaying a list of users and their profiles.
- Figure 5:** Team meeting feed Page showing a grid of images of modern buildings.
- Figure 6:** Inspiration for Travel Page showing a large image of a lake and mountains, with smaller cards for "Major Mountain Spot" and "Aewon Island spots".
- Figure 7:** Universe Page showing a dashboard with various metrics and a list of top GitHub repos for learning modern React development.
- Figure 8:** FAQ Page with sections for Product Info, Order, and Return & Exchange, each containing several questions and answers.

# **3. Requirement Elicitation**

## **3.1 User & System Requirements**

### **3.1.1 User Requirements**

- Users need to log in.
- Users need to sign up if they don't have an account.
- Users need to be able to log in using Google.
- Users need to be able to provide additional information on a registration page if required.
- Users need a start-up animation screen that transitions to the login page.
- Users need to upload posts.
- Users need to search posts by keywords.
- Users need to save/scrap posts.
- Users need to like posts.
- Users need to view posts ordered by the latest or by most likes.
- Users need a system for team meetings matching with visual indications.
- Users need a ranking system for RCs and teams.
- Users need to share and view photos in a team gallery.

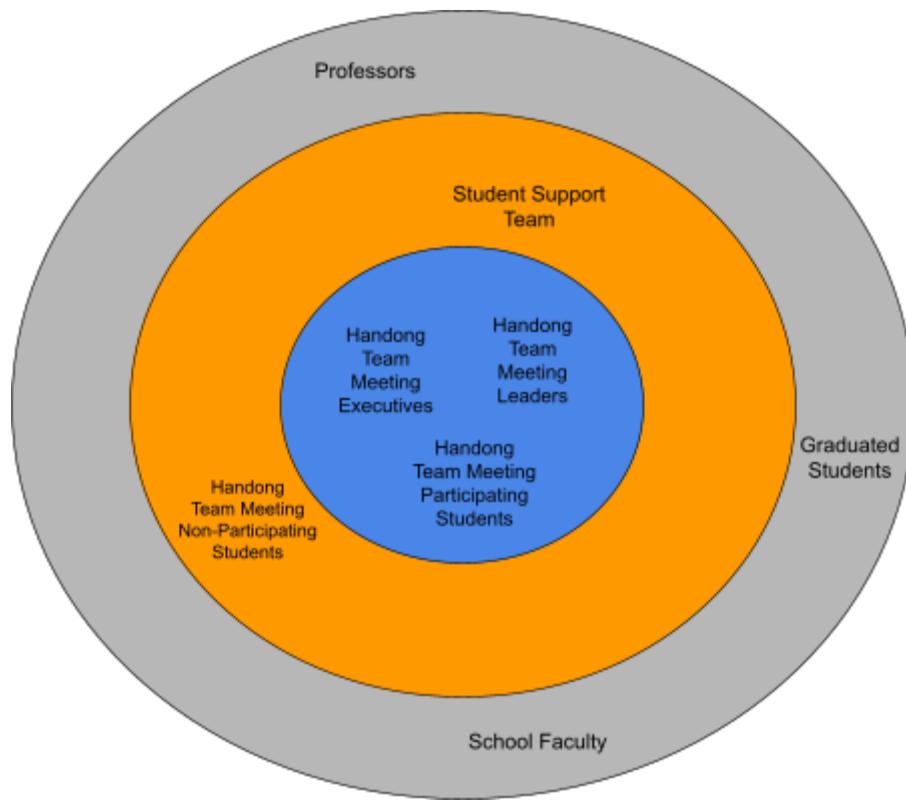
### **3.1.2 System Requirements**

- System must provide login and sign-up functionalities.
- System must integrate Google login.
- System must display a start-up animation leading to the login.
- System must allow post uploads, visibility on multiple pages, and enable searching and saving of posts.
- System must allow users to like posts and sort them.
- System must show available lecture room links for reservation.
- System must support a team meeting matching function with visual cues.
- System must maintain a ranking system and a photo gallery for teams.
- Authentication should secure and protect user data.
- Login and sign-up should be user-friendly and straightforward.

- UI/UX should be appealing and easy to navigate.
- The animation should be smooth and visually engaging.
- Content upload and retrieval should be fast and efficient.
- Search functionality should provide quick and relevant results.
- Social interactions should be responsive and immediate.
- The system should provide current room availability.
- Matching and ranking updates should be real-time.
- Photo uploads and viewing should be optimized for performance and quality.
- Implement a web server capable of hosting a high-traffic web application.

## 3.2 Stakeholders (Onion Diagram)

(Near to the origin of circle has more influence on the service)



<https://conceptdraw.com/a73c4/preview>

Blue: Core Stakeholders

Orange: Internal but Indirect Stakeholders

Gray: External and Indirect Stakeholders

# 4. Requirements Specification

## 4.1 Brief Requirements

### 4.1.1 Application Requirements

#### 1. AR1: Authentication System

- **Functional Requirements:**
  - **1.1:** Provide a user interface for login.
  - **1.2:** Provide a user interface for new user registration.
  - **1.3:** Validate user credentials against stored data.
  - **1.4:** Manage user sessions post-login to maintain state.

#### 2. AR2: Google Login Integration

- **Functional Requirements:**
  - **2.1:** Integrate Google OAuth for authentication.
  - **2.2:** Retrieve user details from Google after successful authentication.
  - **2.3:** Link Google account details with internal user profile management.

#### 3. AR3: Google Login Accessibility

- **Functional Requirements:**
  - **3.1:** Provide a "Login with Google" button on the login page.
  - **3.2:** Handle authentication callbacks from Google OAuth service.

#### 4. AR4: User Registration

- **Functional Requirements:**
  - **4.1:** Capture essential user data during sign-up (e.g., name, email, password).
  - **4.2:** Verify new user email addresses to confirm authenticity.
  - **4.3:** Secure user passwords using encryption before storing them.

#### 5. AR5: Enhanced Registration Information

- **Functional Requirements:**

- **5.1:** Provide additional fields for user data collection on registration page (e.g., phone number, address).
- **5.2:** Validate additional information provided by users during the registration process.

## 6. AR6: Post Management System

- **Functional Requirements:**
  - **6.1:** Allow users to create and upload new posts.
  - **6.2:** Display user posts on multiple dedicated pages within the application.
  - **6.3:** Implement search functionality to find posts based on keywords.
  - **6.4:** Enable users to save or bookmark posts for later access.

## 7. AR7: Social Interaction Features

- **Functional Requirements:**
  - **7.1:** Allow users to 'like' posts.
  - **7.2:** Sort posts based on the number of likes or the most recent posts.

## 8. AR8: Team Meeting Matcher with Visual Indicators

- **Functional Requirements:**
  - **8.1:** Make Cross-Team Scheduling Interface
  - **8.2:** Recommend Matching
  - **8.3:** Confirm team matching and notify

## 9. AR9: Ranking and Media Management

- **Functional Requirements:**
  - **9.1:** Maintain a dynamic ranking system for user groups or teams.
  - **9.2:** Operate a photo gallery where teams can upload and manage images.

## 10. AR10: Lecture Room Reservation Interface

- **Functional Requirements:**
  - **10.1:** Display a list of available rooms for reservation.
  - **10.2:** Provide functionality for users to book rooms using provided link

## **11. AR11: Advanced Post Interaction**

- **Functional Requirements:**
  - **11.1:** Support comprehensive post uploading capabilities.
  - **11.2:** Enable advanced keyword search for posts.
  - **11.3:** Allow users to save or scrap posts based on their preferences.

### **4.1.2 Application Functionality Requirements**

- **AFR1:** Users need a start-up animation screen that transitions to the login page.
- **AFR2:** System must display a start-up animation leading to the login.
- **AFR3:** Users need a system for team meetings matching with visual indications.
- **AFR4:** Users need a ranking system for RCs and teams.
- **AFR5:** Users need to share and view photos in a team gallery.
- **AFR6:** Photo uploads and viewing should be optimized for performance and quality.

### **4.1.3 User Experience Requirements**

- **UXR1:** UI/UX should be appealing and easy to navigate.
- **UXR2:** Login and sign-up should be user-friendly and straightforward.
- **UXR3:** The animation should be smooth and visually engaging.
- **UXR4:** Content upload and retrieval should be fast and efficient.
- **UXR5:** Search functionality should provide quick and relevant results.
- **UXR6:** Social interactions should be responsive and immediate.

### **4.1.4 Infrastructure Requirements**

- **IR1:** Implement a web server capable of hosting a high-traffic web application.
- **IR2:** Deploy the application using Node.js or Spring Boot to handle server-side processing efficiently.
- **IR3:** Set up and maintain a MySQL database for storing user data, posts, authentication information, and other application data securely and efficiently.
- **IR4:** Use connection pooling for the database to improve performance under load.

### **4.1.5 Security Requirements**

- **SR1:** Secure web communications using SSL/TLS certificates to encrypt data transmitted between clients and the server.
- **SR2:** Authentication should secure and protect user data.
- **SR3:** Implement user authentication protocols that ensure data integrity and prevent unauthorized access.

#### 4.1.6 Performance and Scalability Requirements

- **PSR1:** Optimize the web server and application code to handle high traffic and data loads efficiently.
- **PSR2:** Design the system to be scalable both horizontally (adding more servers) and vertically (upgrading existing hardware).
- **PSR3:** Ensure the system architecture supports asynchronous data processing to handle I/O-bound tasks efficiently.

#### 4.1.7 Compliance and Maintenance Requirements

- **CMR1:** Ensure that all data storage and transmissions comply with relevant data protection regulations (such as GDPR, HIPAA, etc.) to protect user data.
- **CMR2:** Establish a logging and monitoring system that tracks and reports errors, system usage, and performance metrics in real-time.
- **CMR3:** Set up regular backup and recovery procedures to ensure data integrity and availability.

## 4.2 Structured Requirements

### 4.2.1 Application Requirements

#### AR1: Authentication System

##### 1.1: Provide a user interface for login.

- **Function:** Provide a User Interface for Login
- **Description:** Design and implement a user interface that allows existing users to log into the application.
- **User Inputs:** Username and password.
- **System Inputs:** Interface elements including text fields for username and password, login button.
- **Output:** User accesses their account after successful login.
- **Pre-condition:** User must be registered with the system.

##### 1.2: Provide a user interface for new user registration.

- **Function:** Provide a User Interface for New User Registration
- **Description:** Design and implement a user interface that allows new users to register an account in the application.
- **User Inputs:** Required registration details such as name, email, and password.
- **System Inputs:** Interface elements including text fields for entering registration details, a registration button.
- **Output:** User account created.
- **Pre-condition:** User must provide all required information.

##### 1.3: Validate user credentials against stored data.

- **Function:** Validate User Credentials Against Stored Data
- **Description:** Check the credentials entered by users against stored data to authenticate users.
- **User Inputs:** Username and password.
- **System Inputs:** Access to the user database to retrieve stored credentials.
- **Output:** Authentication success or failure message.

- **Pre-condition:** User credentials must exist in the database.

#### **1.4: Manage user sessions post-login to maintain state.**

- **Function:** Manage User Sessions Post-Login
- **Description:** Maintain user session state after successful login to ensure users remain logged in as they navigate through the application.
- **User Inputs:** User activities within the application post-login.
- **System Inputs:** Session management mechanisms (e.g., cookies, session tokens).
- **Output:** Persistent user session across different pages of the application.
- **Pre-condition:** Successful user authentication.

### **AR2: Google Login Integration**

#### **2.1: Integrate Google OAuth for authentication.**

- **Function:** Integrate Google OAuth for Authentication
- **Description:** Implement Google OAuth to allow users to log in using their Google accounts.
- **User Inputs:** User choice to log in via Google.
- **System Inputs:** Google OAuth API to facilitate authentication.
- **Output:** User is logged in through their Google account.
- **Pre-condition:** Google API keys and permissions set up correctly.

#### **2.2: Retrieve user details from Google after successful authentication.**

- **Function:** Retrieve User Details from Google After Successful Authentication
- **Description:** Fetch user details from Google once authentication is successful to populate user profiles.
- **User Inputs:** Consent to retrieve details from Google.
- **System Inputs:** API call to Google services to retrieve user data.
- **Output:** User details are used to create or update a profile in the system.
- **Pre-condition:** Successful authentication via Google OAuth.

#### **2.3: Link Google account details with internal user profile management.**

- **Function:** Link Google Account Details with Internal User Profile Management

- **Description:** Integrate retrieved Google account details into the internal user profile management system.
- **User Inputs:** None directly post-authentication.
- **System Inputs:** Mechanism to map and store Google account details in the user profile database.
- **Output:** Google account details are linked to the user's profile in the application.
- **Pre-condition:** User details retrieved from Google.

## AR3: Google Login Accessibility

### 3.1: Provide a "Login with Google" button on the login page.

- **Function:** Provide a "Login with Google" Button on the Login Page
- **Description:** Include a button on the login page that users can click to initiate login via Google OAuth.
- **User Inputs:** Click on the "Login with Google" button.
- **System Inputs:** Button that triggers the Google OAuth flow.
- **Output:** Google login process is initiated.
- **Pre-condition:** Google OAuth integration is in place.

### 3.2: Handle authentication callbacks from Google OAuth service.

- **Function:** Handle Authentication Callbacks from Google OAuth Service
- **Description:** Manage the callbacks from Google after the user attempts to log in, handling success or failure.
- **User Inputs:** Response from Google after user attempts login.
- **System Inputs:** Logic to handle OAuth callbacks (success/failure).
- **Output:** User is either successfully logged in or redirected back to login with an error.
- **Pre-condition:** Properly configured OAuth callback handling in the application.

## AR4: User Registration

### 4.1: Capture essential user data during sign-up (e.g., name, email, password).

- **Function:** Capture Essential User Data During Sign-Up

- **Description:** Collect necessary information from users during the registration process.
- **User Inputs:** Name, email, password.
- **System Inputs:** Registration form fields for entering information.
- **Output:** Information stored for new user account creation.
- **Pre-condition:** All input fields must be validated for data format and completeness.

#### **4.2: Verify new user email addresses to confirm authenticity.**

- **Function:** Verify New User Email Addresses
- **Description:** Confirm the authenticity of the email addresses provided by new users via an email verification process.
- **User Inputs:** Users email
- **System Inputs:** See the email is Handong email or not
- **Output:** Email address is verified, and user account can be registered.
- **Pre-condition:** User provides a valid email address during registration.

#### **4.3: Secure user passwords using encryption before storing them.**

- **Function:** Secure User Passwords Using Encryption
- **Description:** Encrypt user passwords before storing them in the database to enhance security.
- **User Inputs:** Password entered during the registration process.
- **System Inputs:** Encryption algorithms to secure the password.
- **Output:** Password is securely stored in encrypted form.
- **Pre-condition:** Reliable encryption methods must be implemented in the system.

### **AR5: Enhanced Registration Information**

#### **5.1: Provide additional fields for user data collection on registration page (e.g., phone number, address).**

- **Function:** Provide Additional Fields for User Data Collection
- **Description:** Incorporate additional fields in the registration form to collect more comprehensive user data such as phone number and address.

- **User Inputs:** User enters their phone number, address, and potentially other optional or required information.
- **System Inputs:** Registration form interface that includes fields for the additional data.
- **Output:** Additional user data is collected and stored in the user's profile.
- **Pre-condition:** The registration form must be designed to include these additional fields and ensure that they are appropriately validated.

## 5.2: Validate additional information provided by users during the registration process.

- **Function:** Validate Additional Information Provided by Users
- **Description:** Ensure that all additional information provided during the registration process is valid and meets the system's data standards.
- **User Inputs:** User submits the registration form containing additional information.
- **System Inputs:** Validation checks on the additional information, such as format verification and completeness checks.
- **Output:** Validated user data that meets system and business requirements.
- **Pre-condition:** There must be predefined criteria for what constitutes valid information for each additional field.

## AR6: Post Management System

### 6.1: Allow users to create and upload new posts.

- **Function:** Allow Users to Create and Upload New Posts
- **Description:** Enable users to create content in the form of posts and upload them to the platform.
- **User Inputs:** User composes a post and submits it for uploading.
- **System Inputs:** Interface for creating and submitting posts, server-side logic to handle and store posts.
- **Output:** User-generated posts are created and stored in the system.
- **Pre-condition:** Users must be logged in to access posting capabilities.

### 6.2: Display user posts on multiple dedicated pages within the application.

- **Function:** Display User Posts on Multiple Dedicated Pages
- **Description:** Ensure that user-generated posts can be viewed on various pages within the application, tailored to different contexts or categories.
- **User Inputs:** User navigates different sections of the application where posts are displayed.
- **System Inputs:** Dynamic page generation that fetches and displays posts based on the context or category.
- **Output:** Posts are visible in multiple sections of the application, enhancing user engagement.
- **Pre-condition:** Posts must be categorized or tagged appropriately to appear on the relevant pages.

### **6.3: Implement search functionality to find posts based on keywords.**

- **Function:** Implement Search Functionality to Find Posts Based on Keywords
- **Description:** Provide a search function that allows users to find posts by entering keywords related to the content they are interested in.
- **User Inputs:** User types and submits search queries based on keywords.
- **System Inputs:** Search algorithms that scan post contents for the entered keywords.
- **Output:** Posts that match the search criteria are displayed to the user.
- **Pre-condition:** Posts must be indexed properly to facilitate efficient search.

### **6.4: Enable users to save or bookmark posts for later access.**

- **Function:** Enable Users to Save or Bookmark Posts for Later Access
- **Description:** Allow users to save or bookmark posts they find interesting or want to access later without having to search for them again.
- **User Inputs:** User selects the option to save or bookmark a particular post.
- **System Inputs:** Mechanism to mark posts as saved in the user's profile and retrieve them easily.
- **Output:** Users can quickly access their saved or bookmarked posts.
- **Pre-condition:** There must be a user interface element and system support for managing saved posts.

## AR7: Social Interaction Features

### 7.1: Allow users to 'like' posts.

- **Function:** Allow Users to 'Like' Posts
- **Description:** Provide users with the ability to express their appreciation for posts by 'liking' them, which is a common social interaction feature.
- **User Inputs:** User clicks on a 'like' button associated with a post.
- **System Inputs:** System records the like action and updates the count of likes for the post.
- **Output:** The post's like count is incremented, and the action is visually confirmed to the user.
- **Pre-condition:** User must be authenticated and the post must be visible to them.

### 7.2: Sort posts based on the number of likes or the most recent posts.

- **Function:** Sort Posts Based on Popularity or Recency
- **Description:** Enable users to sort posts either by the number of likes (popularity) or by how recently they were posted (recency).
- **User Inputs:** User selects sorting criteria from available options (e.g., most liked, most recent).
- **System Inputs:** Sorting logic that rearranges posts according to the selected criterion.
- **Output:** Posts are displayed in the order specified by the user's selected sorting method.
- **Pre-condition:** Posts must have metadata such as like counts and timestamps to support sorting functions.

## AR8: Team Matching Scheduler with Visual Indicators

### 8.1: Make Cross-Team Scheduling Interface

- **Function:** Cross-Team Scheduling Interface

- **Description:** Create a scheduling interface that allows representatives from different teams to propose, negotiate, and finalize meeting times based on collective availability.
- **User Inputs:** Team representatives input preferred meeting times, durations, and details (purpose of meeting, required attendees, etc.).
- **System Inputs:** Interface elements that allow selection of times, input of meeting details, and submission of proposals.
- **Output:** A finalized schedule that accommodates the availability of all involved teams.
- **Pre-condition:** Teams must have profiles within the system including available schedules.

## 8.2: Recommend Matching

- **Function:** Availability Matching Logic
- **Description:** Implement logic that compares available slots across different teams and suggests optimal meeting times, reducing the back-and-forth typically needed to schedule cross-team meetings.
- **User Inputs:** Inputs regarding each team's availability and meeting length requirements.
- **System Inputs:** Algorithms to analyze and match availability across different teams' calendars, suggesting possible meeting slots.
- **Output:** A list of potential meeting times that best fit the combined availabilities of the involved teams.
- **Pre-condition:** All teams must have up-to-date schedules in the system.

## 8.3: Confirm team matching and notify

- **Function:** Confirmation and Notification System
- **Description:** Once a meeting time is agreed upon, the system should confirm the meeting and notify all relevant parties.
- **User Inputs:** Final approval of the agreed meeting time by the team representatives.
- **System Inputs:** Notification services
- **Output:** Team leaders receive notifications about the scheduled meeting details.

- **Pre-condition:** Email or other notification systems must be integrated and functional.

## AR9: Ranking and Media Management

### 9.1: Maintain a dynamic ranking system for user groups or teams.

- **Function:** Maintain a Dynamic Ranking System for Teams
- **Description:** Operate a ranking system that updates in real-time to reflect the performance and standings of different user groups or teams based on predefined criteria.
- **User Inputs:** Input from activities that affect team rankings (e.g., completion of tasks, achievements).
- **System Inputs:** Ranking algorithms that process activities and update standings accordingly.
- **Output:** An updated leaderboard showing current team rankings.
- **Pre-condition:** Activities that impact rankings must be quantifiable and integrated into the ranking calculations.

### 9.2: Operate a photo gallery where teams can upload and manage images.

- **Function:** Operate a Photo Gallery for Teams
- **Description:** Provide a platform where teams can upload, organize, and manage images in a dedicated photo gallery.
- **User Inputs:** Users upload images, create albums, and manage their gallery.
- **System Inputs:** Image storage solutions, gallery management tools.
- **Output:** A user-friendly photo gallery where team images are stored and displayed.
- **Pre-condition:** Adequate storage space and appropriate permissions for users to manage their galleries.

## AR10: Lecture Room Reservation Interface

### 10.1: Display a list of available rooms for reservation.

- **Function:** Display a List of Available Rooms for Reservation

- **Description:** Show a comprehensive and up-to-date list of available lecture rooms that users can reserve.
- **User Inputs:** Users accessing the reservation interface to view available rooms.
- **System Inputs:** Database queries to fetch current availability information.
- **Output:** A list of available rooms displayed to the user.
- **Pre-condition:** Real-time data on room availability must be accessible to the system.

## 10.2: Provide functionality for users to book rooms using provided link

- **Function:** Provide Functionality for Users to Book Rooms
- **Description:** Allow users to reserve lecture rooms through the system using links.
- **User Inputs:** Selection of a room and submission of a booking request.
- **System Inputs:** Room booking processing logic.
- **Output:** Confirmation or Unconfirmation of room reservation.
- **Pre-condition:** Room reservation system must be integrated with the user interface.

## AR11: Advanced Post Interaction

### 11.1: Support comprehensive post uploading capabilities.

- **Function:** Support Comprehensive Post Uploading Capabilities
- **Description:** Enable users to upload posts with various media types and formatting options to enhance the content sharing experience.
- **User Inputs:** Users create and submit posts with text, images, videos, etc.
- **System Inputs:** Post processing and storage mechanisms.
- **Output:** Posts are published on the platform.
- **Pre-condition:** Users must have the necessary permissions to create posts.

### 11.2: Enable advanced keyword search for posts.

- **Function:** Enable Advanced Keyword Search for Posts
- **Description:** Implement advanced search functionalities that allow users to conduct detailed searches of posts using specific keywords.
- **User Inputs:** Users enter search terms related to the content they are looking for.

- **System Inputs:** Search algorithms that parse posts for matching keywords.
- **Output:** Search results based on the relevance to the entered keywords.
- **Pre-condition:** Posts must be indexed effectively to support keyword searches.

### 11.3: Allow users to save or scrap posts based on their preferences.

- **Function:** Allow Users to Save or Scrap Posts
- **Description:** Provide users with the option to save posts for later reference or scrap (delete) posts from their saved list.
- **User Inputs:** Users choose to save or delete posts from their view.
- **System Inputs:** Mechanisms to mark posts as saved or remove them from saved lists.
- **Output:** User's saved posts are managed according to their preferences.
- **Pre-condition:** The system must track and manage individual user interactions with posts.

## 4.2.2 Application Functionality Requirements (In the User's view)

### AFR1: Users need a start-up animation screen that transitions to the login page.

- **Function:** Start-Up Animation Screen
- **Description:** Users need an engaging start-up animation when they open the app that transitions smoothly to the login page.
- **User Inputs:** Starting the application.
- **User Needs:** A visually appealing introduction to the app that enhances the initial user experience while waiting for the login screen.
- **Expected Output:** A smooth, visually engaging animation that concludes with a transition to the login page.
- **Pre-condition:** The user has the app installed and initiates its opening.

### AFR2: System must display a start-up animation leading to the login.

- **Function:** Display of Start-Up Animation
- **Description:** The system must automatically display a start-up animation upon application launch that leads users directly to the login interface.
- **User Inputs:** Opening the application.
- **User Needs:** An immediate visual cue that the app is launching, providing reassurance that the app is responsive upon initiation.
- **Expected Output:** A seamless animation that captures user interest and smoothly transitions into the authentication phase.
- **Pre-condition:** The animation files must be pre-loaded and optimized for fast execution to minimize load time.

### AFR3: Users need a system for team meetings matching with visual indications.

- **Function:** Team Meeting Matchmaking with Visual Cues
- **Description:** Users require a system that can match team meetings based on availability and other criteria, which should be clearly indicated through visual cues.
- **User Inputs:** Users input their availability, preferences for meeting times, and any specific requirements for the meetings.

- **User Needs:** An intuitive and efficient way to see possible meeting times, easily understand when meetings are scheduled, and identify any scheduling conflicts through visual indicators.
- **Expected Output:** A calendar or schedule that visually displays matched meetings, using colors or icons to indicate different statuses (confirmed, tentative, unavailable).
- **Pre-condition:** Users have entered their availability data accurately and the system has current data on other team members' availability.

#### **AFR4: Users need a ranking system for RCs and teams.**

- **Function:** Ranking System for RCs and Teams
- **Description:** Users need a ranking system that can track and display the performance and standings of various research clubs (RCs) and teams within an organization or event.
- **User Inputs:** Users input or interact with data that influences rankings, such as completing tasks, achieving milestones, or participating in events.
- **User Needs:** Transparent criteria for rankings; real-time updates to reflect current standings; an intuitive display format that allows for easy understanding of rankings.
- **Expected Output:** A dynamically updated leaderboard or ranking display accessible within the application, showing the latest standings of teams or RCs with detailed views available for criteria and scoring.
- **Pre-condition:** The system must have access to up-to-date performance data and the criteria for ranking must be predefined and integrated.

#### **AFR5: Users need to share and view photos in a team gallery.**

- **Function:** Photo Gallery for Teams
- **Description:** Users need to be able to share and view photos within a dedicated gallery for their teams, which should support easy navigation and interaction.
- **User Inputs:** Uploading photos to the team gallery, browsing the gallery, possibly tagging or commenting on photos.

- **User Needs:** A user-friendly interface for uploading and viewing photos; features for organizing or categorizing photos within the gallery; adequate performance to handle potentially large image files.
- **Expected Output:** A responsive and visually appealing photo gallery where users can easily upload, categorize, and view high-quality images.
- **Pre-condition:** Users must be registered and assigned to a team; sufficient storage space and optimized image handling capabilities must be available in the system.

#### **AFR6: Photo uploads and viewing should be optimized for performance and quality.**

- **Function:** Optimized Photo Uploads and Viewing
- **Description:** Users need the capability to upload and view photos in the system, with the process optimized for speed and image quality.
- **User Inputs:** Selecting and uploading photos, accessing and browsing through photo galleries.
- **User Needs:** Quick upload times and immediate, high-quality display of images with minimal lag or loading issues.
- **Expected Output:** Fast photo uploads and crisp, clear display of images in the user interface, suitable for viewing detailed photos without performance degradation.
- **Pre-condition:** Users are connected to a reliable internet service; the system is equipped with effective image compression and delivery technologies.

### 4.2.3 User Experience Requirements

#### UXR1: UI/UX should be appealing and easy to navigate.

- **Function:** UI/UX Design
- **Description:** The user interface and user experience should be visually appealing and easy to navigate to facilitate user engagement and satisfaction.
- **User Inputs:** User interactions with the interface (navigation, button clicks, etc.)
- **System Inputs:** Design elements and interaction logic implemented in the front-end.
- **Output:** A visually appealing and intuitive interface.
- **Pre-condition:** Design principles and user feedback incorporated into design prototypes.

#### UXR2: Login and sign-up should be user-friendly and straightforward.

- **Function:** User-Friendly Authentication
- **Description:** The login and sign-up processes should be straightforward and easy to use, minimizing user frustration and maximizing ease of access.
- **User Inputs:** User credentials for login or signup.
- **System Inputs:** Authentication process handling, error message management, user feedback mechanisms.
- **Output:** A seamless user experience in authentication that reduces user errors and confusion.
- **Pre-condition:** Robust authentication mechanisms that are designed with user-centric principles.

#### UXR3: The animation should be smooth and visually engaging.

- **Function:** Smooth Animation
- **Description:** Animations within the application, particularly during start-up, should be smooth and visually engaging to provide a positive initial user impression.
- **User Inputs:** Initial engagement with the app triggers animations.
- **System Inputs:** High-quality animations designed using advanced CSS or JavaScript frameworks.

- **Output:** Fluid and engaging animations that enhance user experience.
- **Pre-condition:** Modern web technologies capable of rendering high-quality animations efficiently.

#### **UXR4: Content upload and retrieval should be fast and efficient.**

- **Function:** Efficient Content Management
- **Description:** Uploading and retrieving content should be fast and efficient to maintain a fluid user experience and minimize waiting times.
- **User Inputs:** Upload commands, retrieval requests.
- **System Inputs:** Efficient backend processing and optimized data management practices.
- **Output:** Quick response times for uploading and retrieving content.
- **Pre-condition:** High-performance servers and optimized database queries.

#### **UXR5: Search functionality should provide quick and relevant results.**

- **Function:** Effective Search Functionality
- **Description:** Search functionality should offer quick and relevant results, helping users find the information they need without delay.
- **User Inputs:** Search queries.
- **System Inputs:** Optimized search algorithms, indexing, and query processing.
- **Output:** Relevant search results delivered quickly to the user.
- **Pre-condition:** Well-structured data and advanced search indexing technologies in use.

#### **UXR6: Social interactions should be responsive and immediate.**

- **Function:** Responsive Social Interactions
- **Description:** Social interactions within the platform, such as commenting, liking, and sharing, should be responsive and occur without delays.
- **User Inputs:** User actions related to social interactions.
- **System Inputs:** Real-time processing of social actions.
- **Output:** Immediate feedback and visible updates to social interactions.
- **Pre-condition:** Efficient handling of real-time data and user interaction events.

#### 4.2.4 Infrastructure Requirements

**IR1: Implement a web server capable of hosting a high-traffic web application.**

- **Function:** Web Server Implementation
- **Description:** Implement a web server capable of hosting a high-traffic web application.
- **User Inputs:** None directly; backend setup.
- **System Inputs:** Server hardware and software configuration, deployment of server applications.
- **Output:** A robust server setup capable of handling high user traffic.
- **Pre-condition:** Availability of appropriate server resources and network infrastructure.

**IR2: Deploy the application using Node.js or Spring Boot to handle server-side processing efficiently.**

- **Function:** Application Deployment
- **Description:** Deploy the application using Node.js or Spring Boot to handle server-side processing efficiently.
- **User Inputs:** None directly; backend setup.
- **System Inputs:** Application code, deployment scripts.
- **Output:** A fully functional server-side application ready to serve user requests.
- **Pre-condition:** Node.js or Spring Boot environments are properly configured and ready.

**IR3: Set up and maintain a MySQL database for storing user data, posts, authentication information, and other application data securely and efficiently.**

- **Function:** Database Setup
- **Description:** Set up and maintain a MySQL database for securely and efficiently storing user data, posts, authentication information, and other application data.
- **User Inputs:** None directly; backend setup.
- **System Inputs:** Database software installation, schema setup, and initial configuration.
- **Output:** Operational database that supports all data storage and retrieval needs.

- **Pre-condition:** MySQL installed and initial schemas defined.

#### IR4: Use connection pooling for the database to improve performance under load.

- **Function:** Database Performance Optimization
- **Description:** Use connection pooling for the database to improve performance under load.
- **User Inputs:** None directly; backend optimization.
- **System Inputs:** Configuration of connection pool settings.
- **Output:** Enhanced database performance and reduced latency during high traffic periods.
- **Pre-condition:** Database and application server are configured to support connection pooling.

#### 4.2.5 Security Requirements

**SR1: Secure web communications using SSL/TLS certificates to encrypt data transmitted between clients and the server.**

- **Function:** Secure Web Communications
- **Description:** Use SSL/TLS certificates to encrypt all data transmitted between clients and the server to ensure secure communications.
- **User Inputs:** Any data sent from the client to the server, such as login credentials, form submissions, etc.
- **System Inputs:** SSL/TLS certificate installation and configuration on the server.
- **Output:** All user data transmitted over the internet is encrypted.
- **Pre-condition:** SSL/TLS certificates must be obtained and correctly installed on the server.

**SR2: Authentication should secure and protect user data.**

- **Function:** Secure Authentication
- **Description:** Ensure that the authentication system secures and protects user data using robust encryption and verification methods.
- **User Inputs:** Username, password, and other authentication-related information entered by the user.
- **System Inputs:** Authentication mechanisms such as hashing and salting of passwords, and multi-factor authentication processes.
- **Output:** User data is securely authenticated and personal data is protected against unauthorized access.
- **Pre-condition:** The system has a reliable authentication framework implemented.

**SR3: Implement user authentication protocols that ensure data integrity and prevent unauthorized access.**

- **Function:** Robust User Authentication Protocols
- **Description:** Implement user authentication protocols that ensure data integrity and prevent unauthorized access by employing advanced security measures.

- **User Inputs:** User credentials and potentially additional verification steps (e.g., two-factor authentication codes).
- **System Inputs:** Security protocols including password policies, encryption algorithms, and session management controls.
- **Output:** A secure and tamper-proof user authentication process.
- **Pre-condition:** Effective security measures and protocols are in place and operational.

## 4.2.6 Performance and Scalability Requirements

**PSR1: Optimize the web server and application code to handle high traffic and data loads efficiently.**

- **Function:** Web Server Optimization
- **Description:** Optimize the web server and application code to handle high traffic and data loads efficiently.
- **User Inputs:** None directly; backend processing.
- **System Inputs:** Performance tuning parameters for web servers, efficient coding practices, and possibly code refactoring.
- **Output:** Increased capacity to handle more users and data without slowing down.
- **Pre-condition:** Existing baseline performance metrics and targets for improvement.

**PSR2: Design the system to be scalable both horizontally (adding more servers) and vertically (upgrading existing hardware).**

- **Function:** System Scalability Design
- **Description:** Design the system architecture to be scalable both horizontally (adding more servers) and vertically (upgrading existing hardware).
- **User Inputs:** None directly; impacts system architecture.
- **System Inputs:** Implementation of load balancers, scalable databases, and modular architecture that supports expansion.
- **Output:** A system capable of expanding resources seamlessly to meet increasing demands.
- **Pre-condition:** Scalability planning and infrastructure that supports scalability are initially set up.

**PSR3: Ensure the system architecture supports asynchronous data processing to handle I/O-bound tasks efficiently.**

- **Function:** Asynchronous Data Processing
- **Description:** Ensure that the system architecture supports asynchronous data processing to efficiently handle I/O-bound tasks.

- **User Inputs:** Requests that trigger data operations.
- **System Inputs:** Asynchronous programming models and event-driven architectures.
- **Output:** Improved system responsiveness and reduced wait times for I/O operations.
- **Pre-condition:** The system is designed with asynchronous capabilities and suitable technologies.

#### 4.2.7 Compliance and Maintenance Requirements

**CMR1:** Ensure that all data storage and transmissions comply with relevant data protection regulations (such as GDPR, HIPAA, etc.) to protect user data.

- **Function:** Data Protection Compliance
- **Description:** Ensure that all data storage and transmissions comply with relevant data protection regulations to protect user data.
- **User Inputs:** Any personal data entered into the system.
- **System Inputs:** Compliance measures like data encryption, secure data storage practices, and regular audits.
- **Output:** Full compliance with data protection laws such as GDPR, HIPAA, etc.
- **Pre-condition:** An understanding of relevant regulations and the implementation of compliant data management practices.

**CMR2:** Establish a logging and monitoring system that tracks and reports errors, system usage, and performance metrics in real-time.

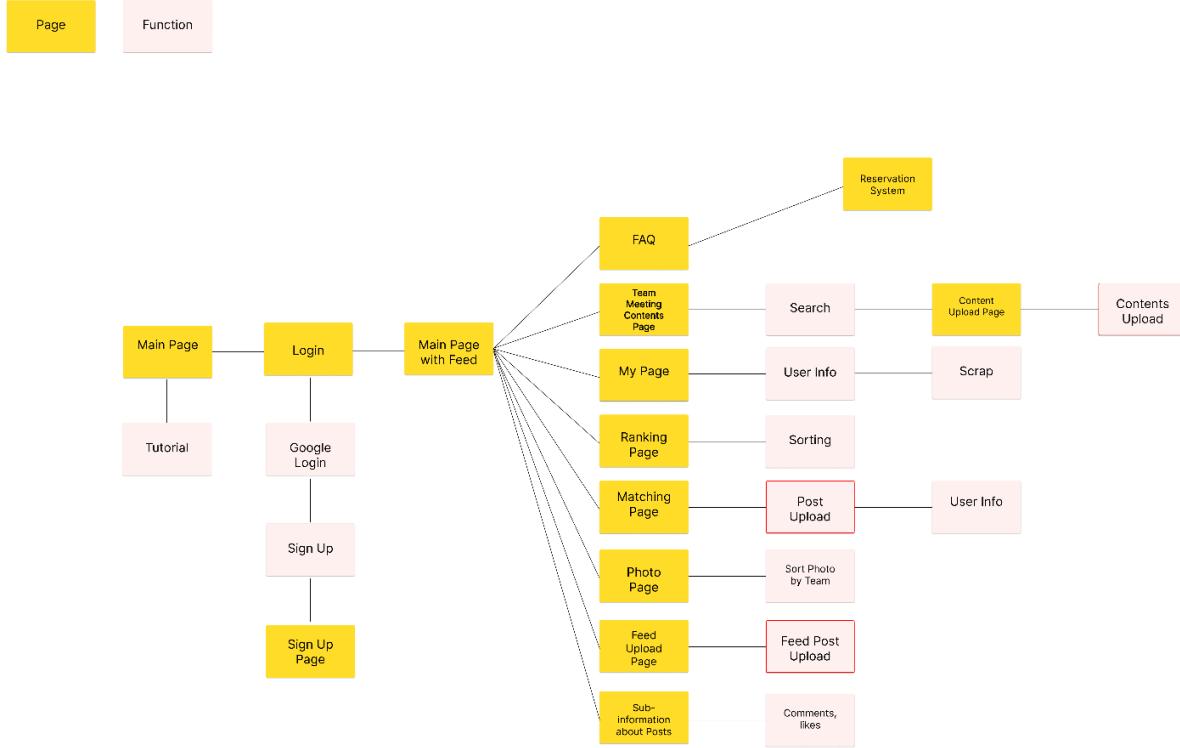
- **Function:** System Logging and Monitoring
- **Description:** Establish a logging and monitoring system that tracks and reports errors, system usage, and performance metrics in real-time.
- **User Inputs:** None directly; monitoring captures system and user activities automatically.
- **System Inputs:** Monitoring tools setup, logging configurations, and alert systems.
- **Output:** Real-time visibility into system health, usage statistics, and timely identification of issues.
- **Pre-condition:** Monitoring and logging tools are correctly configured and operational.

**CMR3:** Set up regular backup and recovery procedures to ensure data integrity and availability.

- **Function:** Backup and Recovery Procedures
- **Description:** Set up regular backup and recovery procedures to ensure data integrity and availability.

- **User Inputs:** None directly; process is typically automated.
- **System Inputs:** Backup schedules, storage solutions for backups, and disaster recovery plans.
- **Output:** Reliable data backup and quick recovery capabilities in the event of data loss.
- **Pre-condition:** Backup systems and protocols are established and tested for efficacy.

## 4.3 Information Architecture



**System Information Architecture** IA (Information Architecture) involves structuring and organizing information to enable users to easily understand and access it. The IA component of our system aims to enhance user experience, facilitate efficient information retrieval, and assist users in quickly finding the information they need.

Through our system's IA, we aim to ensure that users can easily find and comprehend information. To achieve this, we consider user groups and profiles when organizing information, provide clear and consistent content classification, and optimize user access paths. Additionally, we support efficient system development by considering system

architecture and user experience design, and provide a secure information environment, including considerations for security and permissions.

Through this IA approach, our system can offer users an intuitive and convenient experience while effectively managing and utilizing information.

# 5. Requirements Validation

## 5.1 Review Requirements

The current set of application requirements for this project is comprehensively designed to ensure a robust, user-friendly, and secure user experience. These requirements are meticulously crafted to cater to both functional and aesthetic needs of the users as well as ensuring the system's operational integrity and scalability.

The system prioritizes user experience with a straightforward and secure login process, including traditional and Google OAuth integrations. This flexibility enhances accessibility and simplifies the entry process for new and returning users. The user interfaces for login, registration, and enhanced registration information are designed to be intuitive and efficient, minimizing user effort and maximizing usability. Users can engage richly with the platform through functionalities like posting, liking, and sorting content, which are fundamental to dynamic social interaction. The ability to save or bookmark posts and the implementation of advanced search functionalities ensure that users can easily access and organize content according to their preferences.

For teams and organizations, the application includes powerful tools such as a cross-team meeting scheduler with visual indicators and a dynamic ranking system, enhancing collaboration and competition within the platform. The photo gallery management for teams adds a personal touch, allowing teams to share and manage their media effectively. The backbone of the application is supported by solid infrastructure and stringent security measures. From web server capabilities designed to handle high traffic to the rigorous security protocols for data protection, the application is built on a foundation that values performance and user data integrity. The use of SSL/TLS certificates and encrypted authentication processes ensures that user data is always protected.

Adherence to compliance with data protection regulations like GDPR and HIPAA is critical, and the system is designed to meet these requirements thoroughly. Additionally, the implementation of a robust logging and monitoring system supports ongoing maintenance and ensures continuous system optimization.

The application is designed to grow. With requirements that focus on both horizontal and vertical scalability, the system is prepared to expand its capacity as user demand increases. Performance optimizations are carefully planned to ensure that the system remains responsive and efficient under varying loads.

## 5.2 Validation - Prototype

### 5.2.1 First Page





한동대학교는 다양한 RC(Residential College)를 운영하고 있으며  
그 안에서 정기적으로 수많은 팀 모임을 진행하고 있습니다.

설명

설명

설명

### 손양원 RC

진리안에서 자유함, 사랑의 실천, 용서와 화합



Sonyangwon  
College

### Torrey College

### 토레이 RC

Get Torreyl

### 장기려 RC

섬김과 나눔의 삶을 배우는 공동체

Jangkiryeo  
College

### Kuyper College



### 카이퍼 RC

삶의 모든 영역에서의 하나님의 주권

### 열송학사 RC

진리, 자유, 거룩

Philadelphos  
College

### Carmichael College

### 카마이클 RC

봉사와 헌신의 삶을 배우는 공동체

더 알아보기

### 5.2.2 Sign Up/Login Page

Header

학번 / RC 등 필요 정보 기입

넘어가기 버튼

핸드폰 번호를 입력해주세요.

소속 RC를 선택해주세요.

학번을 입력해주세요.

[다음으로 넘어가기](#)

핸드폰 번호를 입력해주세요.

소속 RC를 선택해주세요.

손양원

장기려

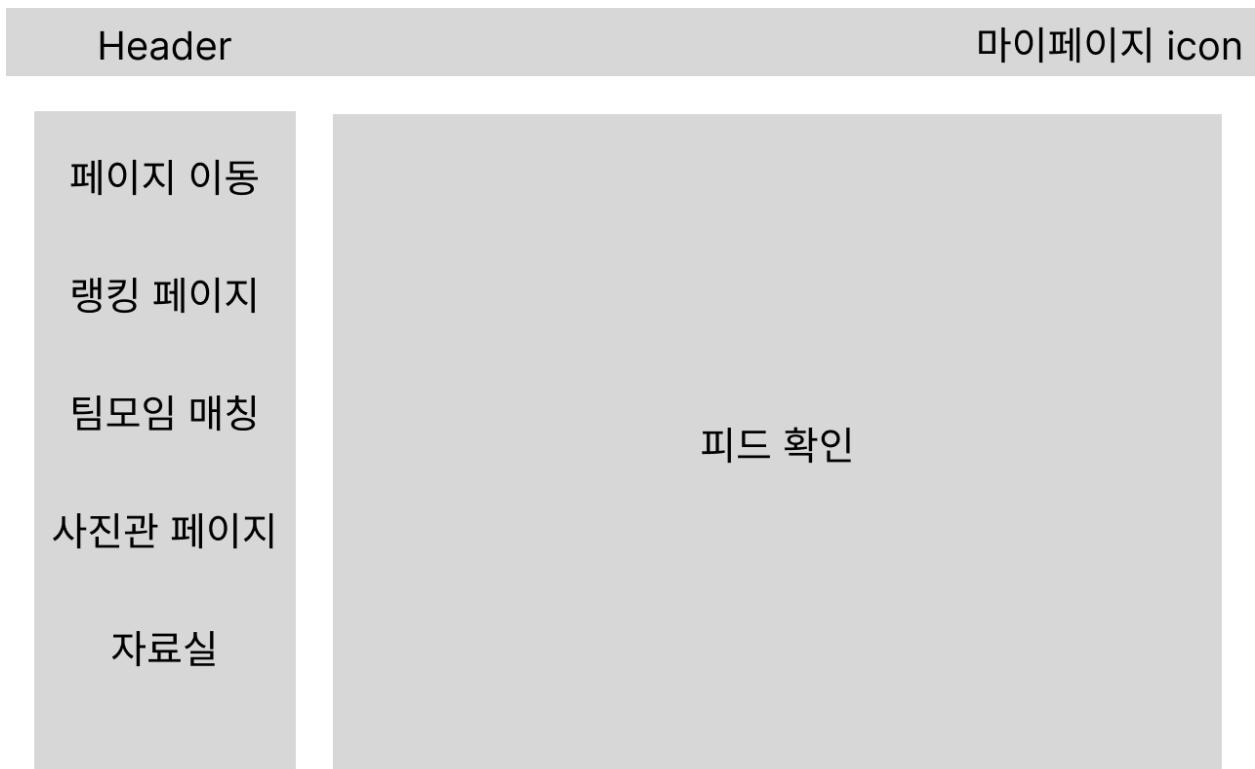
열송학사

카이퍼

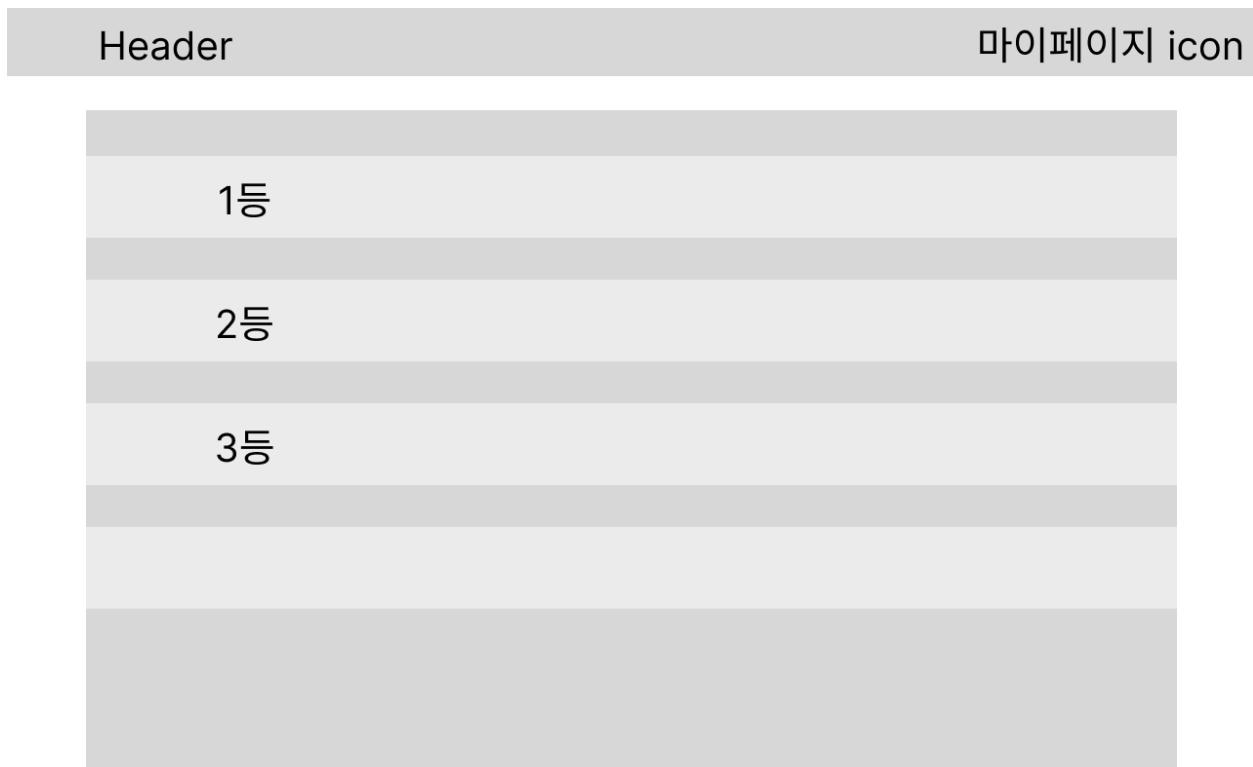
토레이

카마이클

### 5.2.3 Main Page



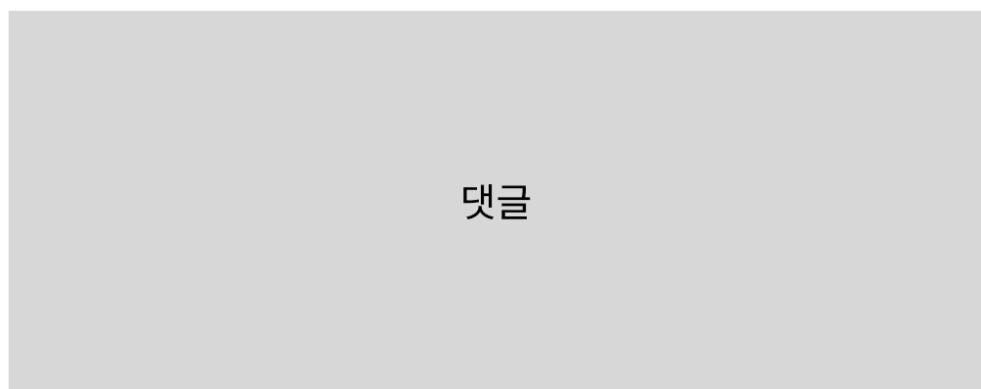
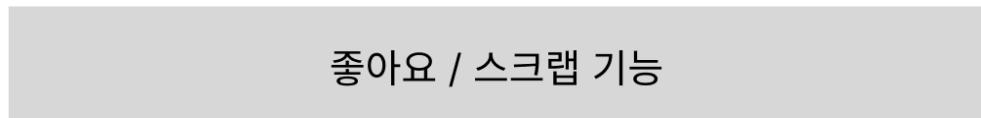
#### 5.2.4 Ranking Page



## 5.2.5 Photo Gallery Page



## 5.2.6 Post Page



### 5.2.7 Team Content Page



## 5.2.8 Team Leader FAQ

Header

마이페이지 icon

게시물

### 5.2.9 My Page



## 5.2.10 Contents Writing Page



### 5.2.11 Team Meeting Matching Page

Header

마이페이지 icon

이름  
정보  
사진

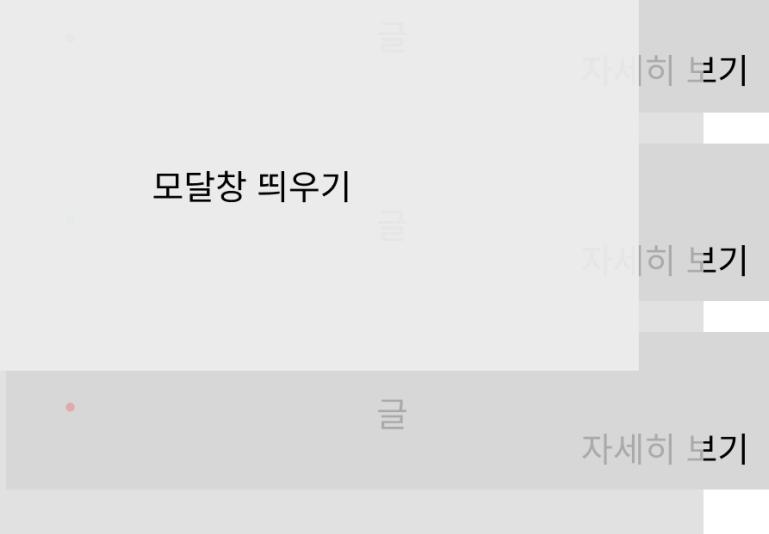


Header

마이페이지 icon

이름  
정보  
사진

모달창 띄우기



## 5.3 Prototype Comparison

As this is a prototype, only a subset of the system requirements has been implemented in this initial version. The emphasis has been on presenting an overview structure and core functionalities of the system rather than incorporating specific details. Consequently, many requirements remain unaddressed at this stage.

The front-end requirements have been prioritized, while the back-end requirements, which often involve more specialized components, have not yet been fully realized.

This approach was chosen to provide a foundational understanding of the system's functionality while allowing for incremental development and refinement as the project progresses. We plan to address the outstanding requirements as we continue to iterate and enhance the prototype throughout the project lifecycle.

O: Satisfied

OI: Only interface are created

-: Not added yet

ID	Feature Description	Satisfiability	Comments
<b>Functional Requirements</b>			
1.1	Provide a user interface for login.	O	
1.2	Provide a user interface for new user registration.	O	
1.3	Validate user credentials against stored data.	-	Need Backend Tasks
1.4	Manage user sessions post-login to maintain state.	-	Need Backend Tasks
2.1	Integrate Google OAuth for authentication.	-	Need Integration
2.2	Retrieve user details from Google after successful authentication.	O	

2.3	Link Google account details with internal user profile management.	-	Need Backend Tasks
3.1	Provide a "Login with Google" button on the login page.	O	
3.2	Handle authentication callbacks from Google OAuth service.	-	Need Integration
4.1	Capture essential user data during sign-up (e.g., name, email, password).	O	
4.2	Verify new user email addresses to confirm authenticity.	-	Need Backend Tasks
4.3	Secure user passwords using encryption before storing them.	-	Need Backend Tasks
5.1	Provide additional fields for user data collection on registration page (e.g., phone number, address).	O	
5.2	Validate additional information provided by users during the registration process.	-	Need Backend Tasks
6.1	Allow users to create and upload new posts.	-	
6.2	Display user posts on multiple dedicated pages within the application.	O	
6.3	Implement search functionality to find posts based on keywords.	-	Need Backend Tasks
6.4	Enable users to save or bookmark posts for later access.	-	Need Backend Tasks
7.1	Allow users to 'like' posts.	-	Need Backend Tasks
7.2	Sort posts based on the number of likes or the most recent posts.	-	Need Backend Tasks
8.1	Make Cross-Team Scheduling Interface.	O	
8.2	Recommend Matching.	-	Need Backend Tasks
8.3	Confirm team matching and notify.	-	Need Backend Tasks

9.1	Maintain a dynamic ranking system for user groups or teams.	OI	Only Interfaces are created
9.2	Operate a photo gallery where teams can upload and manage images.	OI	Only Interfaces are created
10.1	Display a list of available rooms for reservation.	-	Required link are seperated by the department
10.2	Provide functionality for users to book rooms using provided link.	-	Required link are seperated by the department
11.1	Support comprehensive post uploading capabilities.	-	Need Backend Tasks
11.2	Enable advanced keyword search for posts.	OI	Only Interfaces are created
11.3	Allow users to save or scrap posts based on their preferences.	-	Need Backend Tasks
AFR1	Users need a start-up animation screen that transitions to the login page.	OI	only Interfaces are created
AFR2	System must display a start-up animation leading to the login.	OI	only Interfaces are created
AFR3	Users need a system for team meetings matching with visual indications.	OI	only Interfaces are created
AFR4	Users need a ranking system for RCs and teams.	OI	only Interfaces are created
AFR5	Users need to share and view photos in a team gallery.	OI	only Interfaces are created
AFR6	Photo uploads and viewing should be optimized for performance and quality.	-	Need Backend Tasks
UXR1	UI/UX should be appealing and easy to navigate.	-	Need Backend Tasks
UXR2	Login and sign-up should be user-friendly and straightforward.	-	Need Backend Tasks
UXR3	The animation should be smooth and visually engaging.	-	Need Backend Tasks

UXR4	Content upload and retrieval should be fast and efficient.	-	Need Backend Tasks
UXR5	Search functionality should provide quick and relevant results.	-	Need Backend Tasks
UXR6	Social interactions should be responsive and immediate.	-	Need Backend Tasks
IR1	Implement a web server capable of hosting a high-traffic web application.	-	Need Backend Tasks
IR2	Deploy the application using Node.js or Spring Boot to handle server-side processing efficiently.	-	Need Backend Tasks
IR3	Set up and maintain a MySQL database for storing user data, posts, authentication information, and other application data securely and efficiently.	-	Need Backend Tasks
IR4	Use connection pooling for the database to improve performance under load.	-	Need Backend Tasks
SR1	Secure web communications using SSL/TLS certificates to encrypt data transmitted between clients and the server.	-	Need Backend Tasks
SR2	Authentication should secure and protect user data.	-	Need Backend Tasks
SR3	Implement user authentication protocols that ensure data integrity and prevent unauthorized access.	-	Need Backend Tasks
PSR1	Optimize the web server and application code to handle high traffic and data loads efficiently.	-	Need Backend Tasks
PSR2	Design the system to be scalable both horizontally (adding more servers) and vertically (upgrading existing hardware).	-	Need Backend Tasks
PSR3	Ensure the system architecture supports asynchronous data processing to handle I/O-bound tasks efficiently.	-	Need Backend Tasks

CMR 1	Ensure that all data storage and transmissions comply with relevant data protection regulations (such as GDPR, HIPAA, etc.) to protect user data.	-	Need Backend Tasks
CMR 2	Establish a logging and monitoring system that tracks and reports errors, system usage, and performance metrics in real-time.	-	Need Backend Tasks
CMR 3	Set up regular backup and recovery procedures to ensure data integrity and availability.	-	Need Backend Tasks

## Reviews

The prototype has successfully implemented a user-friendly interface for login and registration, which includes integration with Google for authentication. This enhances ease of access and simplifies the process of entering the system. The initial setup of the cross-team meeting scheduler is visible, although in its basic form. It shows promise in helping coordinate meetings between different teams with some basic visual cues provided to indicate availability.

However, more complex features like the detailed search functionality for posts based on keywords, saving or bookmarking posts for later access, and the advanced algorithms for matching meeting times across teams are still under development. These are crucial for a fully operational version of the system but are not yet available in the prototype. Essential security features, including robust authentication protocols beyond Google login and secure encryption of user data, have not been fully implemented. These are critical for ensuring user trust and the security of personal information. The backend functionalities that support more complex operations, such as the real-time updating of team rankings and the management of a photo gallery for teams, are not yet operational. These features are important for the system to serve its intended purpose fully but are scheduled for later phases of the project. Aspects related to the optimization of server performance

under high loads and scalability options to accommodate more users or data are not yet addressed. These are vital for the long-term success and scalability of the platform.

While the prototype effectively demonstrates the system's foundational interface and some key functionalities, many complex and essential features particularly related to backend processing, security, and performance enhancements are yet to be developed. The ongoing development will need to focus on these aspects to ensure a comprehensive, secure, and efficient system that fully meets the needs and expectations of its users.

## 5.4 Validation Review Checklist

### 5.4.1 Verifiability

- **Is the requirement realistically testable?**
  - For a requirement to be realistically testable, there must be clear criteria for success and failure, and it must be possible to set up test scenarios that accurately assess whether those criteria are met.
  - For instance, for the login functionality (AR1.1: Provide a user interface for login), you can perform automated tests to verify that entering correct user credentials successfully logs a user in, while incorrect credentials do not. This can be expanded to include security testing to ensure that the login process is resistant to common security threats like SQL injection or brute force attacks.

### 5.4.2 Comprehensibility

- **Is the requirement properly understood?**
  - The requirements as stated appear to be well-articulated and detailed, providing clear descriptions of the functionalities expected, such as in user authentication, Google login integration, and post management. Also, the prototype and information architecture has showed architecture of web page and logical flows clearly.
  - Each requirement is described in terms of user inputs, system inputs, expected outputs, and pre-conditions, which should make them easily understandable to all project stakeholders. This level of detail supports the comprehensibility of the requirements, ensuring that developers, testers, and project managers have a clear understanding of what needs to be built and why.

### 5.4.3 Traceability

- **Is the origin of the requirement clearly stated?**
  - The requirements were developed through a systematic and iterative process. Initial interviews with stakeholders enabled the identification of key challenges and objectives for the project. Subsequently, by crafting storyboards and documenting user requirements derived from these interviews, we were able to clarify and define the necessary functions and needs for the system effectively.
  - However, there could be improvement. For example, it's essential to document whether a requirement like SSL/TLS encryption is mandated by security best practices or specific compliance requirements for outer domain user.

#### 5.4.4 Adaptability

- **Can the requirement be changed without a large impact on other requirements?**
  - The adaptability of the requirements seems variable.
  - Some requirements, like user interface elements, may be more flexible and can be changed with minimal impact on other parts of the system.
  - However, foundational requirements, such as those involving data encryption or database architecture (like user session management or Google OAuth integration), are more intertwined with multiple system components. Changes to these could have significant ripple effects, necessitating careful consideration and potentially extensive modifications to related functionalities.

# 6. Appendix

## 6.1 Detailed Interview Results

### 6.1.1 Baek Young-man , Handong Student, 19

What are your name and student number?  21900348, Baek Young-man

Have you ever been a team leader?  No

If you have been a team leader, what aspects did you find challenging?  N/A

If you have not been a team leader, which parts do you think might be challenging?  It seems like it would be too much responsibility

What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)  They are very well-conducted

What content in the team meetings did you find beneficial?  Going for walks

What value does the team meeting time hold for you?  It makes me feel part of a community

How much do you contribute to the team meetings? - Please rate on a scale of 1-5

 5

If your rating is 1-2, what is the reason for this?  N/A

If your rating is 4-5, what is the reason for this?  I participate actively

What differences do you think exist between the roles of senior students and freshmen in team meetings?  The difference in experience

Would you be interested in using a school service that records and shares team meetings?  No

Please feel free to say anything else you'd like.  ^^

## 6.1.2 Kang Jung-hee, Handong Student, 21

What are your name and student number?  Kang Jung-hee, Student Number 21

Have you ever been a team leader?  Deputy team leader

If you have been a team leader, what aspects did you find challenging?  There wasn't anything particularly difficult as a deputy team leader...

If you have not been a team leader, which parts do you think might be challenging?   
There would probably be a burden of having to lead in the beginning, and I know there would be more to take care of than one might think.

What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)  They are going very well!!!!

What content in the team meetings did you find beneficial?  Mafia games that everyone can enjoy, recreational activities, or times for answering questions!

What value does the team meeting time hold for you?  It gives me a sense of belonging to a community.

How much do you contribute to the team meetings? - Please rate on a scale of 1-5  5

If your rating is 1-2, what is the reason for this?  N/A

If your rating is 4-5, what is the reason for this?  Because I am a freshman....

What differences do you think exist between the roles of senior students and freshmen in team meetings?  I think the senior students lead the atmosphere of the team meetings!!! Freshmen should just be happy~

Would you be interested in using a school service that records and shares team meetings?  Wow, yes!

Please feel free to say anything else you'd like.  It would be great if there was something that shared how to run team meetings or recreational activities!

### 6.1.3 Lee Eun-hyang, Handong Student, 22459001

**What are your name and student number?  Lee Eun-hyang, Student Number 22459001**

**Have you ever been a team leader?  No**

**If you have been a team leader, what aspects did you find challenging?  N/A**

**If you have not been a team leader, which parts do you think might be challenging? **

The responsibility of taking care of every team member and being responsible for the team atmosphere feels overwhelming.

**What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)  It's a good community that shares positive energy, prays together, and gets to know each other, so I view it positively.**

**What content in the team meetings did you find beneficial?  Drawing each other's faces, throwing shoes, small sports meets, and dodgeball tournaments.**

**What value does the team meeting time hold for you?  It's a place to get to know people and learn from each other.**

**How much do you contribute to the team meetings? - Please rate on a scale of 1-5  0 (currently not participating in team meetings)**

**If your rating is 1-2, what is the reason for this?  N/A**

**If your rating is 4-5, what is the reason for this?  N/A**

**What differences do you think exist between the roles of senior students and freshmen in team meetings?  Senior students stabilize and develop the team atmosphere, while freshmen, by adapting to school life through the team, contribute to a positive and vibrant environment.**

**Would you be interested in using a school service that records and shares team meetings?**💡 Yes, if it records good content and shares it, I would be interested in using such a service.

Please feel free to say anything else you'd like.💡 None

#### 6.1.4 Han Min-woong, Handong Student, 18

**What are your name and student number?**💡 Han Min-woong, Student Number 18

**Have you ever been a team leader?**💡 Yes :)

**If you have been a team leader, what aspects did you find challenging?**💡 The most difficult part was figuring out what content to provide.

**If you have not been a team leader, which parts do you think might be challenging?**💡 N/A

**What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)**💡 It seems difficult.. People are not very active and quite shy...

**What content in the team meetings did you find beneficial?**💡 The time we took cherry blossom photos and outdoor game activities (Battle Ground game).

**What value does the team meeting time hold for you?**💡 Honestly, it's bothersome... It's not that it's a waste of time, but it's really draining.

**How much do you contribute to the team meetings? - Please rate on a scale of 1-5**💡 1

**If your rating is 1-2, what is the reason for this?**💡 I do not attend the team meetings because they are not mandatory.

**If your rating is 4-5, what is the reason for this?**💡 N/A

**What differences do you think exist between the roles of senior students and freshmen in team meetings?**💡 Yes, senior students should lead due to their experience, and freshmen should actively respond to that leadership.

**Would you be interested in using a school service that records and shares team meetings?**💡 Yes

**Please feel free to say anything else you'd like.**💡 Good luck :)

### 6.1.5 Kwon Min-jun, Handong Student, 21800032

**What are your name and student number?**💡 Kwon Min-jun / 21800032

**Have you ever been a team leader?**💡 No

**If you have been a team leader, what aspects did you find challenging?**💡 N/A

**If you have not been a team leader, which parts do you think might be challenging?**💡 Harmonizing different preferences for team meeting styles and expectations about the direction of the team meetings among team members.

**What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)**💡 Fun. I go because I don't have friends to hang out with.

**What content in the team meetings did you find beneficial?**💡 Playing a version of Battlegrounds that uses cameras instead of guns.

**What value does the team meeting time hold for you?**💡 It's an opportunity to meet a variety of people.

**How much do you contribute to the team meetings? - Please rate on a scale of 1-5**💡 2

**If your rating is 1-2, what is the reason for this?**💡 I don't attend every time.

**If your rating is 4-5, what is the reason for this?**💡 N/A

**What differences do you think exist between the roles of senior students and freshmen in team meetings?**💡 Senior students seem to have a greater sense of responsibility for the atmosphere of the team meetings compared to freshmen.

**Would you be interested in using a school service that records and shares team meetings?**💡 Yes, if it's well-made, it could replace the team's Instagram.

Please feel free to say anything else you'd like.💡 Good Luck 😊

#### 6.1.6 Anonymous, Handong Student, 18

**What are your name and student number?**💡 Anonymous / Student Number 18

**Have you ever been a team leader?**💡 No

**If you have been a team leader, what aspects did you find challenging?**💡 N/A

**If you have not been a team leader, which parts do you think might be challenging?**💡 I think it would be difficult to bear the responsibility of deciding roles and planning events at the start of a new semester, as well as coming up with content for subsequent team meetings.

**What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)**💡 The team activities have been challenging due to overlapping schedules during the COVID-19 period.

**What content in the team meetings did you find beneficial?**💡 I remember enjoying taking seasonal group photos and participating in outdoor activities with the team members.

**What value does the team meeting time hold for you?**💡 It was a valuable time where I could engage in broader conversations with team members from various majors and share spiritual concerns.

**How much do you contribute to the team meetings? - Please rate on a scale of 1-5**💡  
Considering past experiences, between 3 and 4.

**If your rating is 1-2, what is the reason for this?**💡 N/A

**If your rating is 4-5, what is the reason for this?**💡 I believe it is because I want to share the gratitude I received from team members as a freshman and preserve the unique team culture of Handong.

**What differences do you think exist between the roles of senior students and freshmen in team meetings?**💡 Freshmen are expected to bring energy to the team, whereas seniors should actively work on improving and maintaining a good team atmosphere, taking some responsibility outside of meetings to foster better relationships with team members and freshmen.

**Would you be interested in using a school service that records and shares team meetings?**💡 Yes

**Please feel free to say anything else you'd like.**💡 N/A

#### 6.1.7 Lee Young-seong, Handong Student, 18

**What are your name and student number?**💡 Lee Young-seong / Student Number 18

**Have you ever been a team leader?**💡 Yes

**If you have been a team leader, what aspects did you find challenging?**💡 It was very difficult for me to create a fun atmosphere due to my personality.

**If you have not been a team leader, which parts do you think might be challenging?**💡 N/A

**What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)**💡 I do not participate.

**What content in the team meetings did you find beneficial?**💡 I have fond memories of taking group photos with the team members as the seasons changed and participating in outdoor activities.

**What value does the team meeting time hold for you?**💡 It was a valuable time where I could have broader conversations with team members from various majors and sometimes share spiritual concerns.

**How much do you contribute to the team meetings? - Please rate on a scale of 1-5**💡 Considering past experiences, between 3 and 4.

**If your rating is 1-2, what is the reason for this?**💡 N/A

**If your rating is 4-5, what is the reason for this?**💡 I think it is because I want to share the gratitude I received from team members when I was a freshman and preserve the unique team culture of Handong.

**What differences do you think exist between the roles of senior students and freshmen in team meetings?**💡 Freshmen are expected to bring vitality to the team, while seniors should actively work on improving and maintaining a good team atmosphere, taking some responsibility outside of meetings to foster better relationships with team members and freshmen.

**Would you be interested in using a school service that records and shares team meetings?**💡 Yes

**Please feel free to say anything else you'd like.**💡 N/A

### 6.1.8 Kim Ye-eun, Handong Student, 22400131

**What are your name and student number?**💡 Kim Ye-eun, Student Number 22400131

**Have you ever been a team leader?**💡 No

**If you have been a team leader, what aspects did you find challenging?**💡 N/A

If you have not been a team leader, which parts do you think might be challenging?💡 It would be difficult to take care of team members who are falling behind.

What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)💡 They are well-conducted.

What content in the team meetings did you find beneficial?💡 I'm not sure.

What value does the team meeting time hold for you?💡 It is valuable as it broadens my perspective by sharing views with many people.

How much do you contribute to the team meetings? - Please rate on a scale of 1-5💡 4

If your rating is 1-2, what is the reason for this?💡 N/A

If your rating is 4-5, what is the reason for this?💡 Because I try to fulfill all the obligatory aspects.

What differences do you think exist between the roles of senior students and freshmen in team meetings?💡 Seniors, having more experience with the school, can offer substantial help to the freshmen.

Would you be interested in using a school service that records and shares team meetings?💡 Yes

Please feel free to say anything else you'd like.💡 N/A

### 6.1.9 Lee Mi-sun, Handong Student, 22400514

What are your name and student number?💡 Lee Mi-sun, Student Number 22400514

Have you ever been a team leader?💡 No

If you have been a team leader, what aspects did you find challenging?💡 N/A

If you have not been a team leader, which parts do you think might be challenging?💡  
Balancing personal schedules with team leader responsibilities seems like it would reduce the time available for studies and hobbies.

What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)💡 They are well-conducted.

What content in the team meetings did you find beneficial?💡 Family week, imitating movie posters

What value does the team meeting time hold for you?💡 A time for rest.

How much do you contribute to the team meetings? - Please rate on a scale of 1-5💡 2

If your rating is 1-2, what is the reason for this?💡 Because I'm a freshman.

If your rating is 4-5, what is the reason for this?💡 N/A

What differences do you think exist between the roles of senior students and freshmen in team meetings?💡 Freshmen tend to enjoy themselves more, while seniors seem to take on a leading role.

Would you be interested in using a school service that records and shares team meetings?💡 Yes

Please feel free to say anything else you'd like.💡 N/A

### 6.1.10 Kim Yuri, Handong Student, 22300164

What are your name and student number?💡 22300164 Kim Yuri

Have you ever been a team leader?💡 No

If you have been a team leader, what aspects did you find challenging?💡 (No response given)

If you have not been a team leader, which parts do you think might be challenging?💡 It seems there would be a lot to take responsibility for.

What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)💡 Not good

What content in the team meetings did you find beneficial?💡 Stock - Using fruits, predicting stock prices a week later and deciding with family which ones to invest in.

What value does the team meeting time hold for you?💡 Community

How much do you contribute to the team meetings? - Please rate on a scale of 1-5💡 5

If your rating is 1-2, what is the reason for this?💡 (No response given)

If your rating is 4-5, what is the reason for this?💡 Part of the anti-no-comments committee and I think I'm doing well.

What differences do you think exist between the roles of senior students and freshmen in team meetings?💡 Seniors should lead more and freshmen should follow well.

Would you be interested in using a school service that records and shares team meetings?💡 Good

Please feel free to say anything else you'd like.💡 N/A

### 6.1.11 Lee So-eun, Handong Student, 22300537

What are your name and student number?💡 Lee So-eun, Student Number 22300537

Have you ever been a team leader?💡 No

If you have been a team leader, what aspects did you find challenging?💡 (No response given)

If you have not been a team leader, which parts do you think might be challenging?💡 It seems like it would be difficult for someone in a higher grade to find the time.

**What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)**💡 Fun, active, and a great way to become closer.

**What content in the team meetings did you find beneficial?**💡 Outdoor activity games

**What value does the team meeting time hold for you?**💡 It's a gathering to make friends.

**How much do you contribute to the team meetings? - Please rate on a scale of 1-5**💡 3

**If your rating is 1-2, what is the reason for this?**💡 (No response given)

**If your rating is 4-5, what is the reason for this?**💡 I try hard but sometimes it's tiring.

**What differences do you think exist between the roles of senior students and freshmen in team meetings?**💡 The meetings revolve around the freshmen, with seniors playing a supportive role in promoting the freshmen.

**Would you be interested in using a school service that records and shares team meetings?**💡 Yes

**Please feel free to say anything else you'd like.**💡 Fighting! (an expression of encouragement)

### 6.1.12 Lee Myeong-hwa, Handong Student, 19

**What are your name and student number?**💡 Lee Myeong-hwa, Student Number 19

**Have you ever been a team leader?**💡 No

**If you have been a team leader, what aspects did you find challenging?**💡 (No response given)

**If you have not been a team leader, which parts do you think might be challenging?**💡 Leading and managing a large group of people and creating a team atmosphere.

**What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)**💡 It was difficult at first but has been progressing well as time goes on.

**What content in the team meetings did you find beneficial?**💡 Real-life version of PUBG, dodgeball, creating role-play scenarios for League of Legends.

**What value does the team meeting time hold for you?**💡 Meeting people from different majors, learning about their struggles and what they study, gaining insights into their lives, and understanding different perspectives. It's a valuable time for making true companions and friends.

**How much do you contribute to the team meetings? - Please rate on a scale of 1-5**💡 4

**If your rating is 1-2, what is the reason for this?**💡 (No response given)

**If your rating is 4-5, what is the reason for this?**💡 Even though as a senior I don't necessarily have to attend, I use all the time I can spare to improve the team atmosphere through my contributions.

**What differences do you think exist between the roles of senior students and freshmen in team meetings?**💡 Freshmen go through various trials and errors when they meet different people in college. Seniors, having gone through many trials and errors themselves, are well aware of their responsibilities within the team and often take on a nurturing role, forgiving and teaching the freshmen.

**Would you be interested in using a school service that records and shares team meetings?**💡 Yes.

**Please feel free to say anything else you'd like.**💡 This would especially be helpful for new students and team leaders in preparing for team meetings.

### 6.1.13 Han Sang-hwa, Handong Student, 21900783

**What are your name and student number?**💡 Han Sang-hwa, Student Number 21900783

**Have you ever been a team leader?**💡 No

**If you have been a team leader, what aspects did you find challenging?**💡 (No response given)

**If you have not been a team leader, which parts do you think might be challenging?**💡 It seems like it would be difficult due to low participation from team members, busyness with studies and clubs, reluctance to take the lead, and a lack of resources.

**What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)**💡 It's difficult; there's low participation from team members.

**What content in the team meetings did you find beneficial?**💡 Team barbecue

**What value does the team meeting time hold for you?**💡 It is a community united in God, where each other's sacrifices are valued. However, its significance is diminishing and it's increasingly viewed merely as part of the coursework.

**How much do you contribute to the team meetings? - Please rate on a scale of 1-5**💡 4

**If your rating is 1-2, what is the reason for this?**💡 (No response given)

**If your rating is 4-5, what is the reason for this?**💡 I am a freshman and I'm working hard to energize the team atmosphere.

**What differences do you think exist between the roles of senior students and freshmen in team meetings?**💡 Freshmen actively participate, while seniors need to lead and contribute to forming the atmosphere.

**Would you be interested in using a school service that records and shares team meetings?**💡 Yes, for archiving team meeting content and storing memories.

**Please feel free to say anything else you'd like.**💡 None

#### 6.1.14 Kim Seong-bin, Handong Student, 22000113

**What are your name and student number?**💡 Kim Seong-bin, Student Number 22000113

**Have you ever been a team leader?**  No.

**If you have been a team leader, what aspects did you find challenging?**  Not applicable.

**If you have not been a team leader, which parts do you think might be challenging?** 

Motivating disengaged people, a lack of clear roles for team leaders due to insufficient information, the expectation of the leader's sacrifice as a given, difficulty delegating tasks to others, and a lack of appropriate rewards for being a team leader.

**What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)**  They are well-conducted (greatly influenced by the competence of the team leader).

**What content in the team meetings did you find beneficial?**  Team meeting auctions.

**What value does the team meeting time hold for you?**  It helps enhance closeness with my roommate. Sometimes it feels meaningless due to the limitations of the content.

**How much do you contribute to the team meetings? - Please rate on a scale of 1-5**  1

**If your rating is 1-2, what is the reason for this?**  It's not mandatory, and the content is repetitive (from the perspective of a senior).

**If your rating is 4-5, what is the reason for this?**  (No response given)

**What differences do you think exist between the roles of senior students and freshmen in team meetings?**  Freshmen → Active participation is essential. Seniors → Efforts to enhance the mood of the team meetings, development of new content, conducting the meetings, supporting if the team leader is a sophomore, and sometimes there's a need to spend money.

**Would you be interested in using a school service that records and shares team meetings?**  I might use it if available, but integration with SNS for sharing and innovative recording (perhaps studying successful cases on SNS) is necessary, and archives need to be well-organized.

Please feel free to say anything else you'd like.💡 I hope it goes well. I would like to give feedback.

### 6.1.15 Siaw JiaYuin, Handong Student, 22100409

What are your name and student number?💡 Siaw JiaYuin, Student Number 22100409

Have you ever been a team leader?💡 No.

If you have been a team leader, what aspects did you find challenging?💡 Not applicable.

If you have not been a team leader, which parts do you think might be challenging?💡

Social interaction (related to the team leader's role) and adapting to their own cultural norms.

What are your thoughts on the current team meetings? (e.g., well-conducted, difficult, etc.)💡 They are well-conducted (The team was not that big, and members know each other well).

What content in the team meetings did you find beneficial?💡 Outdoor activities (like Dodge ball).

What value does the team meeting time hold for you?💡 It's about community and a chance to get to know people from other majors.

How much do you contribute to the team meetings? - Please rate on a scale of 1-5💡 3

If your rating is 1-2, what is the reason for this?💡 (No response given)

If your rating is 4-5, what is the reason for this?💡 (No response given)

What differences do you think exist between the roles of senior students and freshmen in team meetings?💡 All are friends, but the role is more significant (implying that the responsibility and influence are greater).

**Would you be interested in using a school service that records and shares team meetings?**💡 Yes, especially if it features a points (ranking) system and a chatting and matching system.

Please feel free to say anything else you'd like.💡 Good Luck