# Requirements for Term Project

**Software Engineering**

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# Content

# 1. Functional and Non-functional Requirements

## Functional Requirement

**<Sign-up and Login>**

- The system shall allow users to log in and out.
- The system shall allow users to modify member information.
- The system shall allow users to find their passwords when they forget them.
- Dashboard shall be divided into Recruiting/Completed sections.

**<Recruitment Board>**

- Users shall post posts about the food they want to eat.
- Users shall choose which type of food they want when posting a post.
- Users shall write comments on posts during recruitment.
- Authors shall be allowed to delete their posts.
- Posts shall be divided into categories according to the type of food.
- When the number of posts is full, the posts shall automatically transfer to the recruitment completion board.
- Users shall participate in the recruitment by pressing the button.
- Participants shall cancel their participation through the button.
- Users who are not participants in the post shall be not able to see anything even if they enter the recruitment completion board.
- When the recruitment is completed, it shall be not visible on the board during r-ecruitment.
- Participants shall be notified through push notifications when the recruitment post is completed.
- Posting shall also allow uploading photos.
- Users shall be allowed to limit the maximum number of persons in the posting.

**<Recruitment Complete Board>**

- Participants in a post that has been completed shall be allowed to view the relevant post on the recruitment board.
- The recruitment completion post shall have one more post to inform the order information and notice of the post.

## Non-Functional Requirement

- The screen shall be refreshed for real-time reflection whenever any button is pressed.
- All push notifications should be issued immediately when the event occurs.
- Development languages shall be Java and xml.
- Server and database management is done through Firebase.

**<Sign-up and Login>**

- Members shall be able to accommodate up to 500 people.
- Membership must be subject to certification. (University e-mail).
- ID shall be email
- Nicknames and IDs must not be allowed to overlap.
- Account shall be identified by ID.
- Account information must be stored in a database.
- The confirmation mail for signing up and finding a password shall arrive within a minute.
- The password must be at least six characters long.
- Login shall be done in less than five seconds.

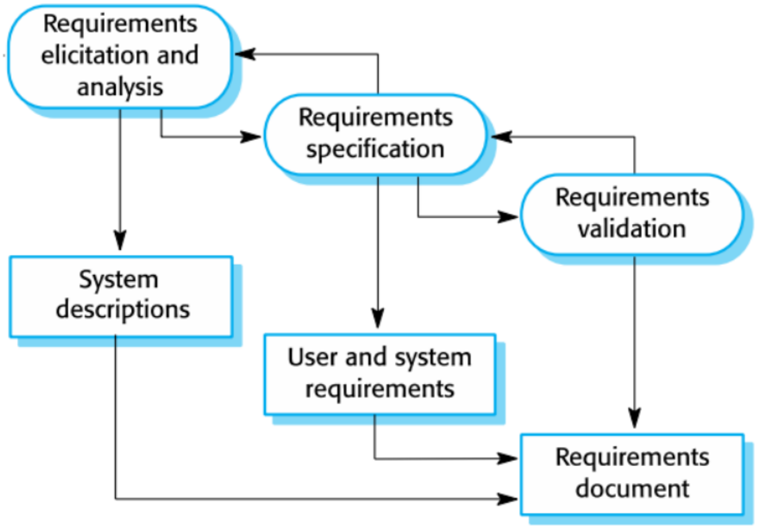
**<Recruitment Board>**

- Posts must be updated on DB in real time.
- Posts during recruitment must be visible to all users.
- The right to delete a post shall be granted only to the author.
- Comments shall be made available to all users.
- Comments must be updated to DB in real time.
- Users who participate in a particular post shall not be allowed to participate in the same post in duplicate.
- The Unparticipation button shall only appear to participants in the post.
- When the Unparticipation button is pressed, it shall change back to the participation button.
- The number of participants must be verifiable to all users.
- The number of participants must be updated in real time.
- The number of participants shall be limited to a maximum of 10.

**<Recruitment Complete Board>**

- Posts on recruitment boards must be accessible only to participants and authors.
- Only the writer shall be allowed to write additional contents in the posting on the Recruitment complete board.

## 2. Engineering processes


Requirements elicitation and analysis
Requirements specification
Requirements validation
System descriptions
User and system requirements
Requirements document

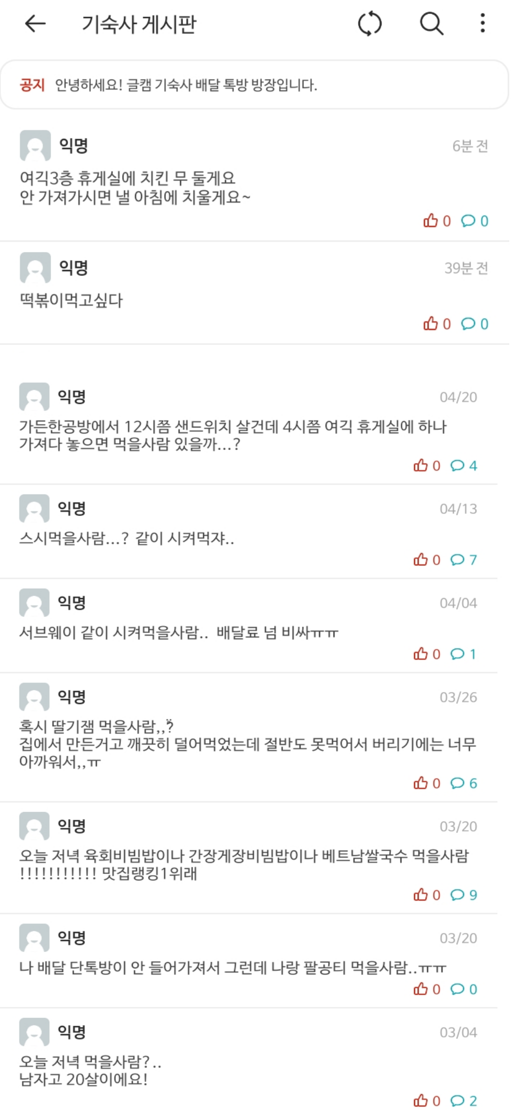
First, eliciate and analyze the requirements. Search for the problems of users. Discover the problems when users want to order delivery food in the dormitory.
Second, specificate the requirements through user and system requirements.
Third, validate the requirements. Validate through the prototyping, Test-case generation.

# 3. Elicitation

## a. Discovery

i. problems when you want to order delivery food in the dormitory.

1. Ordering a lot of food because of the minimum delivery fee.
2. There’s no one to eat with.
3. Some delivery fees are very high.



기숙사 게시판

공지 안녕하세요! 글캠 기숙사 배달 톡방 방장입니다.

익명 6분 전
여긱3층 휴게실에 치킨 무 둘게요
안 가져가시면 낼 아침에 치울게요~
👍 0 💬 0

익명 39분 전
떡볶이먹고싶다
👍 0 💬 0

익명 04/20
가든한공방에서 12시쯤 샌드위치 살건데 4시쯤 여긱 휴게실에 하나
가져다 놓으면 먹을사람 있을까...?
👍 0 💬 4

익명 04/13
스시먹을사람...? 같이 시켜먹쟈..
👍 0 💬 7

익명 04/04
서브웨이 같이 시켜먹을사람.. 배달료 넘 비싸ㅠㅠ
👍 0 💬 1

익명 03/26
혹시 딸기잼 먹을사람,,?
집에서 만든거고 깨끗히 덜어먹었는데 절반도 못먹어서 버리기에는 너무
아까워서,,ㅠ
👍 0 💬 6

익명 03/20
오늘 저녁 육회비빔밥이나 간장게장비빔밥이나 베트남쌀국수 먹을사람
!!!!!!!!!!! 맛집랭킹1위래
👍 0 💬 9

익명 03/20
나 배달 단톡방이 안 들어가져서 그런데 나랑 팔공티 먹을사람..ㅠㅠ
👍 0 💬 0

익명 03/04
오늘 저녁 먹을사람?..
남자고 20살이에요!
👍 0 💬 2

## b. Classification

i. Post & Find group members for food delivery

ii. Join the group through the join button

iii. When all members are gathered, the post goes to the recruitment completion board.

iv. Send the push notification for the delivery process

### c. Prioritization

Indicate how important and urgent the requirement is for 5 levels.
(1 = Very Low, 2 = Low, 3 = Medium, 4 = High, 5 = Very High)

| Classified Requirements | Importance | Urgency | Total Priority |
|---|---|---|---|
| Post & Find group members for food delivery | 5 | 5 | 1 |
| Join the group through the join button | 4 | 4 | 2 |
| When all members are gathered, the post goes to the recruitment completion board. | 4 | 3 | 3 |
| Send the push notification for the delivery process | 3 | 3 | 4 |

## 4. Specification

### a. User requirements

Foodmate is a combination of 'Food' and 'Roommate' that means a friend who shares food in the dormitory. It is an Android application that provides a community where you can share delivery food with friends from the same university. It's an app that finds a friend and orders delivery together in case you need only one serving or you're worried about the amount of food or delivery costs.

First, users can use the function of the app through membership registration and login. This is necessary because this service is for the same university students so we have to check the information of users individually.

The bulletin board is divided into two categories: <Recruitment Board> and <Recruitment Complete Board>.

On the Recruitment Board, users can post the food they want to eat with the maximum number of people recruited, and when the number of people is recruited, the posts disappear and move to the recruitment completion bulletin board. Here, when you post a recruitment, you need to raise the price of food and you can also attach photos.

The Recruitment Complete Board contains order information and announcements of the posts to which the participants belong. Hosts can send push notifications to participants.

b. **System requirements**

   i. **Development Tool**

      1. Android Studio / Java

   ii. **Database**

      1. For the database, “Firebase” is needed.
      2. The way users sign up _Email Authentication
         a. When users sign up for a membership, set the ID format to email, receive the text, and verify the email address 'gachon.ac.kr' exists.
         b. Need to authenticate oneself by sending an email to that email address.
      3. Login
         a. Manage users using Firebase (add, delete, change passwords, etc.)
      4. FCM _Firebase Cloud Messaging
         a. Allow hosts to send push notifications to other participants when all participants are entered.

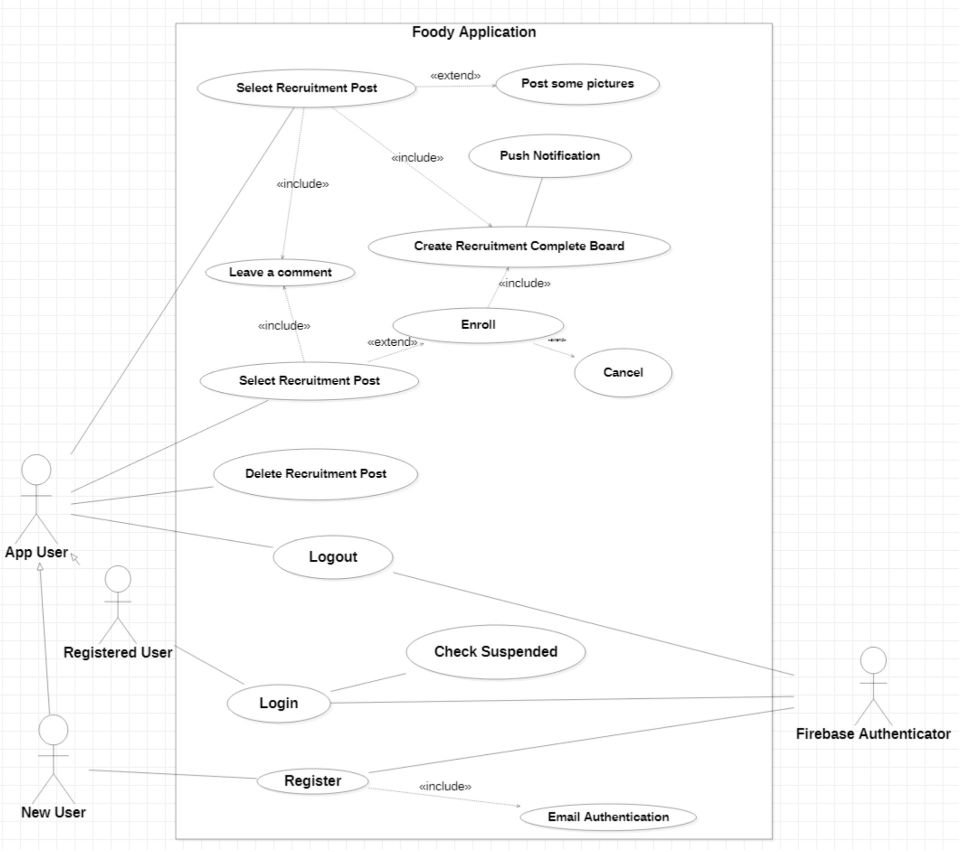
   iii. **Use Intent**

      1. By using intent, move to the Gallery screen and select pictures to upload.

   iv. **Comment Functionality**

      1. It is implemented with ListView and server.

c. **Use Case Diagram**



## 5. Validation

When the development is finished, validate the requirements through the prototyping, Test-case generation. Before that, validate the usability of the current requirements.

a. Validity
    i. This app is designed for university students who want to share their delivery food. So It is appropriate since the objectives and requirements are the same.

b. Consistency
    i. The first version of this app is just for gachon university students and there are two kinds of Bulletin Board. Push Notification and Comment Functions are required. So there will be no conflict because there is no new user access to posts that have already been recruited.

c. Completeness
    i. Not only just making recruitment posts, it also provides push notification to make the user communicate effectively.

d. Realism
    i. The given time to make this app is 4 weeks. In the first week, Requirement documentation, In the second week, System & Architecture Modeling, In the third week, design and implementation will be done. In the fourth week, testing will be done.
    ii. Technically, the Android app will be implemented using Android Studio, which all the team members are familiar with in Mobile Programming class. It will be developed quickly using push notification function provided by Android Studio.

e. Verifiability
    i. By checking if all of the components exist or not. Check the figures such as the maximum number of applications, the maximum number of applicants, and the current number of applicants compared to the number of applicants.

## 6. Change

### a. Change tolerance

i. Change can occur with the opinions of actual dormitory users.

### b. Extension

i. For now, it is just for gachon university students but it could be extended to other university students.
ii. Later, it can provide dutch payable payment system.