
Design Document

for
College PathFinder

Version 1.0

Prepared by

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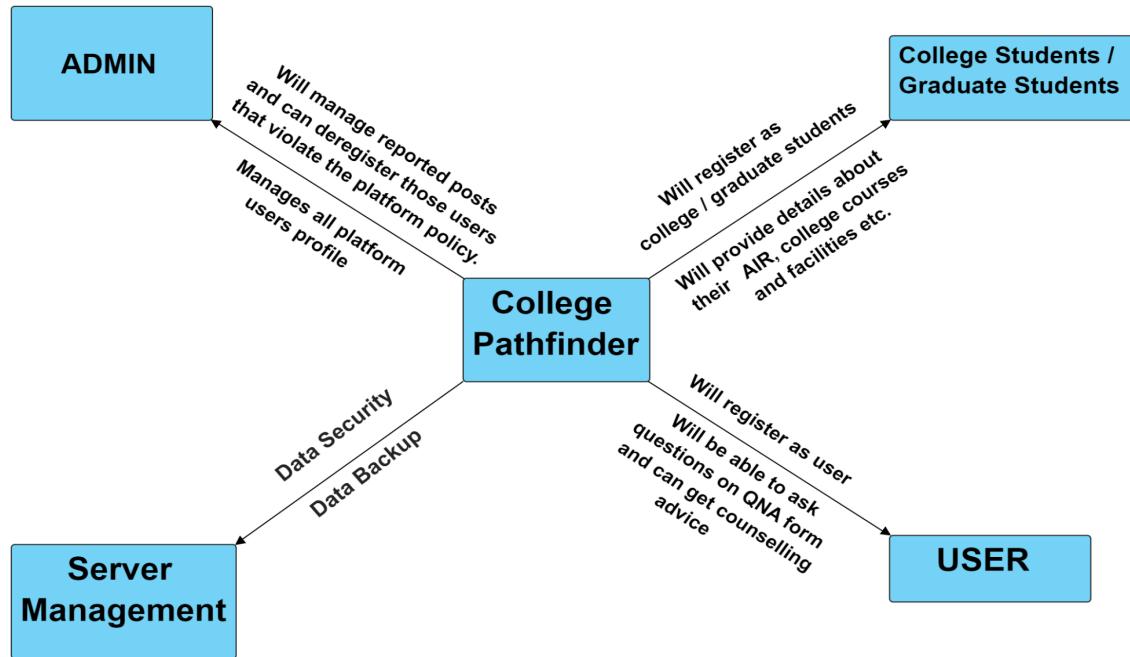
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Revisions

Version	Primary Author(s)	Description of Version	Date Completed
Draft Type and Number	Full Name	Information about the revision. This table does not need to be filled in whenever a document is touched, only when the version is being upgraded.	00/00/00

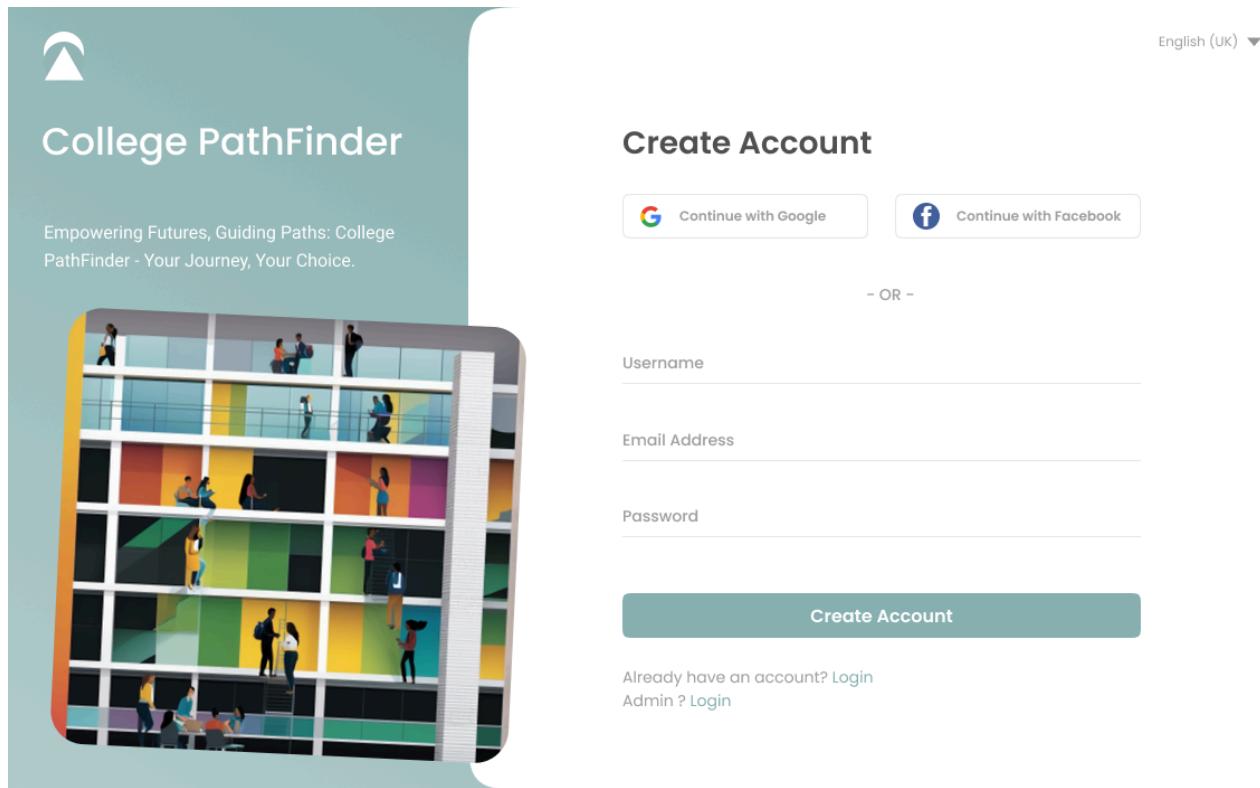
1 Context Design

1.1 Context Model



1.2 Human Interface Design

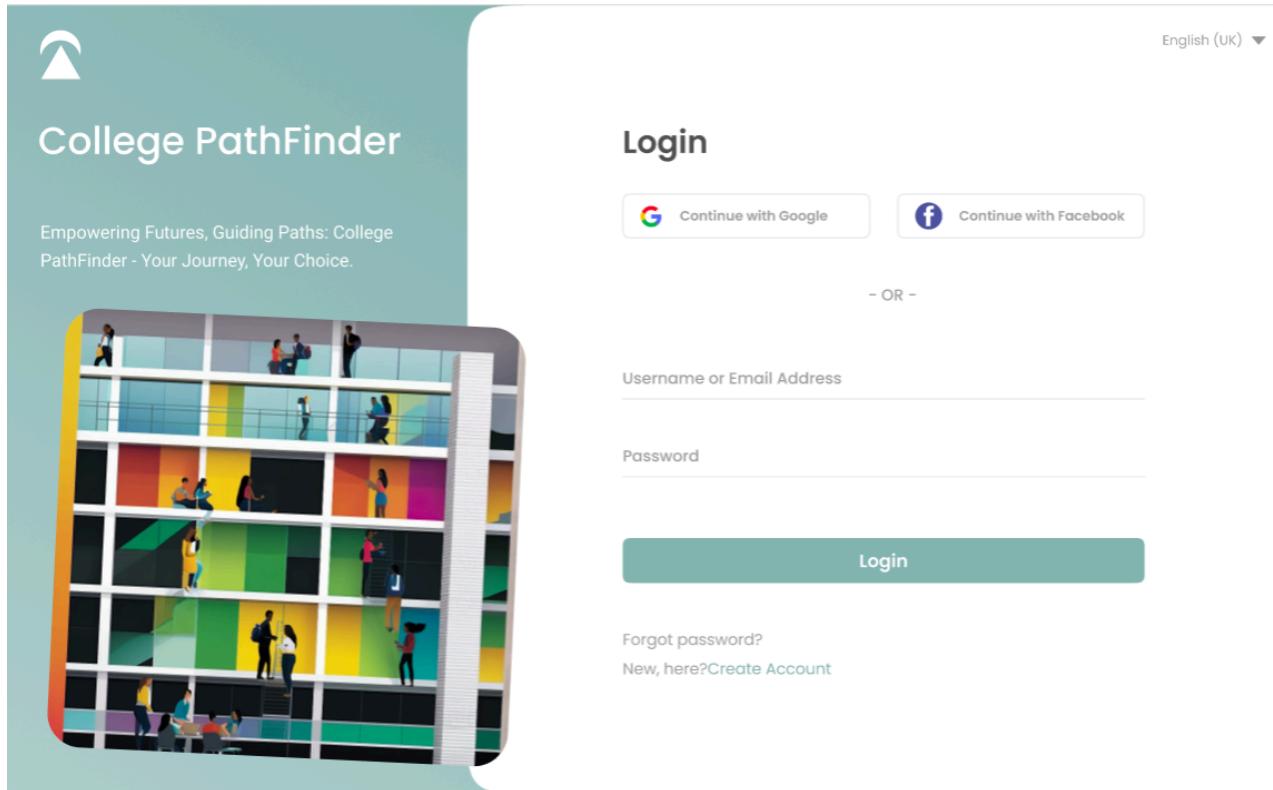
Registration Page



This page facilitates user registration, and also includes option for user and admin Login.

Login Page

Users can log in to College PathFinder by entering their username or email address and password. They can also log in through their Google or Facebook account



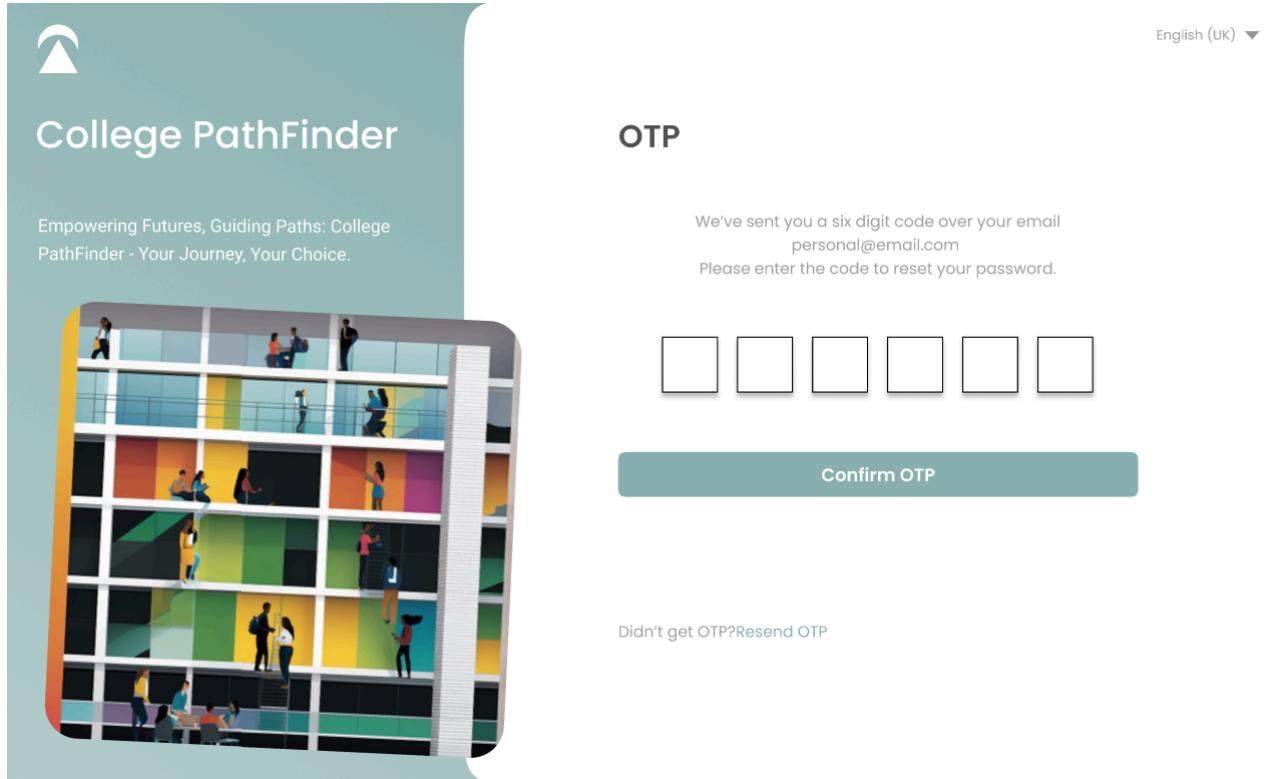
Forgot Password

This feature is made so that people who forgot their password can get it back

The screenshot shows the 'Forgot Password' screen of the College PathFinder app. At the top, there is a navigation bar with a logo and the text 'College PathFinder'. Below the logo, a tagline reads 'Empowering Futures, Guiding Paths: College PathFinder - Your Journey, Your Choice.' A large, colorful illustration of a modern building facade with many windows and people walking on the balconies occupies the center-left. On the right side, the 'Forgot Password' section is displayed with the heading 'Forgot Password'. Below the heading, there is a link 'Trouble Logging in? Enter your registered Email address to get otp and reset your password'. A text input field labeled 'Email Address' is followed by a teal button labeled 'Get OTP'. At the bottom left, there is a 'Back to login' link. To the right of the form, there is a decorative illustration of a woman looking at a smartphone with a lock icon, surrounded by speech bubbles with question marks and a checkmark.

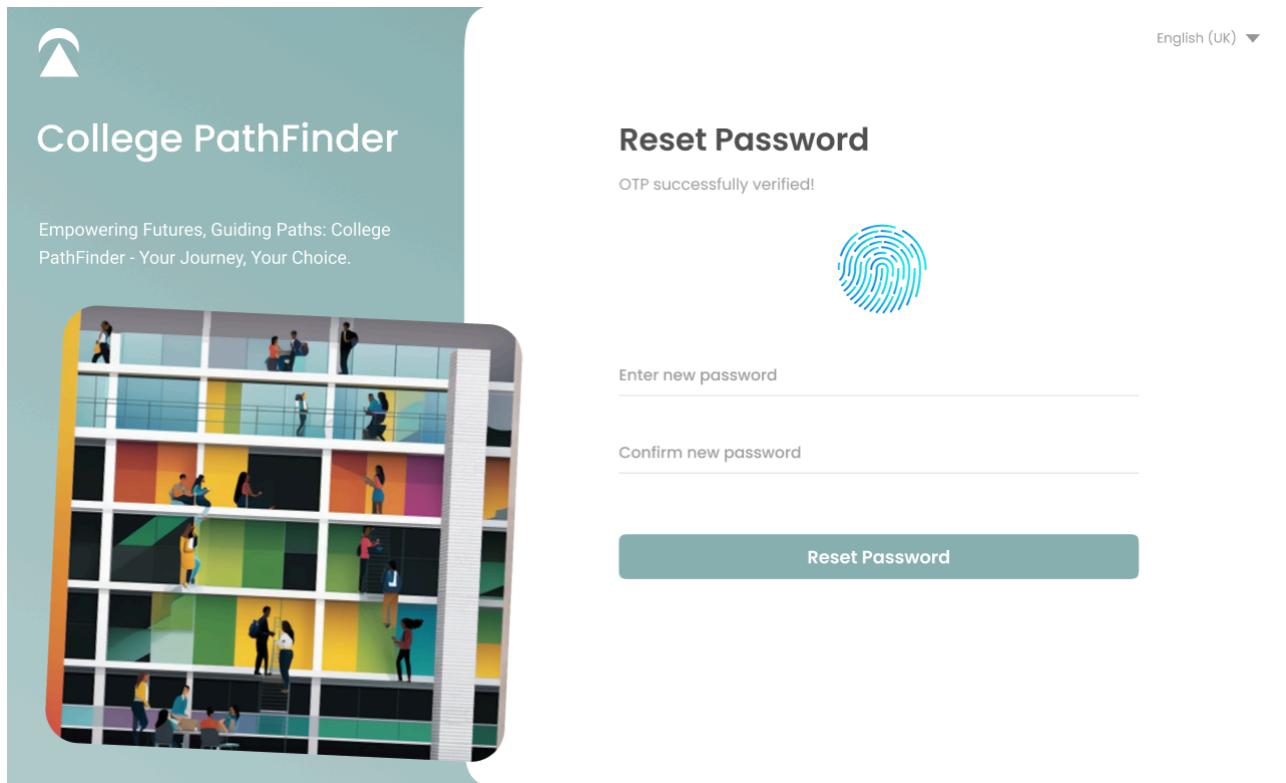
OTP Verification

After entering their email address, the user will receive an OTP to verify their identity.



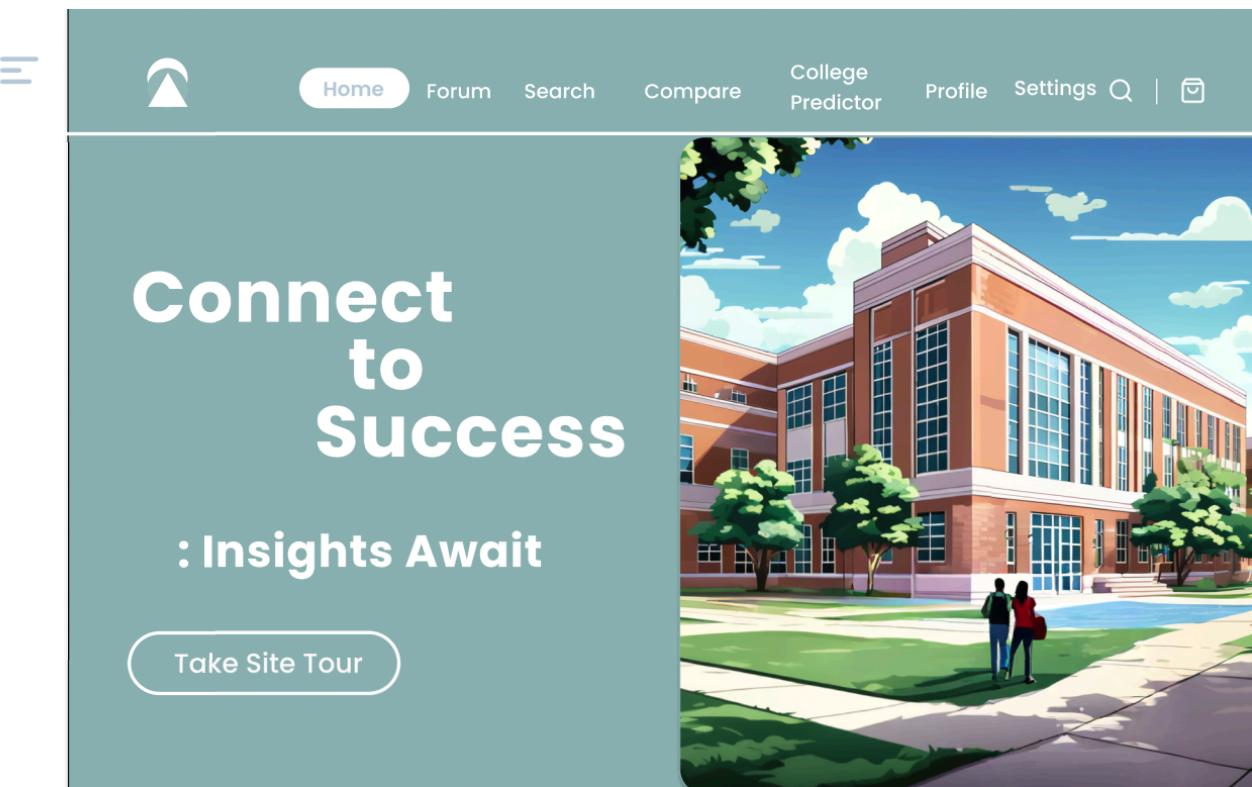
Reset Password

This is made in continuation of the forgot password regeneration process



Home Page

This is how we shall expect our course website home page to look.



College Seeking Student's Profile

The user can edit their professional details, view their bookmarks, upload their documents, etc.

The screenshot displays a user profile interface. At the top, there is a navigation bar with links for Home, Forum, Search, Compare, College Predictor, Profile (which is currently selected), Settings, and a search bar. On the left, a sidebar menu is partially visible. The main content area includes:

- A circular profile picture of a man with a long white beard, labeled "Verified".
- An "Upload Photo" button.
- A section for "Professional Details" containing fields for JEE Roll No. (XXXXXX), Email (siddxd@growthx.com), Coaching/Self Study (Coaching), Preferred Location (Mars), Branch Interested In (CSE (default)), and Address (North Pole). Each field has an "Edit" button.
- A "Bookmarks" section with a note: "Lorem ipsum dolor sit amet consectetur. Erat auctor a aliquam vel congue luctus. Leo diam cras neque mauris ac arcu elit ipsum dolor sit amet consectetur." It also has an "Edit" button.
- A "Documents" section listing five uploaded items, each with a "Verified" status:
 - JEE-M Report
 - JEE-A Report
 - XII Mark sheet
 - X Mark sheet
 - KVPY Score Card
- An "Add More Items" button at the bottom of the document list.

College Graduated Person's Profile

The user can edit their professional details, edit their info, upload their documents, etc.

The screenshot shows a user profile page for a person named Sid. The top navigation bar includes Home, Forum, Search, Compare, College Predictor, Profile (highlighted), Settings, and a search bar. The profile section features a placeholder photo for 'Upload Photo' and a 'Verified' badge. Below this, there are fields for 'Your Name' (Sid), 'Email' (siddxd@growthx.com), and 'Phone Number' (+91 49652845732). A 'Professional Details' section contains fields for 'JEE Roll No.' (XXXXXX), 'Email' (siddxd@growthx.com), 'Currently Studying At' (IIT Kanpur), 'Rate your college' (4 stars), 'Your Branch' (CSE), and 'Address' (North Korea). To the right, a sidebar lists verified documents: JEE-M Report, JEE-A Report, XII Mark sheet, X Mark sheet, KVPY Score Card, and Grade Sheet, each with a verify icon and a link to 'Add More Items'.

Profile

Settings

Upload Photo

Verified

Your Name

Sid

Email

siddxd@growthx.com

Phone Number

+91 49652845732

About Sid's Experience

>Lorem ipsum dolor sit amet consectetur. Erat auctor a aliquam vel congue luctus. Leo diam cras neque mauris ac arcu elit ipsum dolor sit amet consectetur.

Professional Details

JEE Roll No.

XXXXXX

Email

siddxd@growthx.com

Currently Studying At

IIT Kanpur

Rate your college

★★★★★

Your Branch

CSE

Address

North Korea

JEE-M Report
Verified

JEE-A Report
Verified

XII Mark sheet
Verified

X Mark sheet
Verified

KVPY Score Card
Verified

Grade Sheet
Verified

Add More Items

Admin profile

The screenshot displays an admin profile interface. At the top, there's a navigation bar with icons for Home, Forum, Search, Compare, College Predictor, Profile (which is active), Settings, and a search bar. On the left, there's a sidebar with three horizontal lines.

The main content area starts with a user profile section featuring a placeholder photo, an "Upload Photo" button, and a "Verified" badge. Below this are fields for "Your Name" (Sid), "Email" (siddxd@growthx.com), and "Phone Number" (+91 49652845732), each with an "Edit" button.

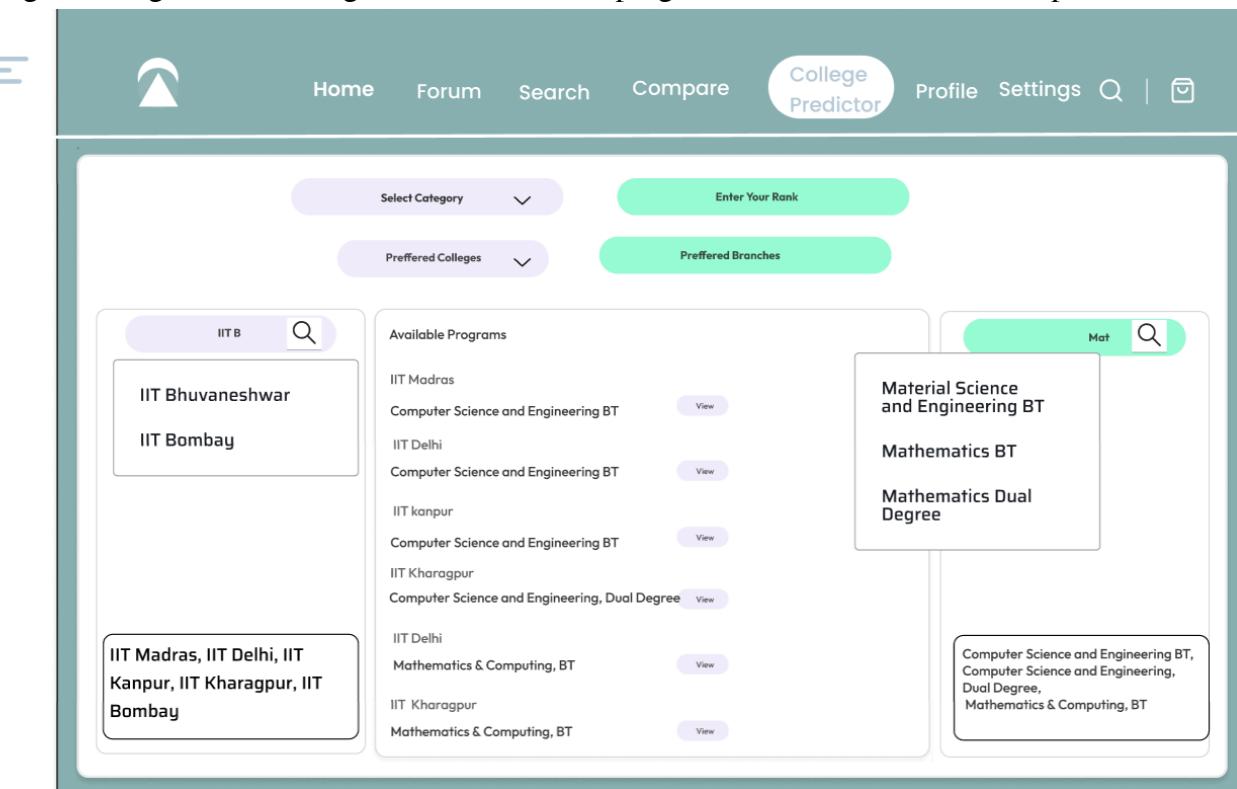
Next is a "Professional Details" section containing a star rating of "4 Stars" from 34 customers, a review snippet for "Ankit Srivastava" (5 stars, "excellent conversation with him.. very knowledgeable person happy to talk to with him"), and a "7 Years" experience badge.

To the right is a circular "Bug Report Fixes" chart with a total count of 1,234. The chart is divided into segments: Resolved (blue), Pending (green), Failed (red), Abandoned (orange), and Weak (purple). The data values are:

Status	Count
Resolved	601
Pending	299
Failed	160
Abandoned	102
Weak	72

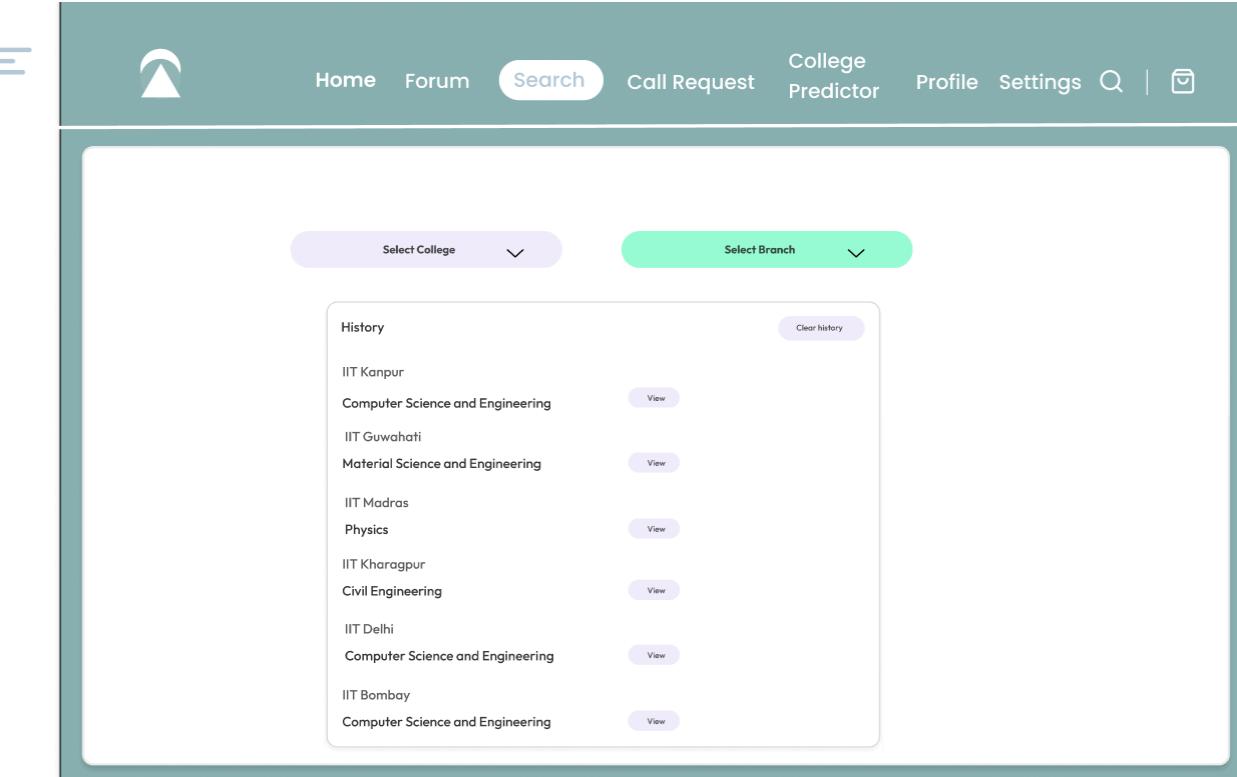
College Predictor

College Seeking Students can get a list of available programs based on their rank and preferences



Search Programs

Any type of user can search for a program by choosing a college and a branch and also view its information page.



College Information and Reviews

Any type of user can view the program information like college location and its reviews. The College Seeking Students can upvote/downvote or report a review. The College Graduated Persons can write reviews, and rate the program on various criteria.

The screenshot shows a web-based application for college information and reviews. At the top, there is a navigation bar with links for Home, Forum, Search, Compare, College Predictor, Profile, Settings, and a search icon. The main content area displays information for IIT Kanpur, specifically for the Computer Science and Engineering program. On the left, there is a sidebar with sections for College Overview, Program Details, and Academics. The Academics section is currently expanded, showing categories like Accommodation, Faculty, Infrastructure, Placements, and Social Life. A dropdown menu for 'Select Category' lists options such as General, SC, ST, OBC, and EWS. To the right, there is a 'Reviews' section with a 'Select Criteria' dropdown. Two reviews are visible: one for 'Accommodation' by 'Sid' with a rating of 8.6/10, and another for 'Stat' with a rating of 7.5/10. Both reviews include upvote and downvote buttons and a 'Report' button. The bottom right corner shows a user profile icon for 'Fili'.

Compare Programs

Any type of user can compare two programs on criteria like rankings, placements, ratings, cutoffs, etc.

The screenshot shows a comparison interface for two programs. At the top, there are tabs for "Home", "Forum", "Search", "Compare" (which is highlighted), "College Predictor", "Profile", and "Settings". Below the tabs, there are two program cards. The left card is for "IIT Delhi" and the right card is for "IIT Kanpur". Each card has a title bar with the program name and a green rounded rectangle containing the "Mathematics & Computing" and "Computer Science and Engineering" respectively. Both cards have a "Program Details" section with the following data:

Program Details	
Mode of Admission	
Through JEE Advanced	
Cutoffs	
SC	▼
28	45
Placement Statistics	
Median package	33.01 lakhs/year
College Pathfinder Rating	
8.5/10	
Rankings	
NIRF rankings 2023	2nd
QS rankings 2023	200th
Website	
https://www.mth.iitk.ac.in/	

News

Any type of user can view notifications and the latest news regarding upcoming exams and college admission events

The screenshot shows a news feed interface with a teal header bar containing a logo, navigation links (Home, Forum, Search, Compare, College Predictor, Profile, Settings), and a search bar. The main content area is titled "NEWS". It displays three news items:

- February, 2024**
Engineering Entrance Exams/ Admissions 2024: Applications Open
A thumbnail image showing a person working on a laptop with the text "Entrance Exams / Admissions Applications" overlaid.
- 7 February**
Engineering Entrance Exams/ Admissions 2024: Applications Open
A thumbnail image showing a person looking at a document with the text "JEE Main Recorded Responses" overlaid.
- 6 February**
JEE Main 2024: Check your Recorded Responses (Open)
A thumbnail image showing a document with several circles and the text "JEE Main Answer Key" overlaid.

Forums

College Seeking Students can ask questions, search for a topic, view Q&A by other users, like/dislike, and comment to any answer.

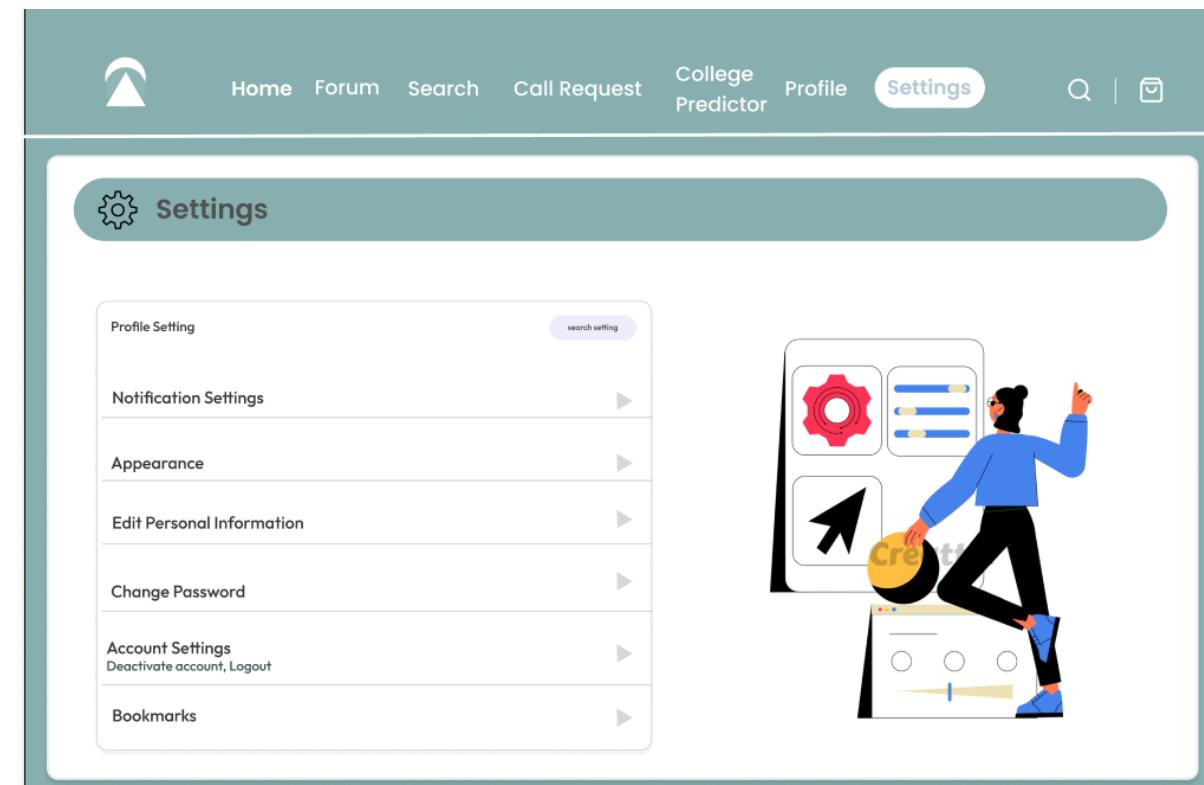
The screenshot shows the homepage of a forum application. At the top, there is a navigation bar with links for Home, Forum (which is currently selected), Search, Compare, College Predictor, Profile, Settings, and a search bar. Below the navigation bar is a decorative background featuring several overlapping speech bubbles in various colors (purple, red, orange, yellow, green, blue). A search bar with the placeholder "Search for topics...." is positioned above the main content area. The main content area displays a list of recent posts. The posts are organized into a table with columns for the post title, user, and activity details. The first post is titled "Ask Questions and Doubts" by "Username X". The second post is "Question 1" by "Username X". The third post is "Doubt" by "Username X". Each post row includes icons for comments, likes, and views, followed by the posting time ("2d") and a more options menu (three dots).

Sort by: Recent Activity ▾	All Posts	My post	Create new post	
	Comment	Like	View	Recent Activity
Ask Questions and Doubts Username X	0	0	0	2d
Question 1 Username X	0	0	0	2d
Doubt Username X	0	0	0	2d

The screenshot shows a detailed view of a post on the forum. At the top, there is a navigation bar with links for Home, Forum (selected), Search, Compare, College Predictor, Profile, Settings, and a search bar. Below the navigation bar is a decorative background featuring overlapping speech bubbles. The post itself has a dark header with the author's profile picture and the name "Username X". The title of the post is "Ask Questions and Doubts". The post content is a block of placeholder text: "Lorem ipsum dolor sit amet consectetur. Erat auctor a aliquam vel congue luctus. Leo diam cras neque mauris ac arcu elit ipsum dolor sit amet consectetur. Lorem ipsum dolor sit amet consectetur. Erat auctor a aliquam vel congue luctus. Leo diam cras neque mauris ac arcu elit ipsum dolor sit amet consectetur. Lorem ipsum dolor sit amet consectetur. Erat auctor a aliquam vel congue luctus. Leo diam cras neque mauris ac arcu elit ipsum dolor sit amet consectetur.". Below the post content are two small interaction icons: a comment bubble and a heart. To the right of the post, there is a sidebar with several interactive buttons: "Comment", "Following post", "7 Views", "0 Comments", and a "Similar Posts" section listing "General Doubt" and "Doubt 1". At the bottom of the post area, there is a form for writing a comment, with a "Publish" button.

Settings

The Settings page will allow us to personalize our Software experience, which includes the way we receive notifications, appearance(dark mode, light mode, etc), Edit? change personal information, change password, Account settings, including logout and deactivating accounts, and Bookmarks settings.



Admin Controls

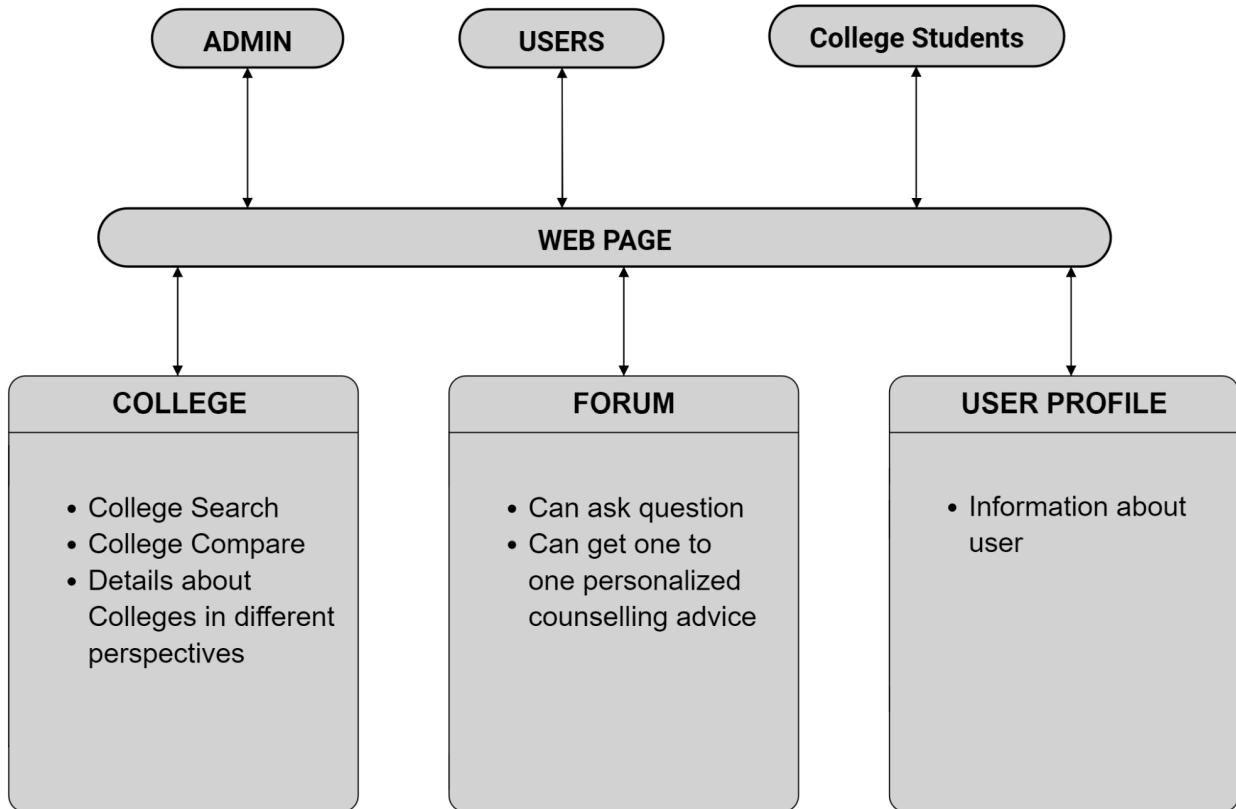
The Admin can block a user, delete their account, or delete any of their posts by navigating to their profile.

The screenshot shows a user profile page with the following elements:

- User Avatar:** A circular portrait of a man with a long white beard.
- Status:** A green button labeled "Verified".
- Action Buttons:** "Block User" and "Edit".
- Personal Information:**
 - Name: Sid
 - Email: siddxd@growthx.com
 - Phone Number: +91 49652845732
- Bookmarks:** A section containing a placeholder text block: "Lorem ipsum dolor sit amet consectetur. Erat auctor a aliquam vel congue luctus. Leo diam cras neque mauris ac arcu elit ipsum dolor sit amet consectetur."
- Professional Details:**
 - JEE Roll No.: XXXXXX
 - Email: siddxd@growthx.com
 - Coaching/Self Study
 - Coaching
 - Preferred Location: Mars
 - Branch Interested In: CSE (default)
 - Address: North Pole
- Manage Posts:** A dropdown menu showing four posts:
 - Doubt 1:** Placeholder text. Buttons: "Delete Post".
 - Doubt 2:** Placeholder text. Buttons: "Delete Post".
 - Doubt 3:** Placeholder text. Buttons: "Delete Post".
 - Doubt 4:** Placeholder text. Buttons: "Delete Post".
- Report:** A section titled "JEE-A Report" with a "Verified" status and a "View More Items" button.

2 Architecture Design

College Pathfinder is a web-based application implementing a Client-Server Architecture Model.



Why are we using this: We are using this model because we have a shared database that needs to be accessed from a range of locations. This setup ensures that all users can access the same up-to-date information, enabling features like college search, comparison, and forum interactions seamlessly across our platform.

Advantages:

- Distributed Servers: Our system's servers are spread across a network, enabling easy access to features like college search and forum interactions from anywhere.
- Centralized Services: Common functions, like printing, are centralized on the server, saving the need for individual implementations on each client.

Disadvantages:

- Single Point of Failure: Each service is vulnerable to outages or attacks.
- Unpredictable Performance: Performance can fluctuate due to network and system dependencies.

The problem in the non-functional requirements that we will have because of the fact that we are using the client-server approach are —

Performance:

Performance:

Network Latency: The client-server communication relies on network interactions, which can introduce latency, impacting the overall performance of the system.

Server Overload: Heavy client load can lead to server overload, affecting response times and performance.

Scalability:

Limited Horizontal Scalability: Scaling horizontally (adding more servers) may pose challenges, especially if the architecture doesn't support seamless distribution of workload.

Database Scalability: Scaling the database to accommodate growing data can be challenging without proper database design and management.

Maintainability:

Complexity: The client-server architecture can introduce complexity in maintenance, especially when updates or changes need to be synchronized between the client and server components.

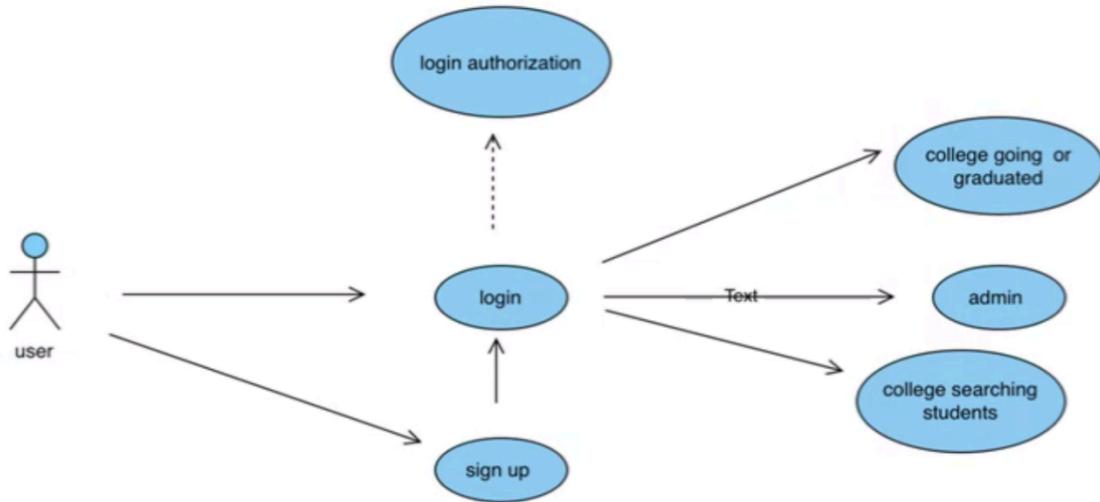
Version Compatibility: Ensuring backward and forward compatibility between client and server versions can be challenging.

3 Object Oriented Design

3.1 Use Case Diagrams

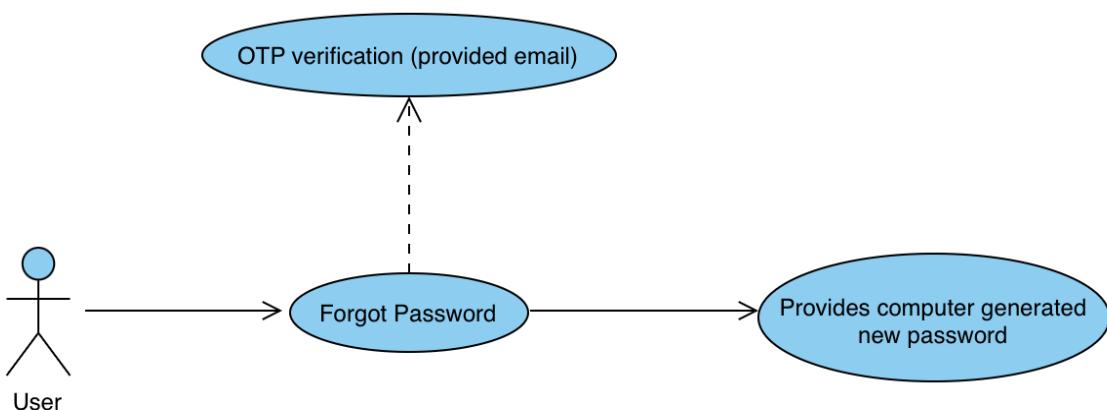
- **3.1.1 Use Case #1: Sign Up and Login**

Purpose - This use case covers login and signup for admins and students, whether currently attending college, already graduated, or currently enrolled.



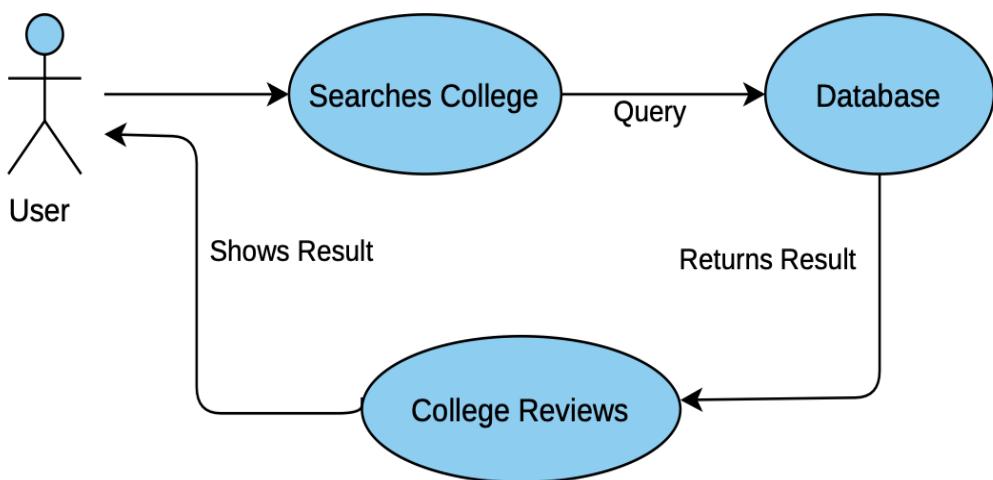
- **3.1.2 Use Case #2 Forgot Password**

Purpose – This use case ensures that users can change their password to securely re-establish access to their account.



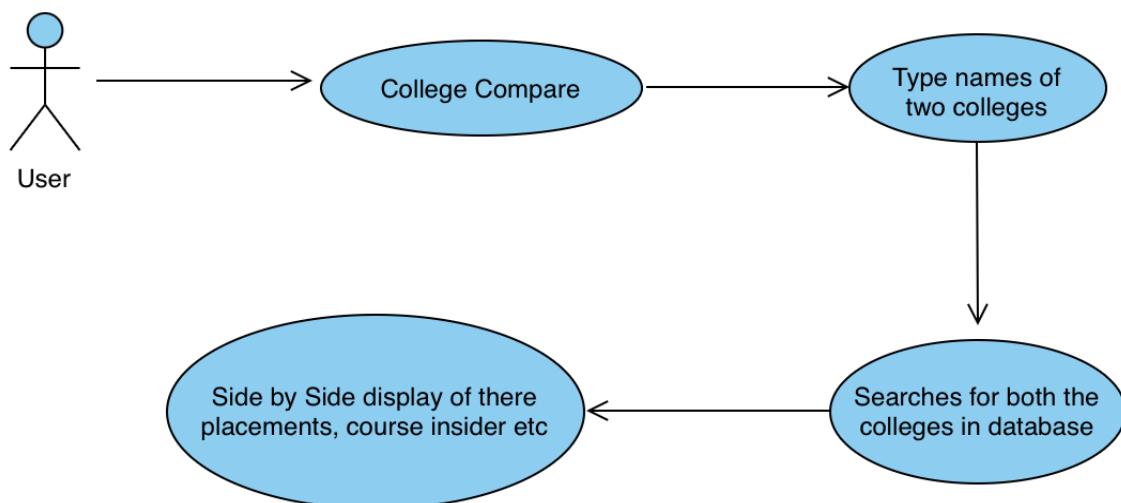
- 3.1.3 Use Case #3 Viewing Reviews

Purpose - This use case covers the purpose of viewing reviews which gives potential students insights about academic offerings, professors, and campus culture. It enables people to make knowledgeable selections and makes the process of selecting a college that fits their preferences and aspirations easier. +



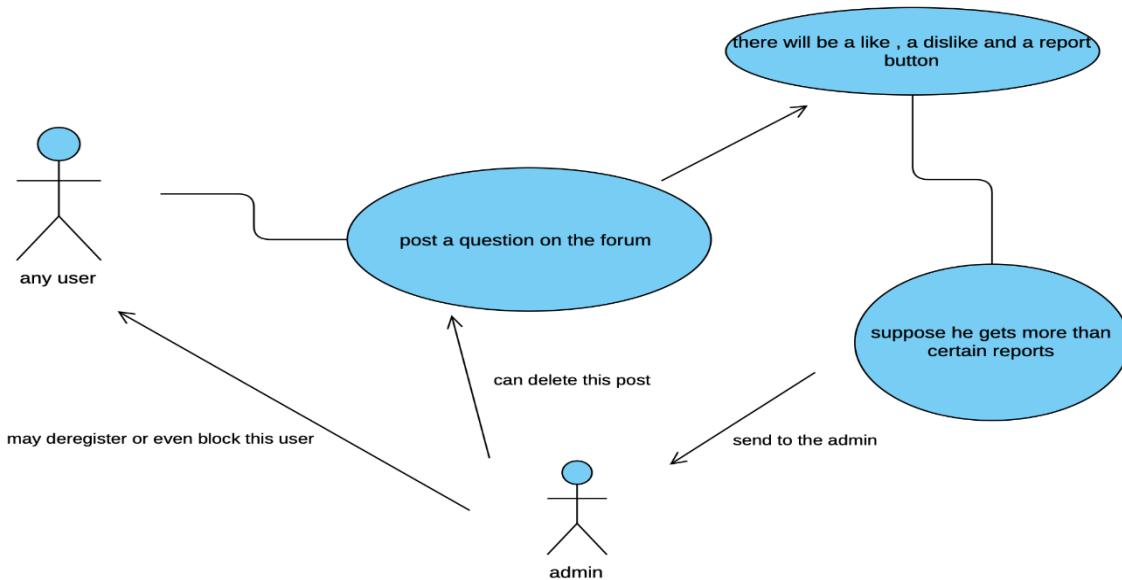
- 3.1.4 Use Case #4 College Compare

Purpose – This use case assists prospective college students in comparing two colleges directly, considering key factors to resolve various dilemmas and make more informed decisions



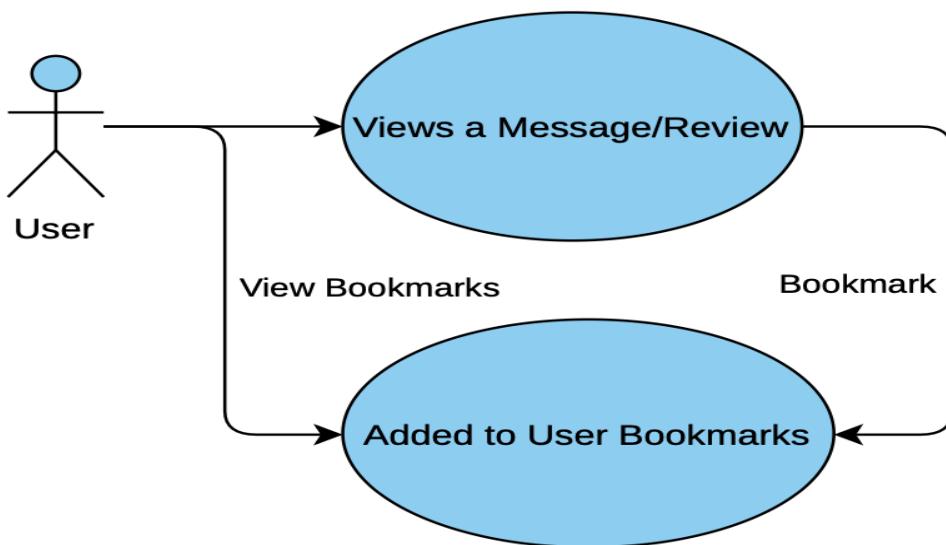
- 3.1.5 Use Case #5 Posting Question on Forum

Purpose - This use case covers the purpose of seeking help and sharing experiences by posting questions on a forum, creating a collaborative space for diverse perspectives and valuable insights. Any user can like, dislike, or even report questions.



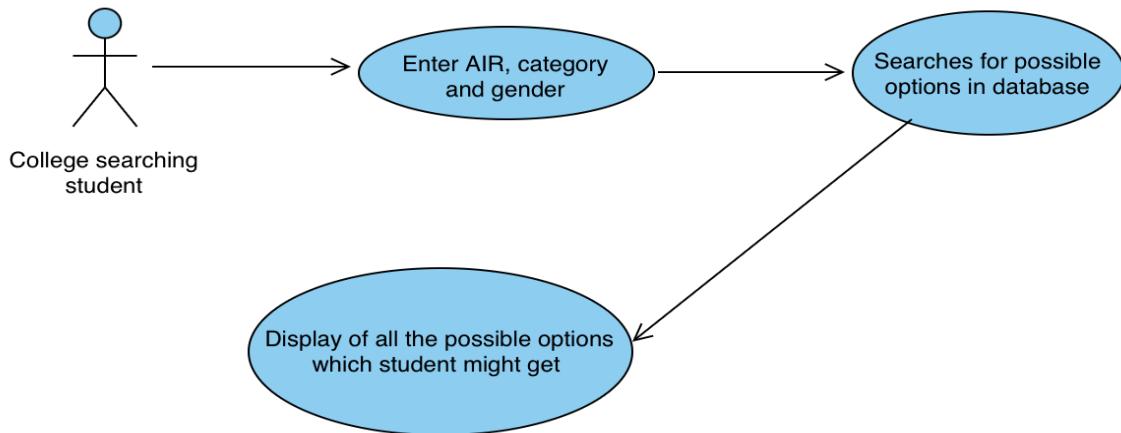
- 3.1.6 Use Case #6 Bookmarks

Purpose – This use case provides users the option to bookmark the messages, programs, and reviews for future references



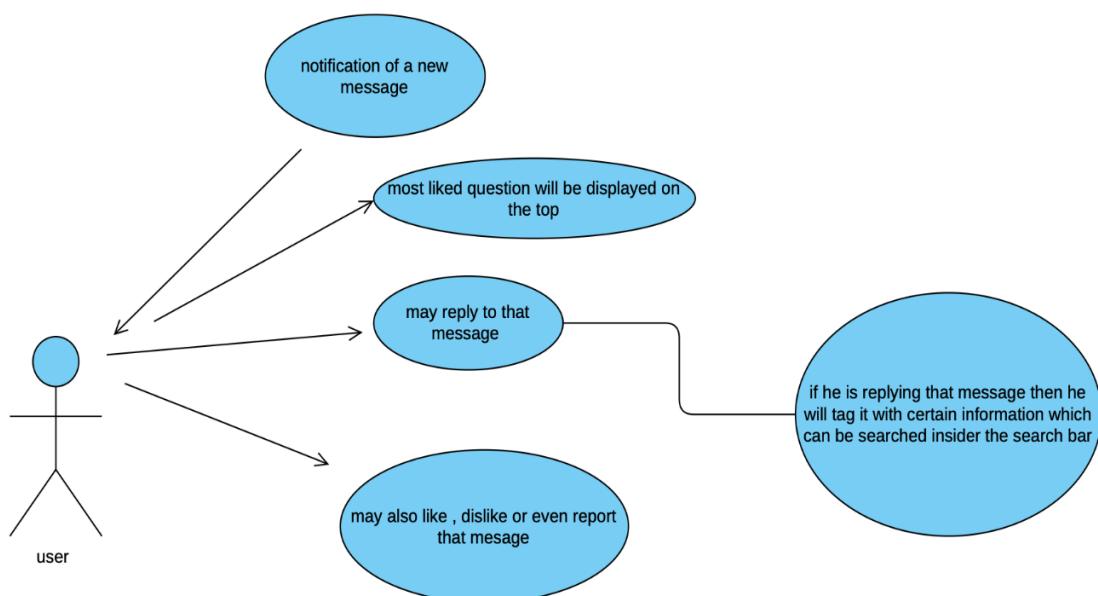
- **3.1.7 Use Case #7 Options Filter**

Purpose – This use case provides users the possible college options on the basis of AIR, category, and gender-based on previous occurrences.



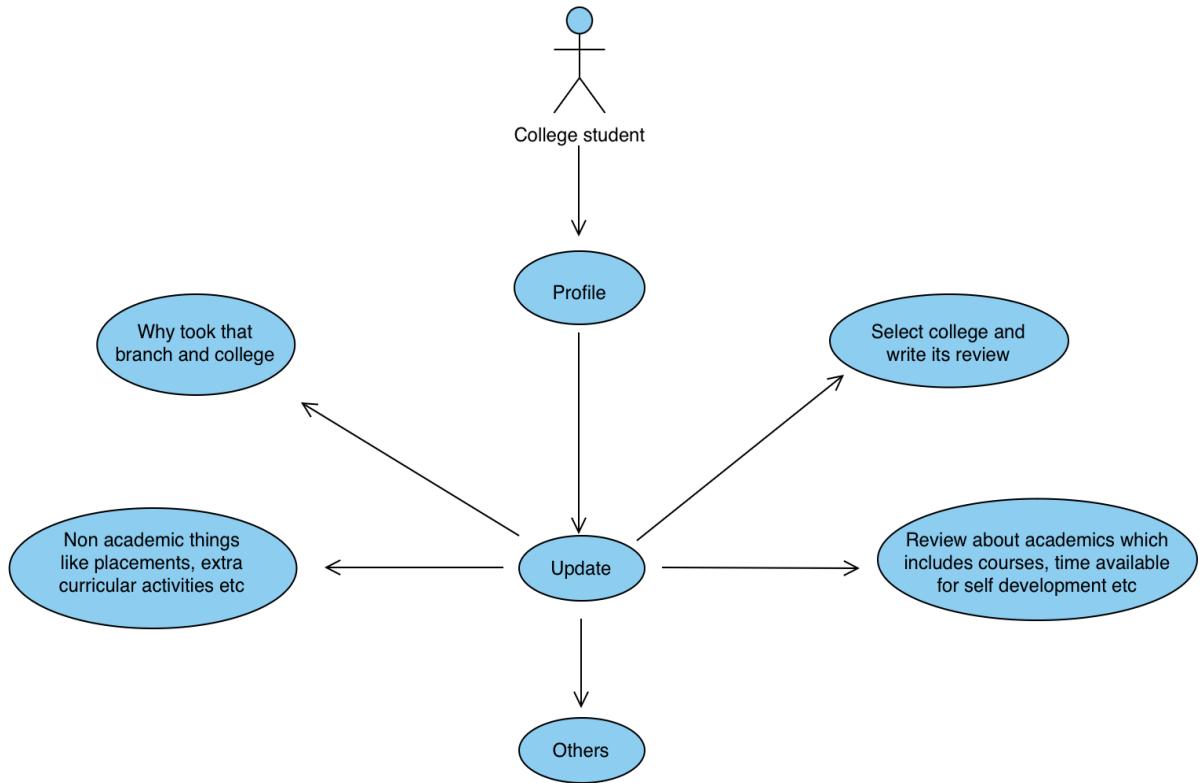
- **3.1.8 Use case #8 Replying to the messages**

Purpose – To reply to the message issued

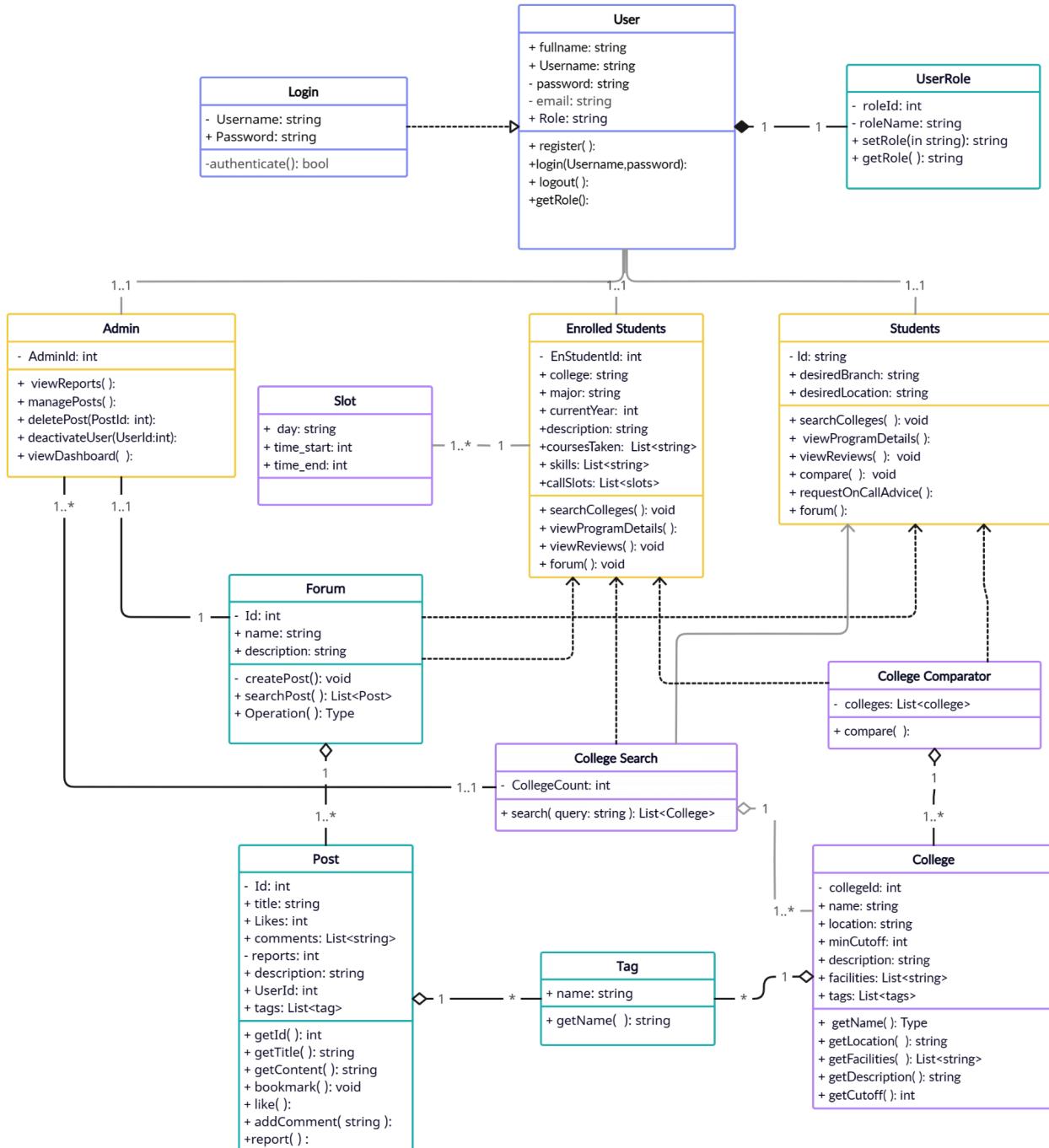


- 3.1.9 Use case #9 Updating profile

Purpose – College students can write about the college they are going

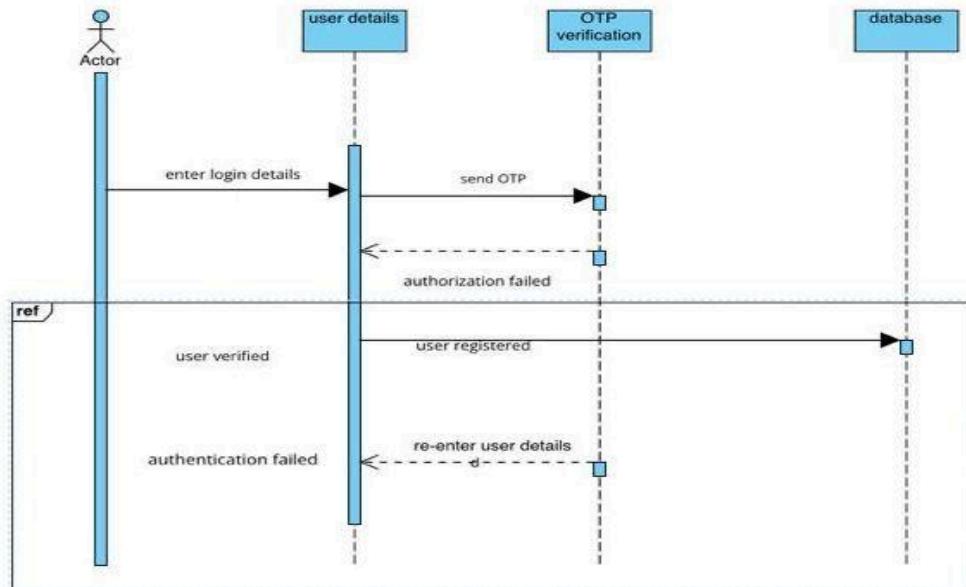


3.2 Class Diagrams

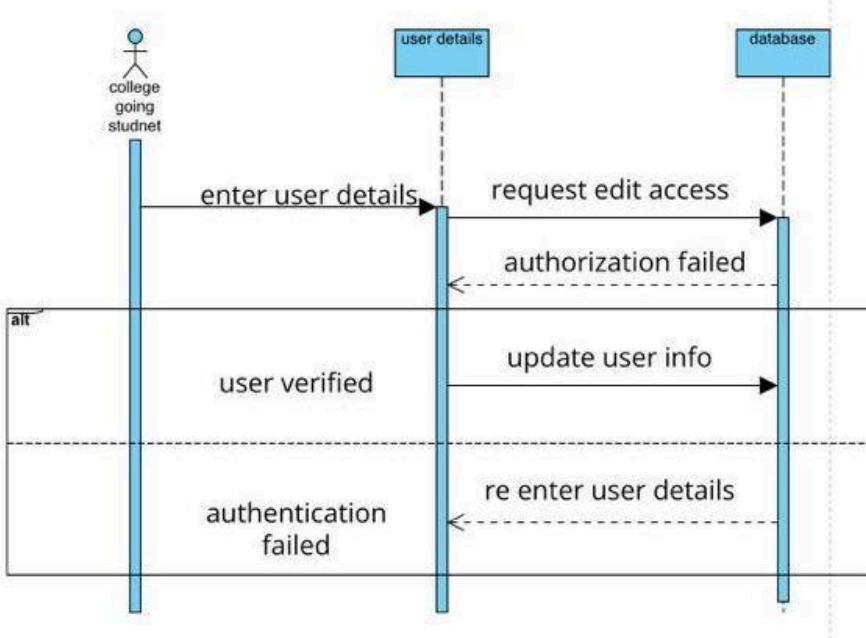


3.3 Sequence Diagrams

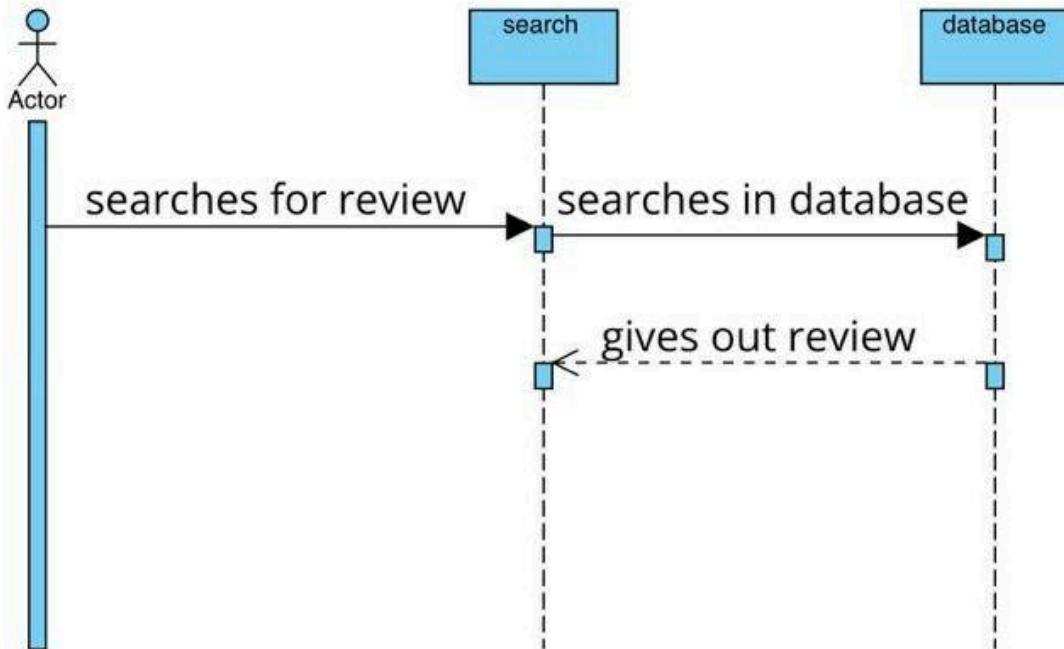
- 3.3.1 User login



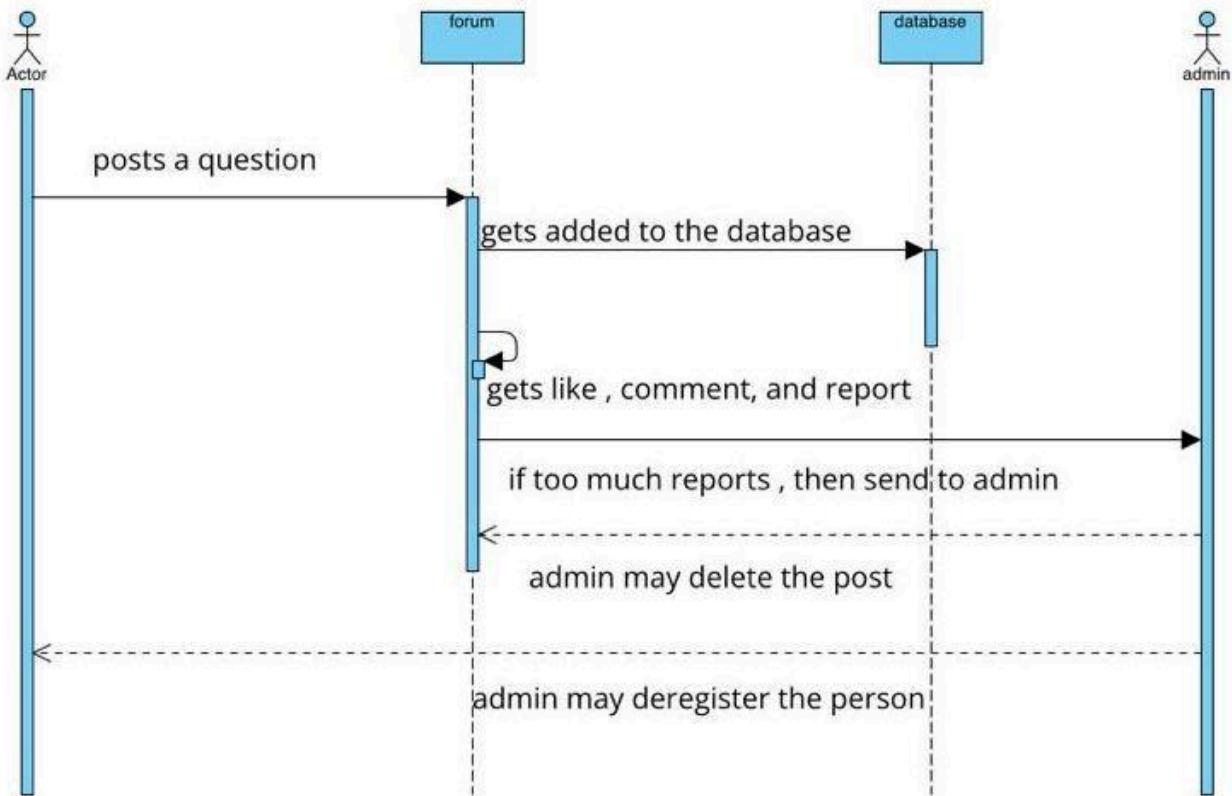
- 3.3.2 Edit profile



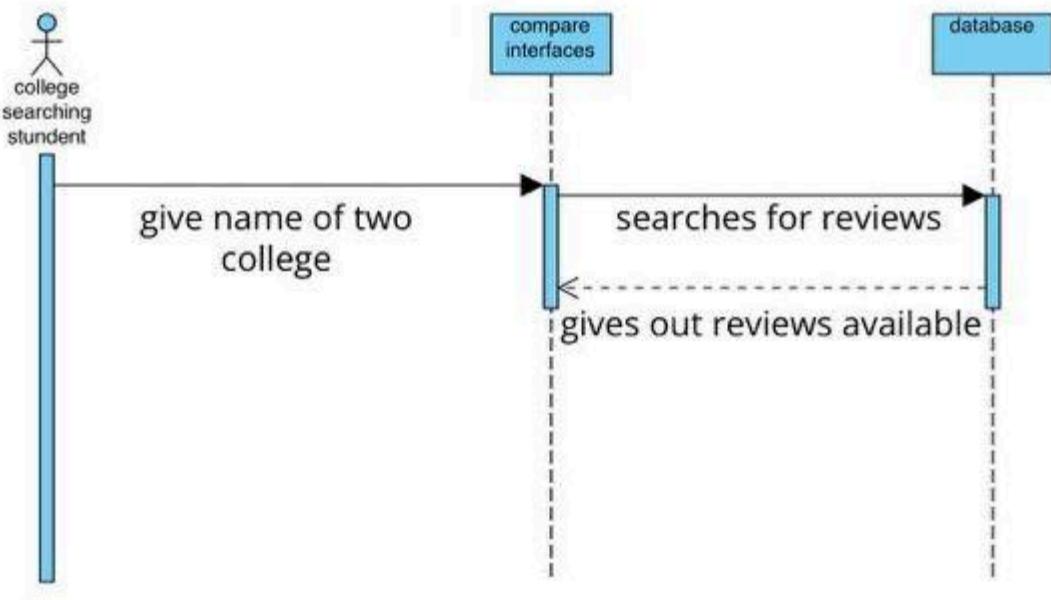
- 3.3.3 Searching for reviews after giving the name of the college and the branch



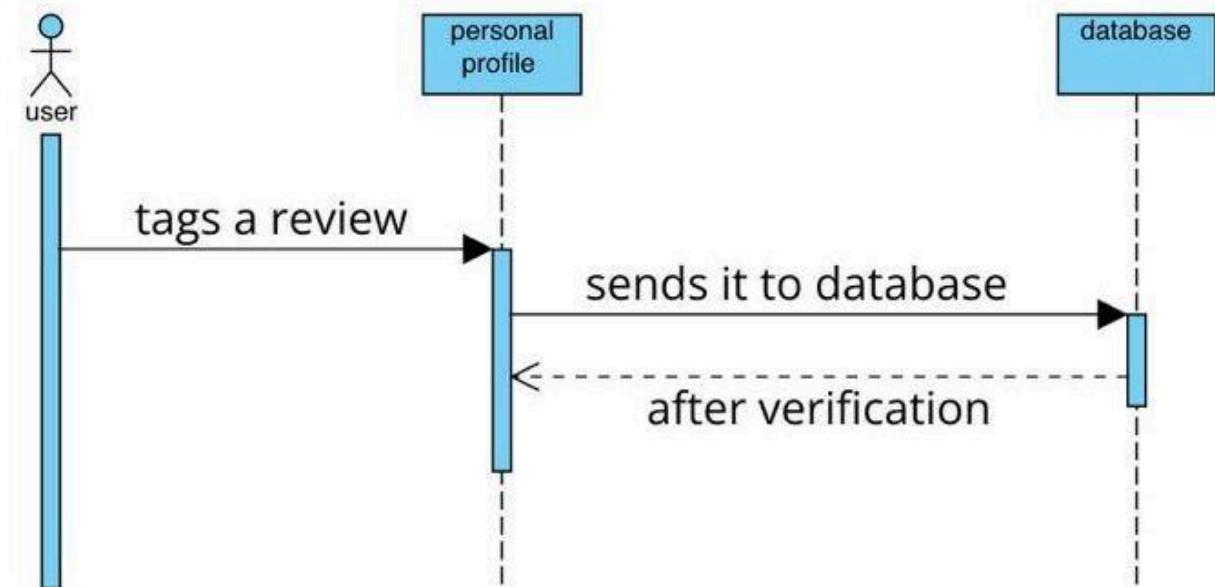
- 3.3.4 Posting questions on the forum and writing comments



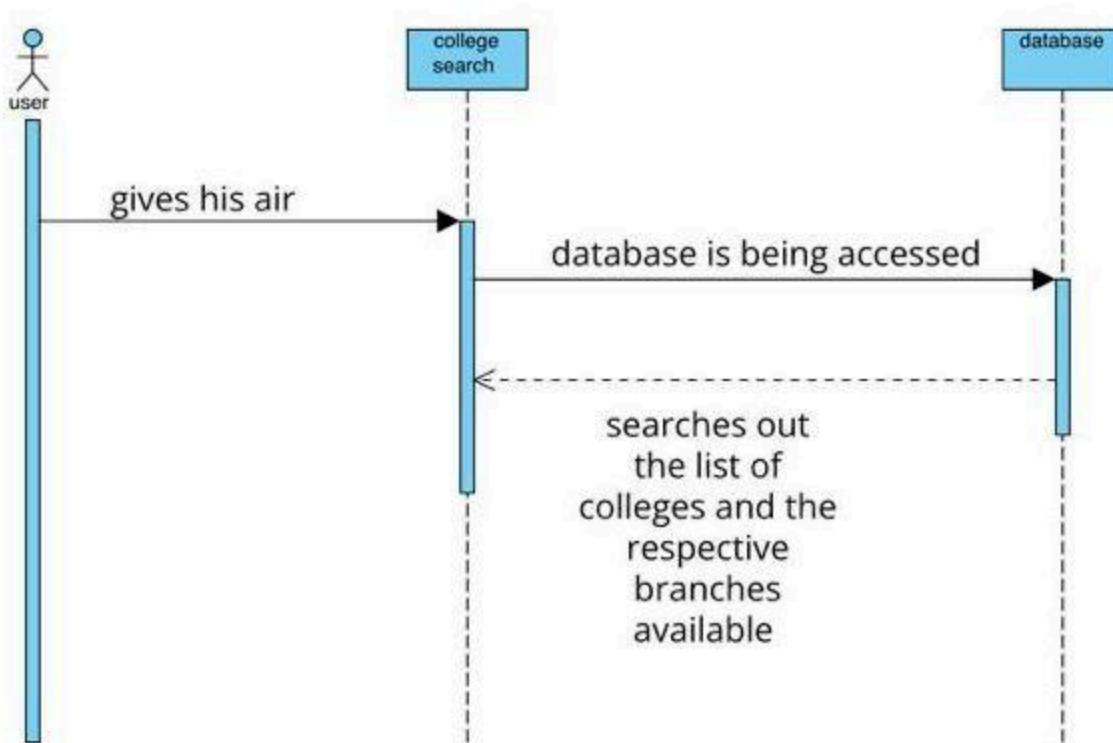
- 3.3.5 Comparing two different colleges



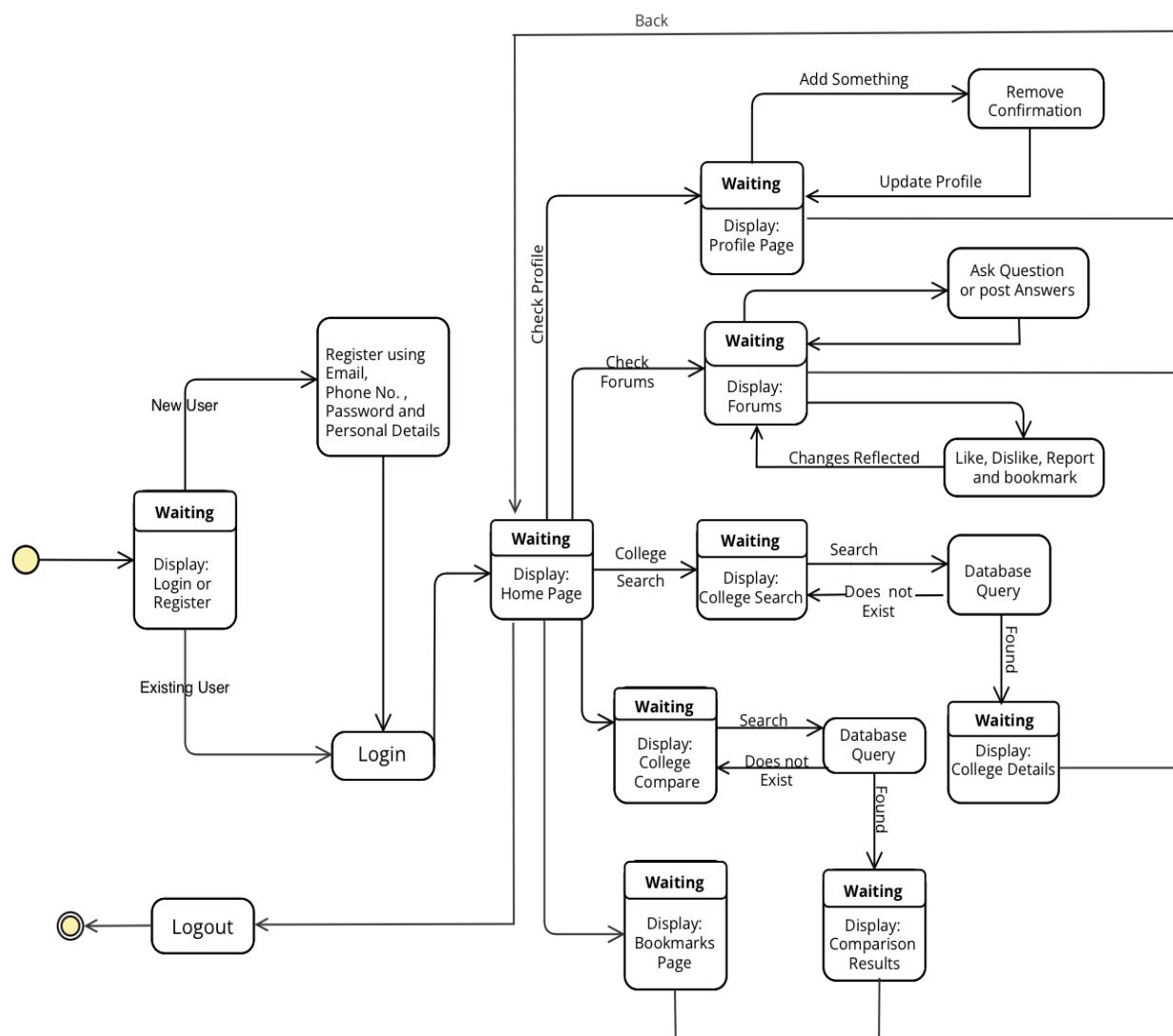
- 3.3.6 A person can bookmark whatever he finds useful by marking a tag to it



- 3.3.7 A person after giving his air, can search for the colleges available to him



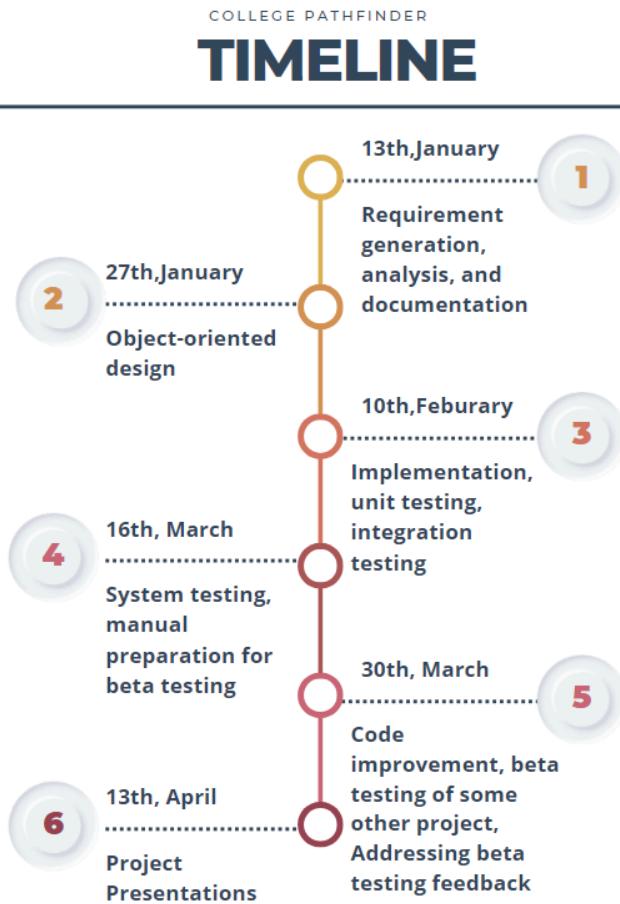
3.4 State diagram



4 Project Plan

Development timeline of College PathFinder:-

- 1) **13th January 2024 - 26th January 2024:** Documentation of Software Requirements Specification (SRS).
- 2) **27th January 2024 - 9th February 2024:** Documentation of Software Design Documentation.
- 3) **10th February 2024 - 15th March 2024:** Implementation and Testing:- Member-wise classification of tasks and the required software is given below. Major tasks, including writing the source code, designing the web page, making and testing the unit, integrating test cases, and implementing a secure firewall, would be done during this time. Testing would be done by members of respective functions.
- 4) **16th March 2024 - 29th March 2024:** System and Manual Beta Testing: Further necessary testing will be done this week. This would include testing the system as a developer and (Beta) testing as an End User.
- 5) **30th March 2024 - 12th April 2024:** Code Improvement and Beta Testing:- With the results of the previous testing sessions, improvements to the software would be made to increase speed, security, and overall quality.
- 6) **13th April 2024 - 19th April 2024:** Addressing Beta Testing Feedback and Delivering the Final Project Report



The following is the broad classification of the tasks, along with the names of team members responsible for it:-

- 1) **Front-End Design:** A front-end designer not only creates the aesthetics and wireframes for the product but also turns them into reality via code. Any component of the website that the end user can manipulate can be classified as Front End.

The members responsible for the Front End Development are:-

- a. Astitva Roy
- b. Ayushmaan Jay Singh
- c. Mayank Gupta
- d. Param Soni

The following software might be useful for Front End Development:-

- a. **React JS:** A free and open-source front-end JavaScript library for building user interfaces based on UI components.
- b. **JavaScript:** JavaScript, often abbreviated JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS.

- c. **HTML**: A standard markup language for documents designed to be displayed in a web browser.
- d. **CSS**: Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a markup language such as HTML.

2) Back End Development: It is everything the users don't see and contains behind-the-scenes activities that occur when performing any action on a website. It focuses primarily on databases, backend logic, APIs, and Servers.

The members responsible for back-end development are:-

- a. Kumar Shivam
- b. Anitej Jain
- c. Ayush Meena
- d. Manan Kumar
- e. Ayush Patel
- f. Prathamesh Baviskar

The following software might be useful for back-end development:-

- a. **JavaScript**: Can be used for both front- and back-end development.
- b. **MySQL**: MySQL is an open-source relational database management system.
- c. **Node.JS**: Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser.
- d. **MongoDB**: MongoDB is a free, open-source document-oriented database popular among web developers.

Appendix A - Group Log

S.No.	Date	Timing	Description
1	27/01/2024	3:30 pm - 4:15 pm	Studied the template given and distributed the work amongst the team members. Also distributed the team according to the development roles.
2	31/01/2024	4 pm - 7 pm	Online meeting with the group members and collaboratively proceeded with the sections of the design document.
3	3/01/2024	5:45 pm - 6:30 pm	Redistributed the remaining work and reviewed the progress of the design document.
4	8/01/2024	6:00 pm - 6:30 pm	Discussed the feasibility of various parameters with our mentor.
5	9/01/2024	2:00 pm - 4:00 pm	Added final touches to the document and assembled it.