

Requirements Document for SUBSIDE Application System (Sampoerna University Basic Student Information Database Exhibitor)

A mobile application to meet and connect with campus students in Sampoerna University



SAMPOERNA UNIVERSITY

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1. INTRODUCTION

The COVID-19 Pandemic has changed various aspects of our day-to-day lives. One of the most major changes that it has brought is how most of our activities are now experienced online instead of face-to-face. This change also ushered a change in the daily college life of Sampoerna University students. Cohort 2020 has been subjected to online interaction since freshman year, with online new student orientation and 2 years of online classes. A prolonged online college experience and the feeling of disconnected from peers may cause us to be more individualistic, and have individualistic tendencies. However, now that offline campus activities are starting to be up and running again, some of us may experience difficulties in handling the transition from online to offline. A few examples of such struggles are not recognizing peers due to how different they look online and offline, not fitting in due to limited interactions during the online period, and a hard time starting a conversation when meeting peers due to the shallow connections created during online classes.

This project offers a solution by creating a mobile application aimed at easing this transition by providing basic information about other students that may be helpful in recognizing them and perhaps ultimately interacting with them. The system hopes to help students to connect and get to know each other while keeping disclosure of any sensitive personal information and will not ask/require any location or address of campus students unless said students would prefer to display such information in which case the application will provide a place to show it.

This document is created to lay out the requirements for this proposed system known as SUBSIDE, Sampoerna University Basic Student Information Database Exhibitor. These requirements may change and evolve in the future as relevancy and direction of the project changes along with the situation

2. GLOSSARY

Bit	- smallest unit of data that a computer can process and store; 0 or 1.
Byte	- A unit of digital information that most commonly consists of eight bits.
Database	- Virtual data storage to store information records.
Encryption	- Converting specific data into a code to prevent unauthorised access.
Hashing	- Transforming any given key or a string of characters into another value.
HEX	- Hexadecimal; a numerical notation that has 16 rather than 10 as its base.
Iteration	- Repetition.
IT team	- Information Technology team; provides registered users with help.
PBKDF2	- Password-Based Key Derivation Function, version 2; used for deriving a cryptographic key from a password.
SHA-256	- A cryptographic hash; often referred to as a “fingerprint” or “signature”.
SID	- Student Identification Number.
SUBSIDE	- Sampoerna University Basic Student Information Database Exhibitor.
SU	- Sampoerna University.
RTO	- Recovery Time Objective; Variable amount of data lost during network downtime.
RPO	- Recovery Point Objective; Tolerable amount of time before an unacceptable disruption occurs where it interrupts the flow of normal business operations.

3. REQUIREMENTS SPECIFICATIONS

3.1. USER ARCHITECTURE

1. A potential user may create an account for which they will need to provide information such as their name, age, cohort, major, SID, nickname and SU email.
2. The user should be able to search other user's names or nicknames and get a list of potential results.
3. The user may change the visibility or privacy of their profile and/or individual information.
4. The user is allowed to edit their personal information stored within the system.
5. A user can only use the app if they have logged into their account. This authentication gate is needed so that different users can only edit their own personal information.
6. A user may access the leaderboard to see the current standings of the fun fact collection mini game. This includes the user's access to their own personal score
7. The user may change/edit/erase/add their fun facts which will not change the sum total of other users' fun fact collection.

3.2. USER ARCHITECTURE

1. The system will encrypt each and every password so as to reduce the possibility of a data breach. This extends to the system blocking a user for a set amount of time when 5 or more tries on log in have been done.
2. The system shall only allow account creation if an SU email is used when creating an account.
3. The system shall save all created accounts along with the information provided in a database to showcase later on.
4. Multiple accounts cannot be made using the same email and cannot have the same vital information. They may have the same cohort, major, age, nickname and fun facts.

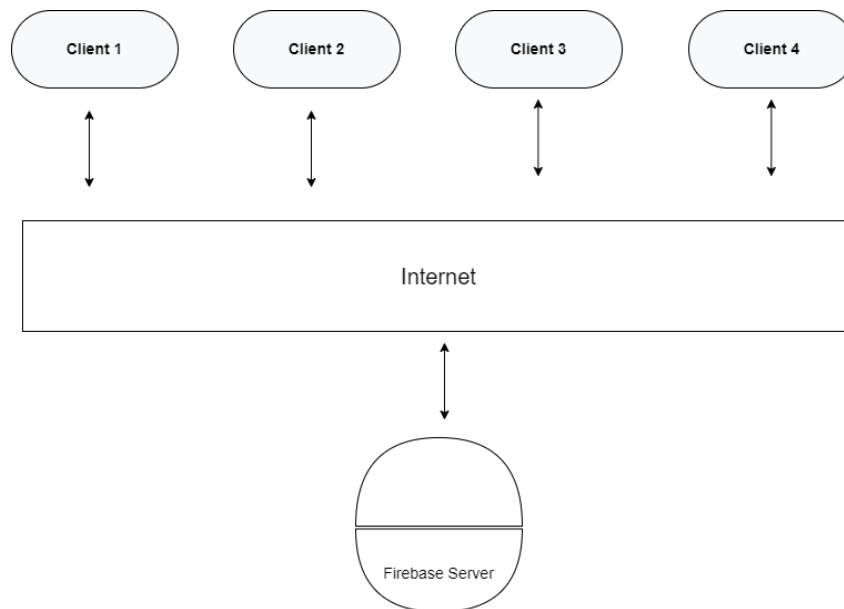
5. The system provides a leaderboard for fun fact collection. Fun fact collection is defined as fun facts collected by an individual user on other users' fun facts. The sum total of the collected fun facts is displayed on the leaderboard.
6. User support service; users must be able to reach out to the support service in case any error occurs with the application's features and tools. The support service must give a response to the user within 2 business days. If the user does not reply back within 30 business days, then the issue is concluded to be resolved. However, the issue must still be handled by the IT team to be considered for improvements.
7. System Availability; the application should have an availability uptime of 24 hours a week. The tolerated downtime must be in accordance with the defined and calculated RTO (Recovery Time Objective) as well as RPO (Recovery Point Objective). Any scheduled maintenance must be informed a week before the maintenance is done.
8. The system ensures no profanity words can be entered during the sign-up process to prevent any law violation.
9. Password Encryption; The PBKDF2 algorithm with added salt is used which takes advantage of the hashing method (SHA-256) to encrypt and convert passwords into a HEX string. The salt adds an extra random byte (which is actually a hex value of 73616C74) to the password for more security. There is also a standard number of iterations for better encryption. The password or key length is also used in the hash describing the desired key length for the output (commonly 32 bytes for SHA-256).

3.3. SYSTEM USERS

Since this system is built on the basis of creating lasting connections between SU students. This system is meant to be used specially by SU students and SU email account holders. SU email account holders may consist of SU faculty members, SU support staffs and other SU employees.

3.4. SYSTEM ARCHITECTURE

The system architecture used to build this software will be a client-server architecture. The following figure is a diagram of a client-server architecture with firebase as the database server used as the foundation of the architecture.



3.5. SYSTEM SPECIFICATION

The data displayed within the application is gathered from users as they create their account which is then stored into the database. The said information can also be changed by the user by changing their profile settings which will also include each person's personal fun fact.

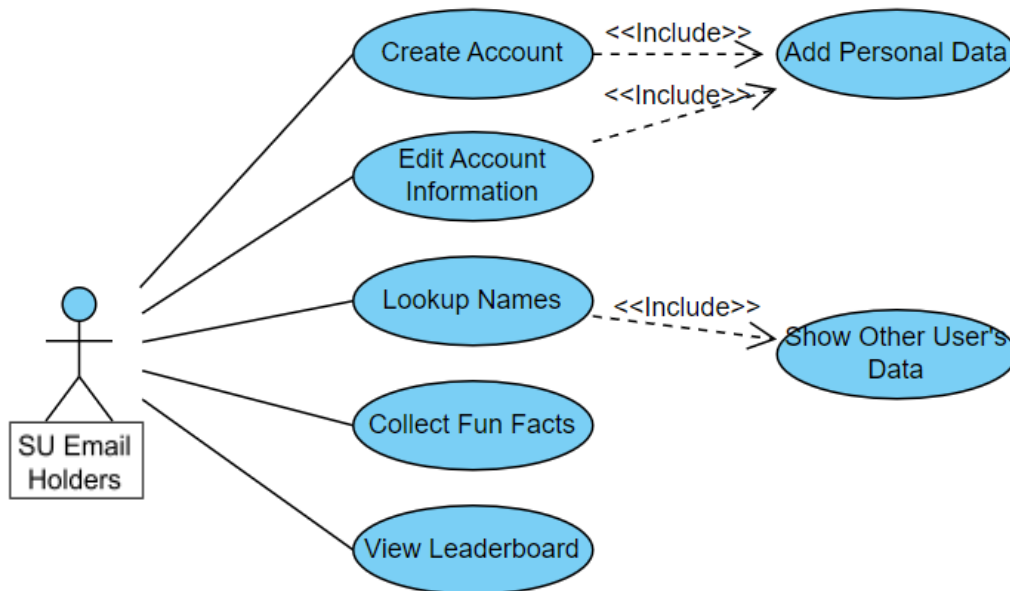
All this information will then be showcased in each person's page within the app ([see Appendix](#)). If the current user has correctly answered the question for the person's fun fact then the page will display it, but if the fun fact is not yet correctly answered it will be censored.

Within the profile page, there are settings that allow users to edit the visibility of their personal information by either making it public or private. The settings also allow users to toggle the featured profiles showcase on the front page and also ensure that their profile is either public or private.

The fun fact collection system allows users to keep track of how many fun facts of other users that they have already unlocked and also show a leaderboard of top fun fact collectors within the system.

4. UML DIAGRAMS

4.1. USE CASE DIAGRAM AND DESCRIPTION



Use Case: Create Account
ID: SDE001
Brief Description: New user creates an account
Primary Actor: SU Email Holder
Precondition: SU email not registered in system
Main Flow: 1. Use case starts when a new user opens the app 2. User selects account creation/registration 3. User enters SU email 4. System verifies SU email and email verification is done
Post Condition: New account is created
Alternative Flow: SU email is registered, user does not enter SU email

Use Case: Edit Account Information
ID: SDE002

Brief Description: User edits account information, including their personal data
Primary Actor: SU Email Holder
Precondition: Account exists
Main Flow: <ol style="list-style-type: none"> 1. Use case starts when users presses the edit profile button in their personal profile page 2. User may edit informations such as Name, Date of Birth and Age, Cohort and Major, Nickname, Fun Facts, Hobbies and Contact Information 3. User presses the save button
Post Condition: System calls “Add Personal Data” use case which tries to save user’s edited data
Alternative Flow: User decides not to save changes.

Use Case: Add Personal Data
ID: SDE003
Brief Description: User adds personal data
Primary Actor: SU Email Holder
Precondition: Account exists
Main Flow: <ol style="list-style-type: none"> 1. Use case starts after user just finished making an account or finished editing account information 2. User personal information which may include Name, Date of Birth and Age, Cohort and Major, Nickname, Fun Facts, Hobbies and Contact Information are saved by the system
Post Condition: System saves user’s personal data
Alternative Flow: Fails to save user’s personal data

Use Case: Lookup Names
ID: SDE004
Brief Description: User looks up other user names
Primary Actor: SU Email Holder
Precondition: User is logged in
Main Flow: <ol style="list-style-type: none"> 1. Use case starts when user presses the search bar 2. User looks up a student’s name 3. System shows a list of name
Post Condition: User chooses the user they are looking for

Alternative Flow: No name is found

Use Case: Show Other User's Data

ID: SDE005

Brief Description: User views another student's publicly visible personal data

Primary Actor: SU Email Holder

Precondition: Data exists

Main Flow:

1. Use case starts when user presses another student's profile
1. System shows the selected student's personal data

Post Condition: User is able to interact with viewed data

Alternative Flow: No data is found

Use Case: Collecting Fun Fact

ID: SDE006

Brief Description: User inputs a password to unlock another student's fun fact

Primary Actor: SU Email Holder

Precondition: Data and password exists

Main Flow:

1. Use case starts when user presses "Unlock Fun Fact" in another student's profile
2. User inputs the correct password
3. User receives the selected student's fun fact and receives a point

Post Condition: User receives a point

Alternative Flow: Password is Incorrect

Use Case: Viewing Leaderboard

ID: SDE007

Brief Description: User views the student leaderboard based on who gets the most points

Primary Actor: SU Email Holder

Precondition: User has an account

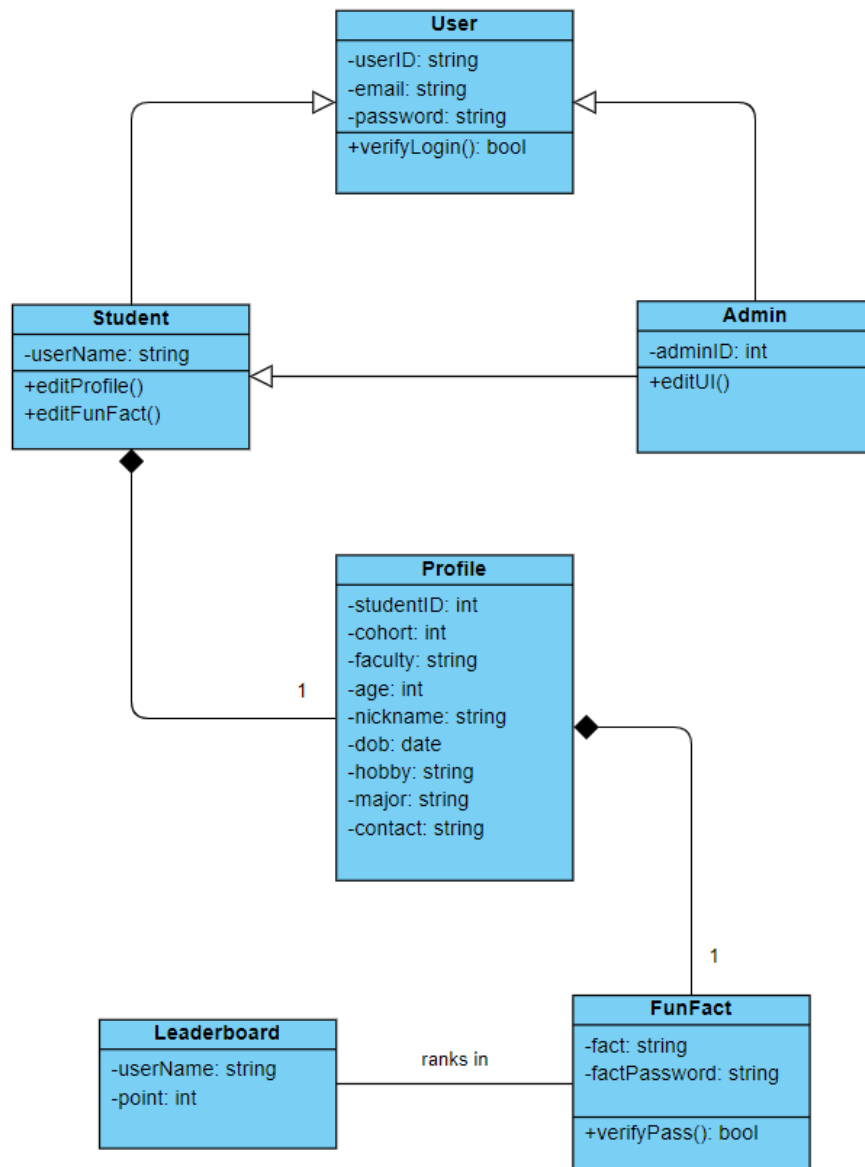
Main Flow:

1. Use case starts when user presses “View Leaderboard”
2. A leaderboard is shown containing all student’s name, ID and points received from unlocking fun facts.

Post Condition: User can click on student names on the leaderboard to view their profiles

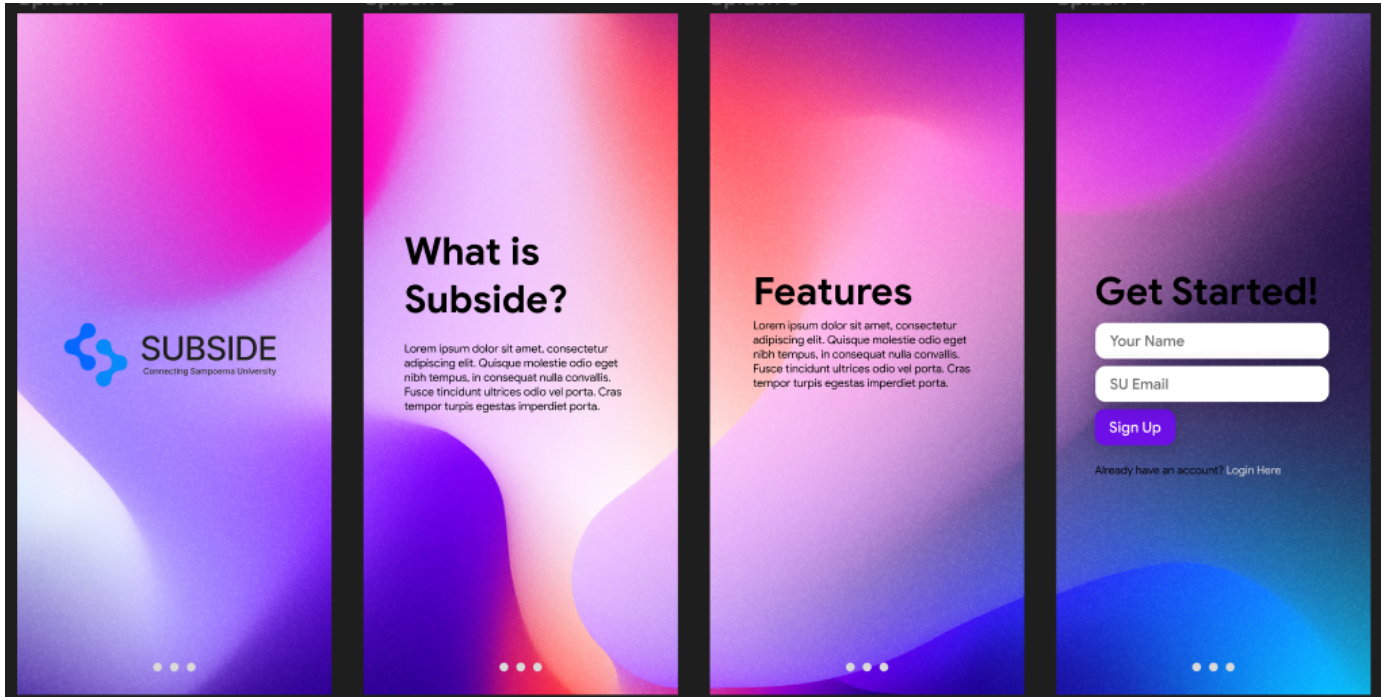
Alternative Flow: Leaderboard not found

4.2. CLASS DIAGRAM

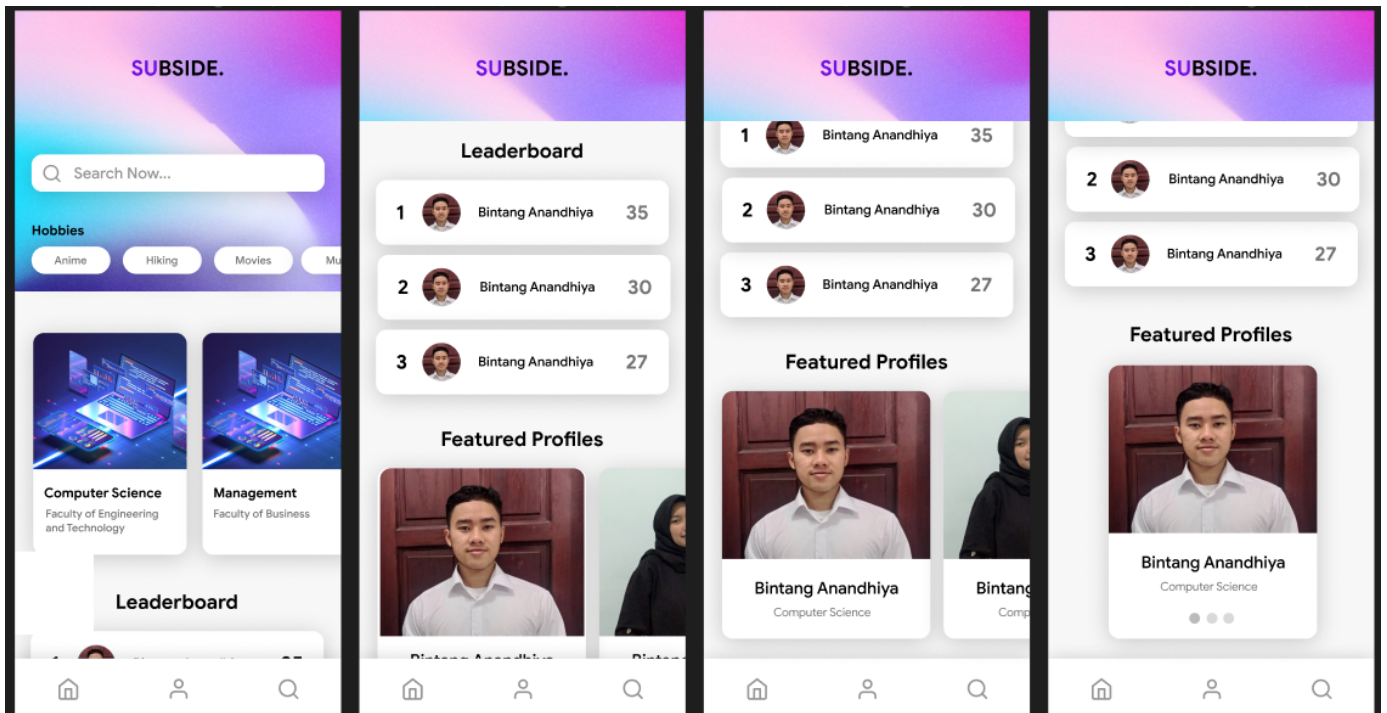


APPENDIX

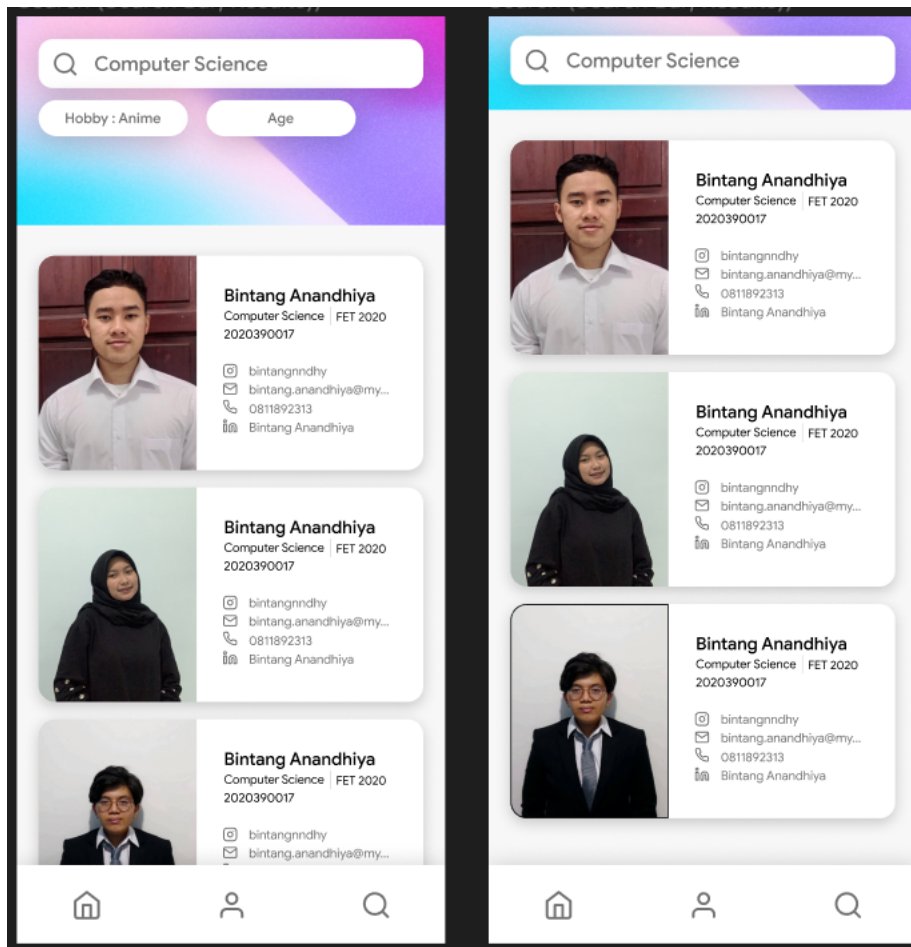
1) Sign up and Login Page



2) Home Page



3) Search Page



4) Profile Page

