PES UNIVERSITY, Bengaluru

Department of Computer Science and Engineering

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UE21CS341A - Software Engineering

SOFTWARE REQUIREMENTS SPECIFICATION

CAMPUS COMPASS : Navigating College Life Together

VERSION 1.0

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Table of Contents

5. System Features

Revision History

Name	Date	Reason for Change	Version

1. Introduction

1.1 Purpose

This Software Requirements Specification (SRS) document outlines the software requirements for the "Campus Compass: Navigating College Life Together" project. The software to be specified in this document is a comprehensive online platform designed to address the challenges faced by college students in various aspects of their academic journey and provide them with a peer to peer network between college students.

1.2 Intended Audience

This document is intended for various stakeholders involved in the "Campus Compass" project, including:

Development Team: Developers, designers, and testers responsible for building and validating the system.
Project Managers: Individuals overseeing the project's progress, ensuring it aligns with requirements and timelines.
Quality Assurance Team: Individuals responsible for ensuring the quality and compliance of the final product.
College Students: The primary users of the system, including undergraduate and graduate students from diverse disciplines.
Mentors: Experienced students or alumni willing to provide mentorship and guidance.

The rest of this SRS document is organized as follows:

Section 2 provides an overall description of the software, including its features, user classes, and operating environment.
Section 3 specifies the detailed software requirements, including functional and non-functional requirements.
Section 4 presets system models, including use case and entity-relationship diagrams.
Section 5 details external interface requirements, including user interfaces, software interfaces, and communication interfaces.

Section 6 covers other non-functional requirements such as security, performance, usability, and scalability.
Section 7 includes any appendices, glossaries, or revision history as needed.

1.3 Product Scope

The "Campus Compass: Navigating College Life Together" is a purpose-built online platform that aims to enhance the college experience for students within a specific institution. Its primary objectives and goals include:

Resource Sharing: Facilitating the exchange of educational resources, textbooks, and study materials among students, alleviating financial burdens associated with higher education.
Mentorship and Guidance: Creating a mentorship network connecting students with experienced peers who offer academic and career guidance.
Doubt Resolution: Providing a platform for students to post questions, receive responses from peers and mentors, and foster a cooperative learning environment.
Community Engagement: Serving as a hub for academic discussions, enabling students to seek clarification on doubts and access essential announcements.
Vital Announcements: Allow the institution and clubs to efficiently share important college announcements, academic deadlines, and events.

1.4 References

This SRS document refers to the following documents and sources:

1. Data Flow Diagram:
- Title: Data Flow Diagram for Airline Reservation System
- Source/Location: [https://123projectlab.com/dfd-for-airline-reservation-system/]
2. Use Case Diagram:
- Title: UML Use Case Diagram
- Source/Location: [https://www.javatpoint.com/uml-use-case-diagram]
3. SRS Document Reference:
- Title: Software Requirements Specification (SRS)

-Source/Location:[How to Write a Software Requirements Specification (SRS) | Perforce]

4. Software Requirement Analysis

- Title: Activities involved in Software Requirement Analysis
- Source/ Location: [Activities involved in Software Requirement Analysis - GeeksforGeeks]

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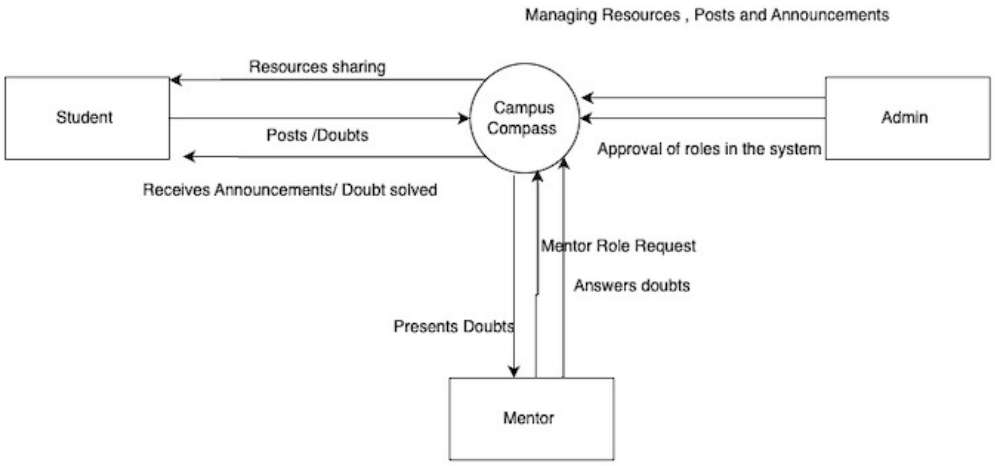
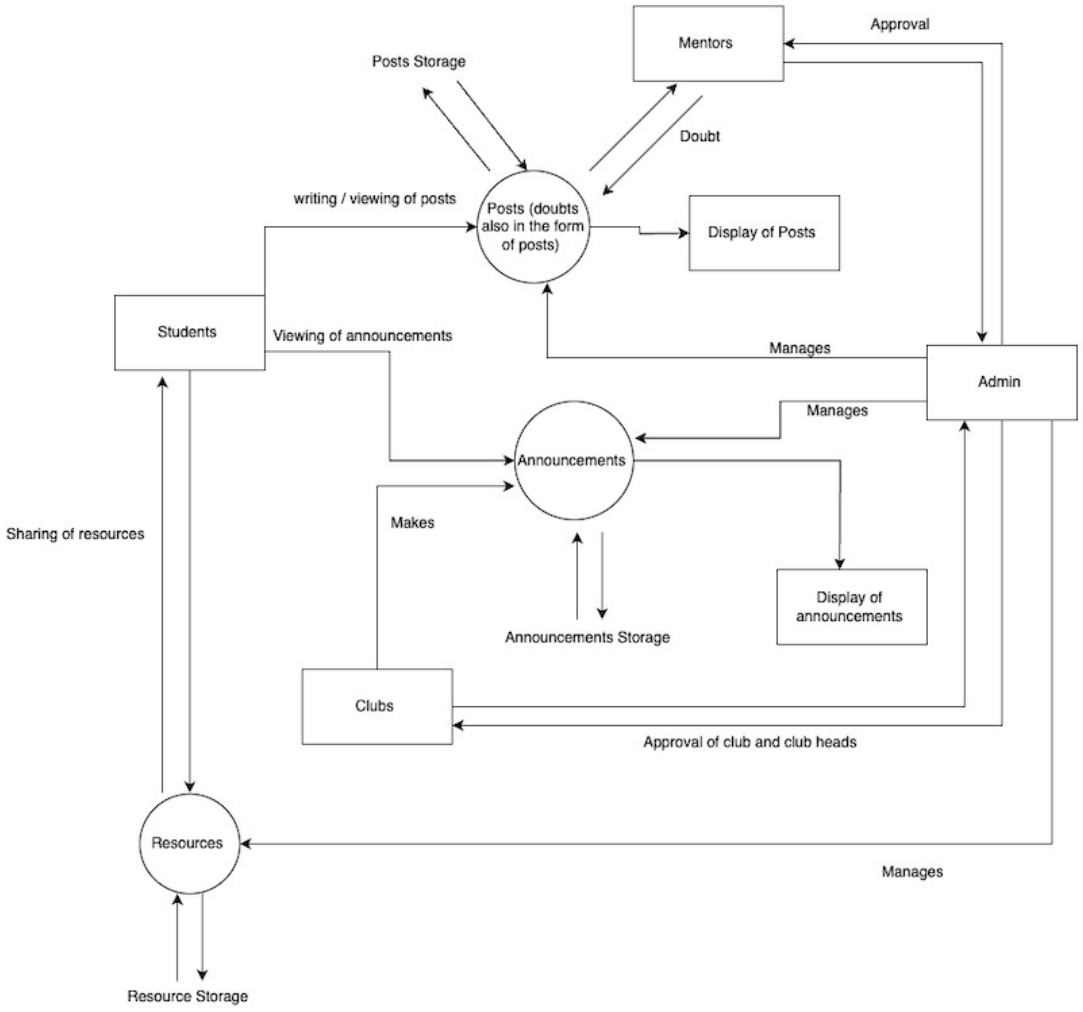
2. Overall Description

2.1 Product Perspective

The "Campus Compass: Navigating College Life Together" project is a self-contained online platform developed to address the challenges and needs of college students within a specific educational institution. It does not directly replace any existing systems but serves as a standalone solution dedicated to enhancing the college experience. The system operates within the context of a single educational institution and is not intended to be part of a larger product family.

System Context Diagram





2.2 Product Functions

The major functions of the Campus Compass system include:

User Registration and Authentication
User Profile Management
Resource Sharing
Mentorship and Guidance
Doubt Resolution

Community Engagement
Year-Based Roles (Student Hierarchy)
Vital Announcements
Admin Management
Mentor Section for Mentors
Mentor Approval System

Detailed specifications for each function are provided in Section 5.

2.3 User Classes and Characteristics

The following user classes are anticipated to use the Campus Compass system:

College Students

Frequency of Use: Regular
Characteristics: Undergraduate and graduate students from various disciplines seeking academic resources, mentorship, and community engagement.

Mentors:

Frequency of Use: Regular
Characteristics: Experienced students or alumni willing to provide mentorship and guidance to their peers.

Admin:

Frequency of Use: Regular
Characteristics: College using the platform to communicate with students and share important information.
User classes are differentiated based on their roles and interactions with the system.

Further details about user classes and their specific requirements are provided in Section 5.

2.4 Operating Environment

The Campus Compass system is designed to operate in the following environment:

Hardware Platform: The system is expected to run on standard hardware configurations commonly used by college students, including personal computers and laptops.

Operating System: The system should be compatible with major operating systems, including but not limited to Windows, macOS and Linux.

Software Components: Campus Compass will be a web-based application and should be compatible with standard web browsers such as Chrome, Safari, and Edge.

Coexistence: The system should coexist peacefully with common software applications installed on users' devices, and it should not conflict with any existing software.

2.5 Design and Implementation Constraints

The development of the Campus Compass system is subject to the following constraints:

Corporate and Regulatory Policies: The project must adhere to the corporate policies and regulatory requirements of the educational institution.

Hardware Limitations: The system should be designed to operate within typical hardware limitations, including timing and memory constraints.

Interfaces: It must integrate seamlessly with other applications and services, including database systems.

Security Considerations: Security measures must be implemented to protect user data and ensure data privacy.

Programming Standards: The system development should adhere to programming standards and conventions defined by the development team and the educational institution.

2.6 Assumptions and Dependencies

Assumptions:

It is assumed that users will have access to standard computing devices (computers and laptops) and internet connectivity to use the Campus Compass system.

The development team has access to the necessary hardware and software resources for development and testing.

Dependencies:

The project may depend on third-party components or services for certain functionalities (e.g., email services for user authentication).

External dependencies may include the availability of specific software libraries or APIs required for integration.

3. External Interface Requirements

3.1 User Interfaces

The user interface of the Campus Compass system is designed to be intuitive, user-friendly, and responsive to the needs of college students and mentors. The software product will utilize the Bootstrap 5.1.3 framework for design and styling elements. Bootstrap provides a set of standard design components and conventions that enhance user experience and consistency.

In order to maintain a consistent and user-friendly user interface across the software product, the following UI standards are to be followed:

3.1.1 *GUI Standards*

The user interface design standards for containers apply to all relevant software components requiring a user interface, ensuring a consistent and visually appealing design which is easy to navigate, including but not limited to:

Content sections
Forms and input screens
Data presentation
Dashboard elements
Dialog boxes and modal windows
Any other user-facing modules

3.1.2 *Screen Layout*

Screens will be organized to maximize usability and provide a clear flow of information. Key considerations include:

Content Hierarchy: Prioritize the arrangement of content and elements to reflect their importance and relevance to the user.
Readability: Text and visual elements should be presented in a manner that is easy to read, with attention to typography, spacing, and contrast.
Navigation: Navigation menus and elements should maintain a consistent location and behavior across screens.
Styling: The visual styling, including color schemes, typography, and button designs, should be consistent throughout the application.
Button Placement: Ensure that action buttons are appropriately positioned and labeled for clarity.
Form Design: Forms and input fields should be logically organized, with clear labels and validation feedback.
Confirmation Messages: When users complete actions or transactions, they should receive clear and timely confirmation messages.
Error Messages: Error messages should follow a standard format and provide guidance on how to address the issue.

3.1.3 *Standard Buttons and Functions*

Common interface elements such as navigation menus, buttons for posting posts, sharing resources, searching relevant information and accessing announcements will be present on relevant screens.

The color palette of the software product will adhere to Bootstrap's predefined color classes and other defined colors, ensuring a cohesive and visually appealing design.

Primary and success colors will be used for call-to-action buttons, links, and other key elements as specified in Bootstrap's standards.

Standard buttons within the software product will utilize Bootstrap's predefined button styles. These styles include primary, secondary, success, danger, and other button classes to indicate different actions.

The navigation bar of the software product will follow Bootstrap's navigation bar guidelines. This includes a responsive navigation menu with dropdowns .

3.1.4 *Keyboard Shortcuts*

Keyboard shortcuts enhance user productivity and are essential for users who prefer keyboard shortcuts for making posts. The following keyboard shortcuts will be implemented:

Text Styling

Bold: The user can apply bold formatting to selected text using the keyboard shortcut Ctrl + B (Windows).

Italic: The user can apply italic formatting to selected text using the keyboard shortcut Ctrl + I (Windows).

Underline: The user can underline selected text using the keyboard shortcut Ctrl + U (Windows).

Strikethrough: The user can apply strikethrough to selected text using the keyboard shortcut Ctrl + Shift + S (Windows).

Text Alignment

Left Alignment: The user can align text to the left using the keyboard shortcut Ctrl + L (Windows).

Center Alignment: The user can center-align text using the keyboard shortcut Ctrl + E (Windows).
Right Alignment: The user can right-align text using the keyboard shortcut Ctrl + R (Windows).
Justify Alignment: The user can justify-align text using the keyboard shortcut Ctrl + J (Windows).

Undo and Redo
Undo: The user can undo the previous action using the keyboard shortcut Ctrl + Z (Windows).
Redo: The user can redo the previously undone action using the keyboard shortcut Ctrl + Shift + Z (Windows).

Other Operations
Cut: The user can cut selected text or content using the keyboard shortcut Ctrl + X (Windows).
Copy: The user can copy selected text or content using the keyboard shortcut Ctrl + C (Windows).
Paste: The user can paste copied or cut content using the keyboard shortcut Ctrl + V (Windows).
Move Cursor to Start: The user can move the cursor to the beginning of the document or line using the keyboard shortcut Ctrl + Home (Windows).
Move Cursor to End: The user can move the cursor to the end of the document or line using the keyboard shortcut Ctrl + End (Windows).
Select All: The user can select all content within the rich text editor using the keyboard shortcut Ctrl + A (Windows).

3.1.5 *Error Message Display Standards*
Effective error messages are essential for providing feedback to users when issues or unexpected situations arise. The following error message display standards are to be followed in the software:
Error messages, warnings, and notifications will use Bootstrap's alert component. These alerts will adhere to Bootstrap's styling, including background color and text formatting.

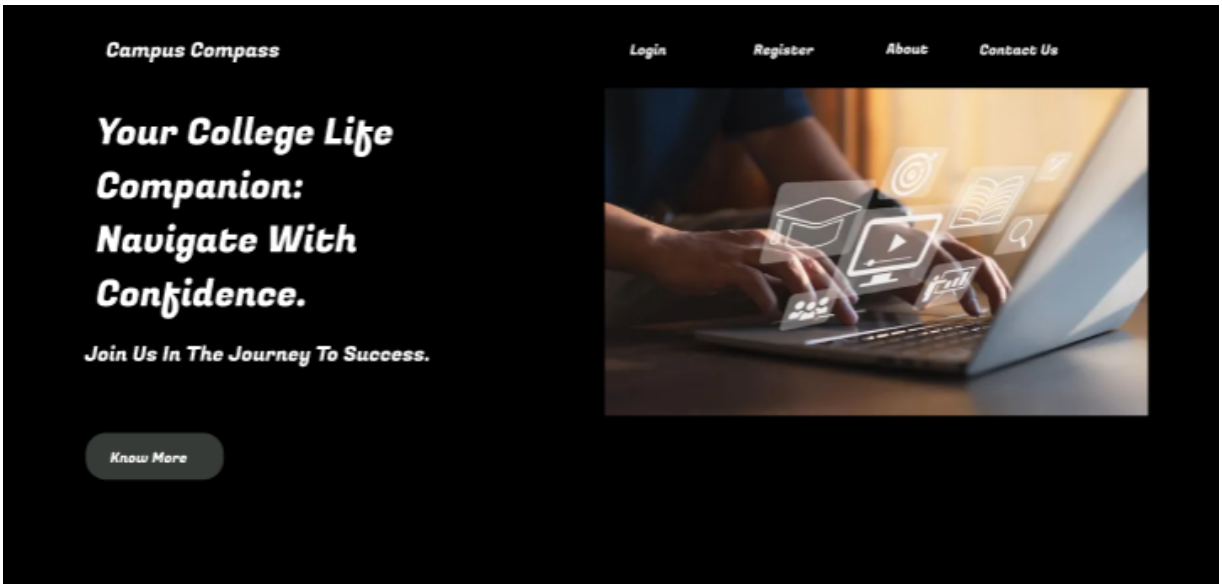
Message Format: Error messages will follow a consistent format, including a clear and descriptive error message text and an icon or visual indicator to draw attention.
Positioning: Error messages will be positioned prominently within the user interface, typically near the point of action or input that triggered the error. They will be clearly visible and stand out from other content.
Plain Language: Error messages will be presented in plain and user-friendly language, avoiding technical jargon or complex terminology.
Specificity: Messages will provide specific information about the nature of the error, what caused it, if applicable.
Color Coding: Different colors may be used to indicate the severity of errors, with red typically denoting critical errors and yellow for less critical issues.

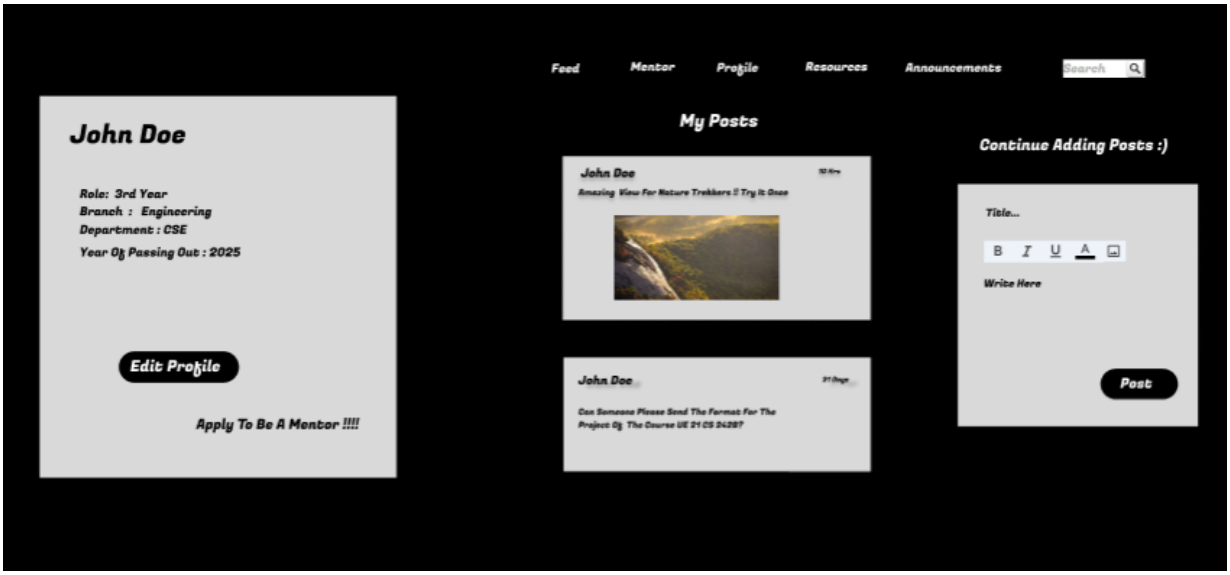
3.1.5.1 *Error Categories*

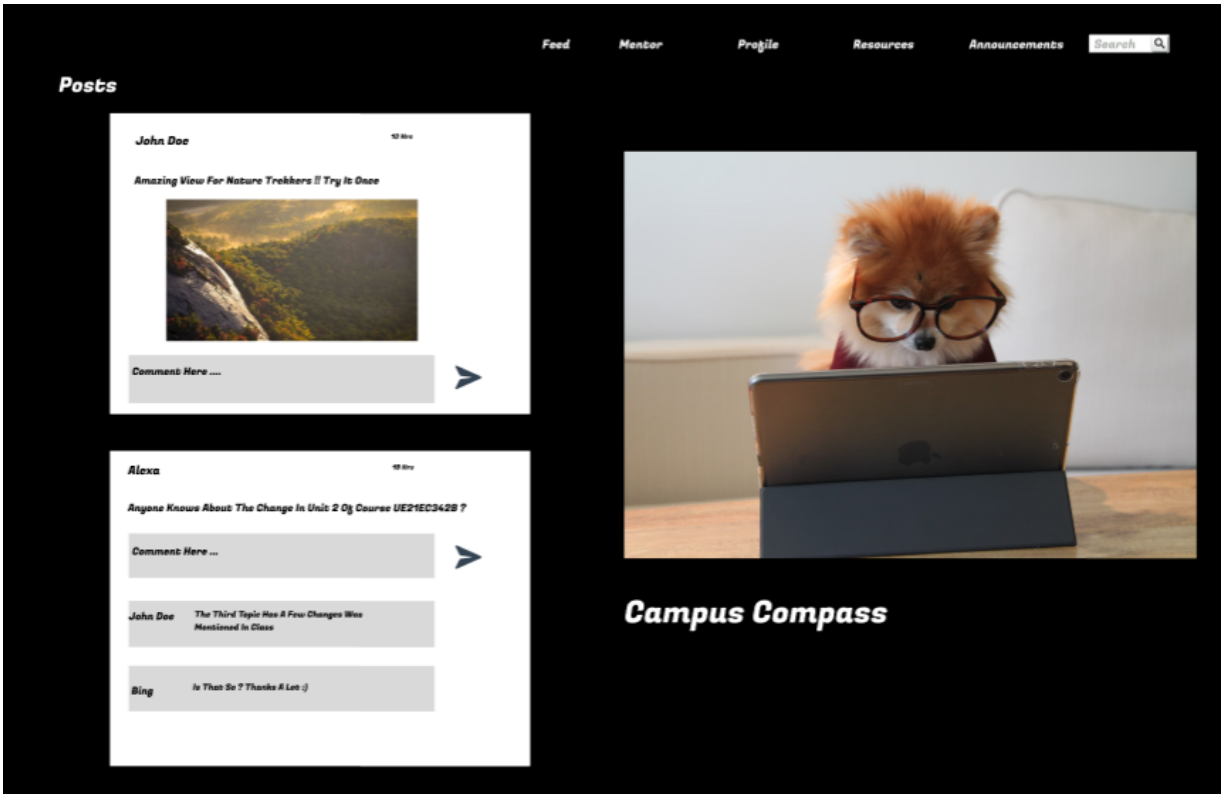
Error messages should be categorized based on the type of error. Categories may include:

Validation Errors: Messages that appear when a user submits a form with invalid or missing information.
System Errors: Messages related to technical issues, such as server errors or connectivity problems.
User Authentication Errors: Messages related to login or access permissions, such as incorrect credentials or access denial.
Data Entry Errors: Messages that guide users when entering data, such as formatting or character restrictions.

3.1.6 *Sample Screen Images*







3.2 Software Interfaces

The Campus Compass system will interact with various software components and external systems. The key software interfaces are as follows:

Database System: The system will communicate with a MySQL database to store and retrieve user data, resources, and system-related information. Specific SQL queries and data transfer protocols will be defined in the database documentation.

Web Browsers: Users will access the system through standard web browsers, and the system will be designed to be compatible with common browsers such as Chrome and Edge.

External APIs: External application programming interfaces (APIs) may be used for features such as email notifications or integrations with third-party services. API documentation will be referenced for integration.

Libraries and Frameworks: The development of the system may depend on various libraries and frameworks, such as Django for backend development and JavaScript libraries and Bootstrap framework for frontend functionality.

External Components: External components, if any, will be identified, and the data exchange mechanisms will be defined in accordance with the requirements of those components.

3.3 Communications Interfaces

The communication interfaces are as follows:

Data Exchange and Flow:
User requests will be processed by the Django framework, which will communicate with the MySQL database to retrieve or store data.
Bootstrap will ensure that the data is presented to users in a visually appealing and responsive manner.
Django's ORM system will be used to manage data and communicate with the database.

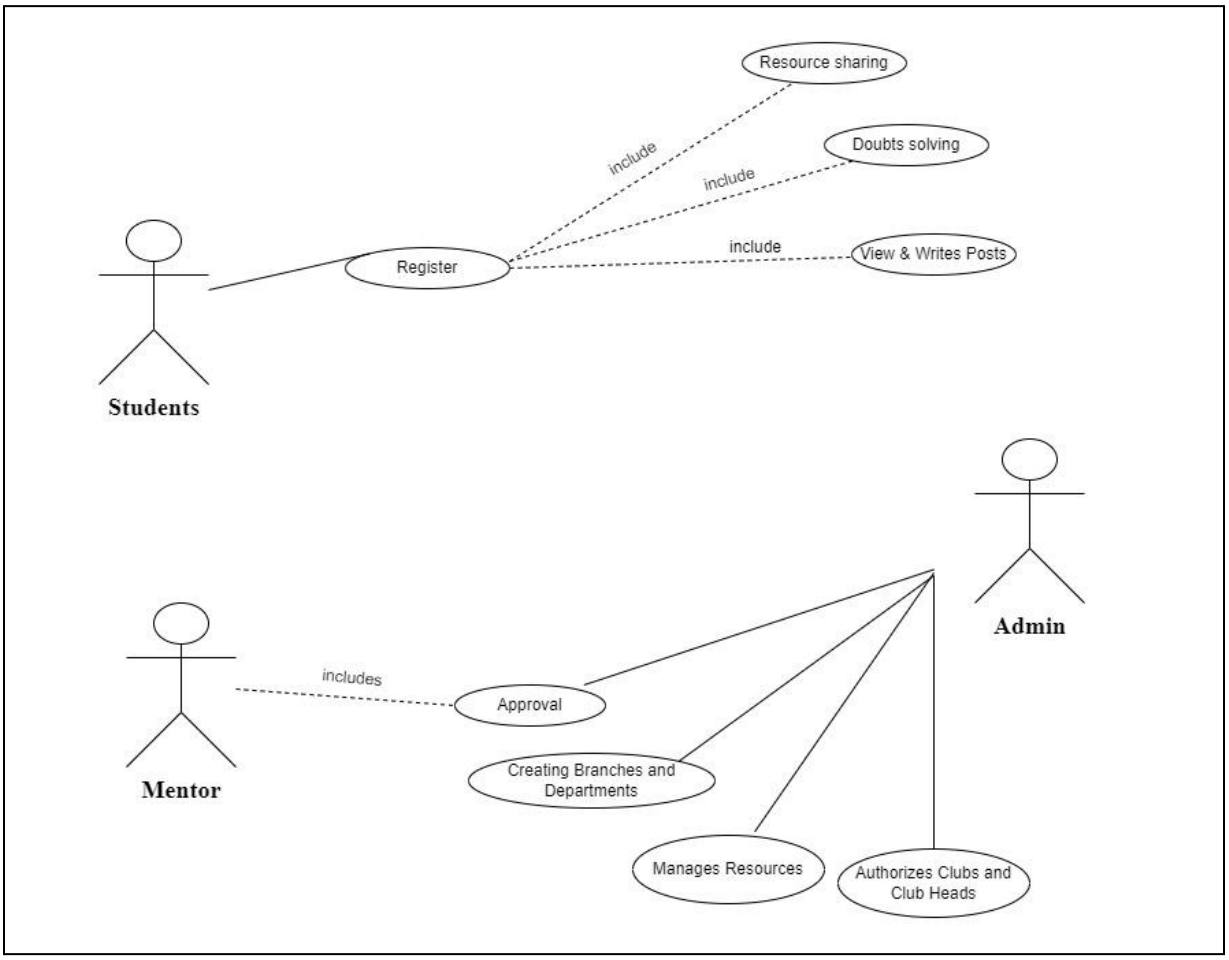
Email Communication: The system will use email for account registration and password reset. SMTP (Simple Mail Transfer Protocol) or email APIs will be used for email communication.

Web Server Protocols: The system will communicate with web servers using standard HTTP (Hypertext Transfer Protocol).

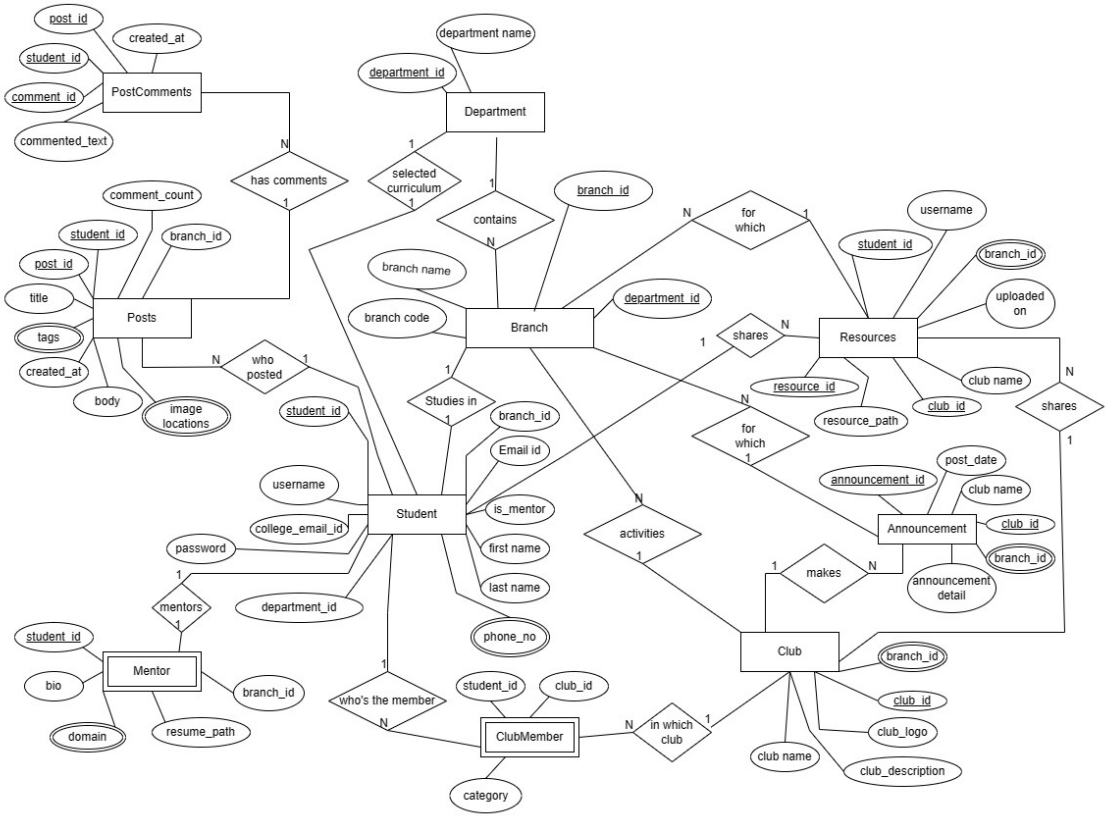
Data Transfer: Data transfer rates and synchronization mechanisms will be optimized to ensure efficient communication, especially for resource sharing and doubt resolution features.

4. Analysis Models

Use Case Diagram



ER Diagram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branch_id
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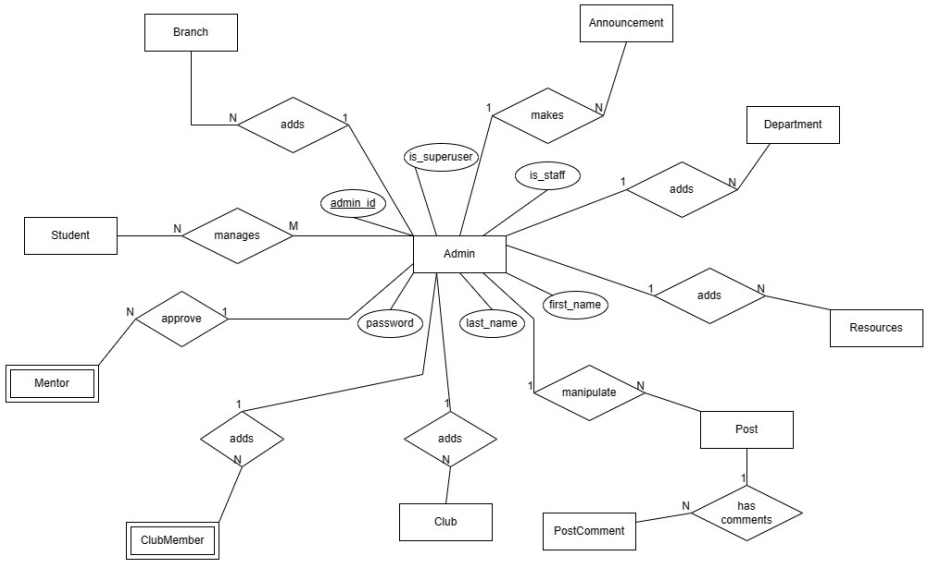
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Department
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Student
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Admin
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last_name
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Mentor
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manipulate
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Post
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adds
N
adds
N
1
1
ClubMember
Club
N
has comments
PostComment

5. System Features

5.1 *User Registration and Authentication*

5.1.1 *Description and Priority*

This feature involves the registration of new users and the authentication of existing users to access the Campus Compass system. User registration is of high priority as it is the first step in gaining access to the system.

5.1.2 *Stimulus/Response Sequences*

Stimulus:

A new user accesses the Campus Compass website.
The user selects the "Register" option.

Response:

The registration form is displayed.
The user enters their information, including name, email, password, and other required details.
The user submits the registration form.
The system validates the user's information.
If the information is valid, the user is registered, and their profile is created.
If there are validation errors, the system displays error messages and prompts the user to correct the information.
A confirmation link is sent to the user’s college email for verification of the account.

5.1.3 *Functional Requirements*

REQ-1: The system shall provide a user registration form that includes fields for the user's name, email address, password, and other required details provided in appendix B.

REQ-2: The system shall validate user-provided information, including email format, password strength, and unique email addresses.

REQ-3: Upon successful registration, the system shall create a user profile with the provided information.

REQ-4: The system shall securely store user credentials, including passwords, using encryption and hashing techniques to ensure data security.

REQ-5: Users shall be able to log in to the system using their registered email and password.

REQ-6: The system shall provide password recovery options, allowing users to reset their passwords in case of forgotten credentials.

REQ-7: For authentication, the system shall send a confirmation link in the college email id and user access to the system is granted only upon confirmation via a college email link.

REQ-8: Data should be protected against CSRF attacks.

5.2 *User Profile Management*

5.2.1 *Description and Priority*
User Profile Management allows users to edit and manage their profiles. This feature is of medium priority as it provides essential customization options for users.

5.2.2 *Stimulus/Response Sequences*

Stimulus:

A registered user logs in to the Campus Compass system.
The user accesses their profile settings.

Response:

The user is presented with their profile information.
The user can edit and update profile details, including their name, contact information, and profile picture.
After making changes, the user saves their updated profile.
The system validates and stores the updated profile information.
If there are validation errors, the system displays error messages and prompts the user to correct the information.

5.2.3 *Functional Requirements*

REQ-1: The system shall provide users with the ability to view and edit their profile information, including name, email, contact information, and profile picture.

REQ-2: Users shall be able to update their profile information and save the changes.

REQ-3: The system shall validate user-provided information during profile updates and display error messages for any validation errors.

REQ-4: Users shall have the option to upload, change, or remove their profile picture.

REQ-5: User profiles shall display their year or level of study, allowing other users to identify their status.

REQ-6: The system shall ensure data security by securely storing and managing user profile information.

REQ-7: Users will be able to control the privacy settings of their profile, including who can view their profile information.

5.3 *Resource Sharing*

5.3.1 *Description and Priority*

Resource Sharing allows users to upload, share, and access educational resources within the Campus Compass system. This feature is of high priority as it aligns with the core purpose of the system.

5.3.2 *Stimulus/Response Sequences*

Stimulus:

A user logs in to the Campus Compass system.
The user accesses the "Resource Sharing" section.
The user uploads an educational resource (e.g., a document or presentation).

Response:

The user is presented with the resource sharing interface.
The user can upload a resource by providing a title, description, and the resource file.
The system validates and stores the resource in the database.
Other users can browse and search for shared resources.
Users can view details, download, and rate shared resources.
Users can also report inappropriate or misleading resources.

5.3.3 *Functional Requirements*

REQ-1: The system shall provide an interface for users to upload educational resources, including titles and resource files (e.g., PDF).

REQ-2: Users shall have the ability to view, search, and filter shared resources by title, branch category, and rating.

REQ-3: Users shall be able to view resource details, including the uploader's name and title.

REQ-4: Users shall have the option to download shared resources.

5.4 *Mentorship and Guidance*

5.4.1 *Description and Priority*

Mentorship and Guidance is a feature that connects students with experienced mentors for academic and career support. This feature is of high priority as it contributes significantly to the system's educational objectives.

5.4.2 *Stimulus/Response Sequences*

Stimulus:

A user logs in to the Campus Compass system.
The user accesses the "Mentorship" section.
The user can request mentorship or browse available mentors.

Response:

The user is presented with the mentorship interface.
Users can browse a list of available mentors, including their profiles and areas of expertise.
Users can request mentorship from a specific mentor by connecting through whatsapp.
The system notifies the admin about the request and awaits their response.
Admins can accept or decline mentorship requests.

5.4.3 *Functional Requirements*

REQ-1: The system shall provide a directory of available mentors, including their names, profiles and areas of expertise.

REQ-2: The system should provide a mentor's whatsapp link for the users to connect and form mentor-mentee pairs.

REQ-3: The admin is notified of new mentor requests in the system.

5.5 *Doubt Resolution*

5.5.1 *Description and Priority*

Doubt Resolution is a feature that allows users to post academic questions or doubts and receive responses from peers and mentors. This feature is of high priority as it directly supports the educational objectives of the system.

5.5.2 *Stimulus/Response Sequences*

Stimulus:

A user logs in to the Campus Compass system.
The user accesses the "Posts" section.
The user posts an academic question or doubt.

Response:

The user is presented with the post interface.
Users can post academic questions or doubts, including a description and relevant context.
Other users, including peers and mentors, can view and respond to posted doubts.
Users can engage in discussions to resolve doubts by providing answers, explanations, and additional resources.

5.5.3 *Functional Requirements*

REQ-1: The system shall provide an interface for users to post academic questions or doubts, including a description, relevant details, and categorization.

REQ-2: Users shall be able to browse and search for posted doubts, categorized by branch.

REQ-3: Users, including peers and mentors, shall be able to view and respond to posted doubts with answers, explanations, and additional resources.

REQ-4: The system shall ensure the security and privacy of user interactions within the doubt resolution feature.

5.6 *Community Engagement*

5.6.1 *Description and Priority*

Community Engagement is a feature that fosters academic discussion and participation within the Campus Compass system. This feature is of high priority as it promotes a learning environment.

5.6.2 *Stimulus/Response Sequences*

Stimulus:

A user logs in to the Campus Compass system.
The user accesses the "Posts" section.
The user can participate in academic discussions, ask questions, and access vital announcements.
The user can access vital announcements and resources.

Response:

The user is presented with the posts interface.
Users can browse and search for academic discussions and questions, categorized by subjects or topics.
Users can participate in discussions by posting questions, comments, and answers.
Users can access and view vital announcements and updates from the educational institution.

The system provides a user-friendly and responsive interface for efficient engagement and communication.

5.6.3 *Functional Requirements*

REQ-1: The system shall provide an interface for users to participate in academic discussions, post questions, comments, and answers, and engage with the community.

REQ-2: Users shall be able to browse and search for academic discussions and questions, categorized by branch.

REQ-3: Users shall have access to vital announcements and updates from the educational institution.

REQ-4: Users shall be able to comment on discussions and questions to interact.

REQ-5: The system shall ensure the privacy and security of user interactions within the community engagement feature.

5.7 *Year-Based Roles (Student Hierarchy)*

5.7.1 *Description and Priority*
Year-Based Roles (Student Hierarchy) is a feature that establishes a structured hierarchy within the Campus Compass system, allowing senior students to take on mentorship roles to guide junior students. This feature is of medium priority as it enhances the educational experience and fosters community interaction.

5.7.2 *Stimulus/Response Sequences*

Stimulus:

A user logs in to the Campus Compass system.
The user accesses the "Student Hierarchy" section.

The user can view and participate in mentorship activities within the hierarchy.

Response:

The user is presented with the student hierarchy interface.
The system identifies users' academic levels (e.g., first year, second year, 3rd year, 4th year).
Senior students are assigned mentorship roles, enabling them to provide guidance and support to junior students.
Users can engage in discussions specific to their academic levels.
The system maintains a structured hierarchy to ensure a productive and nurturing environment.

5.7.3 *Functional Requirements*

REQ-1: The system shall identify users' academic levels based on their year of passing out.

REQ-2: Senior students shall be assigned mentorship roles, allowing them to provide guidance and support to junior students.

REQ-3: Users shall have access to discussion forums specific to their academic levels and college related events .

REQ-4: The system shall maintain a structured hierarchy to ensure a productive and nurturing environment.

REQ-5: The system shall ensure the privacy and security of user interactions and information within the student hierarchy.

5.8 *Vital Announcements*

5.8.1 *Description and Priority*

Vital Announcements is a feature that enables educational institutions to share important announcements, academic deadlines, and upcoming events within the Campus Compass system. This feature is of high priority as it ensures that students are well-informed about essential updates and activities.

5.8.2 *Stimulus/Response Sequences*

Stimulus:

An educational institution, represented by an administrator, logs in to the Campus Compass system.
The administrator accesses the "Announcements" section.
The administrator can create, edit, or delete announcements.

Response:

The administrator is presented with the announcements interface.
Administrators and Club heads can create new announcements, including a title and description.
Announcements are displayed to all users upon logging in to the system.
Users can view and access details of each announcement.

5.8.3 *Functional Requirements*

REQ-1: The system shall provide an interface for educational institution administrators to create, edit, and delete vital announcements.

REQ-2: Announcements shall include a title and description.

REQ-3: Announcements shall be displayed to all users upon logging into the system.

REQ-4: Users shall be able to access details of each announcement, including associated dates.

REQ-5: The system shall ensure that only authorized administrators and club heads can create or edit announcements.

REQ-6: The system shall ensure the privacy and security of user interactions and information within the announcements feature.

5.9 *Admin Management*

5.9.1 *Description and Priority*

Admin has many features namely to add new branches and departments to the system , to manage user roles and permissions, to approve or reject mentor applications , to create and publish announcements , to manage user accounts, including creating, modifying, or deactivating accounts. It is of high priority as it controls the overall system administration.

5.9.2 *Stimulus/Response Sequences*

Stimulus:

Admin logins from the Admin dashboard.
Admin can access the following sub-features:
Add Branches and Departments
User Role Management
Mentor Approval
Make Announcements
Manage User Accounts
The system responds to the admin's selection of each sub-feature accordingly.

Response:

For the following sub-features, Admin gets the following responses:

Add Branches and Departments

Admin provides branch/department details and the system adds the new branch/department to the database.

User Role Management

Admin selects a user and modifies their role and permissions and the system updates the user's role and permissions.

Mentor Approval

Admin reviews mentor applications and approves or rejects mentor applications and the system updates the status of mentor applications in the database.

Make Announcements

Admin enters announcement details and publishes the announcement the system displays the announcement to all users.

Manage User Accounts

Admin selects a user account to edit and can modify user account details or deactivate the account and the system updates the user account as per admin's actions.

5.9.3 *Functional Requirements*

Add Branches and Departments

REQ-1: The system should provide a form for entering branch/department details.

REQ-2: The system should validate the information provided by the admin.

REQ-3: If the information is valid, the system should add the new branch/department to the database.

REQ-4: If the information is invalid, the system should display an error message .

User Role Management

REQ-1: The system should provide a user role management interface.

REQ-2: The system should allow the admin to select a user and modify their role and permissions.

REQ-3:The system should update the user's role and permissions in the database.

Mentor Approval

REQ-1: The system should provide a list of mentor applications.

REQ-2: The system should allow the admin to review and approve/reject applications.

REQ-3: The system should update the status of mentor applications in the database.

Make Announcements

REQ-1: The system should provide an announcement creation interface.

REQ-2: The system should allow the admin to enter announcement details.

REQ-3: The system should publish the announcement to all users.

Manage User Accounts

REQ-1: The system should provide a user account management interface.

REQ-2: The system should allow the admin to select a user account and edit their details.

REQ-3: The system should update the user account in the database based on the admin's actions.

5.10 *Mentor Section for Mentors*

5.10.1 *Description and Priority*

The Mentor Section feature allows mentors within the Campus Compass system to create individual mentor profiles that include their resume, domain of expertise, and contact information. This feature is of medium priority as it enhances the mentorship experience within the system.

5.10.2 *Stimulus/Response Sequences*

Stimulus:

A mentor logs in to the Campus Compass system.
The mentor accesses their profile settings.
The mentor enters or updates their resume, domain of expertise, and contact information.

Response:

The mentor is presented with their profile settings interface.
The mentor can enter and update their resume, including educational background, work experience, and achievements.
The mentor specifies their domain of expertise or specialization.
The mentor can enter and manage their contact information, such as email or phone number.

5.10.3 *Functional Requirements*

REQ-1: Mentors shall have the ability to manage their individual profiles within the system.

REQ-2: Mentor profiles shall include a section for resumes, allowing mentors to provide details of their educational and professional background.

REQ-3: Mentor profiles shall include a field for specifying their domain of expertise or specialization.

REQ-4: Mentor profiles shall include contact information fields, allowing mentors to share their email address or other relevant contact details.

REQ-5: Mentors shall be able to update and maintain their profiles over time.

REQ-6: The system shall ensure the privacy and security of mentor contact information.

REQ-7: Users seeking mentorship shall be able to view mentor profiles, including resumes, domains of expertise, and contact information.

REQ-8: The system shall allow users to initiate contact with mentors through the provided contact information.

5.11 *Mentor Approval System*

5.11.1 *Description and Priority*

The Mentor Approval System is a feature designed to manage the approval process for individuals seeking mentorship roles within the Campus Compass system. This feature is of high priority as it ensures that mentors meet the required criteria before they can provide guidance and support to other students.

5.11.2 *Stimulus/Response Sequences*

Stimulus:

A user applies to become a mentor within the system.
The system identifies mentorship applications and reviews them.
The system approves or rejects mentorship applications.

Response:

The system provides a user-friendly mentorship application interface.
Mentorship applications are collected and reviewed by administrators or designated mentors.
The system checks for the fulfillment of mentorship criteria, such as academic standing or experience.
Approved mentorship applications are granted mentor status, while rejected applications are communicated to applicants with reasons.

5.11.3 *Functional Requirements*

REQ-1: The system shall provide a mentorship application interface for users interested in becoming mentors.

REQ-2: Mentorship applications shall collect information such as resume, experience, and domain of expertise.

REQ-3: The system shall include an approval process to review and evaluate mentorship applications.

REQ-4: The system shall check for fulfillment of mentorship criteria, which may include academic standing, experience, or other relevant factors.

REQ-5: Approved mentors shall be granted mentor status, allowing them to provide guidance and support to other students.

REQ-6: The system shall ensure the privacy and security of mentorship application data.

6. Other Nonfunctional Requirements

6.1 Performance Requirements

Performance requirements for the Campus Compass system according to the functional features are as follows:

User Registration and Authentication

Performance Requirement

1. The registration process should be completed within 5 minutes or less, even during peak usage.
2. User authentication should be completed in under 24hrs.

Rationale: These requirements ensure that user registration and authentication processes are quick and responsive, contributing to a positive user experience.

User Profile Management

Performance Requirement

1. User profile updates, including personal information and preferences, should be processed within 120 seconds.

Rationale: This requirement ensures that users can efficiently manage their profiles.

Resource Sharing

Performance Requirement

1. Resource uploads and downloads should be completed within 120 seconds for files up to 10 MB.
2. The system should support concurrent resource sharing by at least 100 users without performance degradation.

Rationale: These requirements ensure efficient resource sharing and accommodate concurrent user activities.

Mentorship and Guidance

Performance Requirement

1. Mentorship requests should be processed within a week.

Rationale: These requirements ensure timely mentorship interactions.

Doubt Resolution

Performance Requirement

1. Doubt resolution queries should be answered within 24 hours or more.

2. The system should support concurrent doubt resolution sessions for at least 200 users without performance degradation.

Rationale: These requirements ensure efficient doubt resolution and support for multiple users.

Community Engagement

Performance Requirement

1. Real-time community discussions and forum posts should have a response time of 120 seconds or less.
2. The system should support at least 200 concurrent users in community discussions without performance degradation.

Rationale: These requirements ensure responsive community engagement and discussions.

Year-Based Roles (Student Hierarchy)

Performance Requirement

1. User role assignments based on year or level of study should be updated within 120 seconds.

Rationale: This requirement ensures efficient management of year-based user roles.

Vital Announcements

Performance Requirement

1. Vital announcements should be delivered to users in real-time, with a maximum delay of 120 seconds.

Rationale: This requirement ensures timely delivery of important announcements.

Admin Management

Performance Requirement

1. The system should respond to admin actions within 120 seconds for actions like user role modification, mentor approval, and user account management.
2. Announcement creation and publication should take no more than 120 seconds.
3. The system should be capable of handling a growing number of branches and departments.
4. The system should support a minimum of 10 concurrent admin users performing different admin tasks without significant performance degradation.

Rationale: These requirements ensure efficient admin management.

Mentor Section for Mentors

1. Mentors' profile updates should be processed within 120 seconds.

Rationale: This requirement ensures efficient management of mentors' profiles.

Mentor Approval System

Performance Requirement

1. Mentorship applications should be reviewed and processed within 24 hrs.

Rationale: This requirement ensures a timely review and approval process for mentors.

6.2 Safety Requirements

Safety requirements for the Campus Compass system:

SAFETY-1: The system should protect user data and privacy, adhering to data protection regulations and policies.
SAFETY-2: All user data, including personal and payment information, must be stored securely and encrypted to prevent unauthorized access like CSRF attack.

Rationale: Safety requirements emphasize the importance of data security and user protection within the system.

6.3 Security Requirements

Security requirements for the Campus Compass system:

SEC-1: User authentication shall be secure and use standard encryption methods.
SEC-2: User data, including personal information, shall be encrypted when stored in the system.
SEC-3: The system shall implement role-based access control to ensure data privacy.
SEC-4: Security audits and regular vulnerability assessments shall be conducted to identify and mitigate potential security risks.

Rationale: Security requirements are essential to protect user data and maintain the integrity of the system.

6.4 Software Quality Attributes

Quality attributes for the Campus Compass system:
QUAL-1: Usability: The system should be intuitive and user-friendly, with a focus on ease of use to encourage adoption and engagement.
QUAL-2: Reliability: The system should operate consistently and reliably, minimizing downtime and errors.
QUAL-3: Maintainability: The system should be designed for ease of maintenance and updates to accommodate future changes and improvements.

Rationale: Software quality attributes are essential to ensure a positive user experience and the long-term success of the system.

6.5 Business Rules

Business rules for the Campus Compass system:

Users in the role of administrators have the authority to manage user accounts, including role assignments.
Mentorship applications must be reviewed and approved by designated administrators before users can become mentors.
Rationale: Business rules define the operational principles of the system and the roles and responsibilities of different user classes.

Also include Domain requirements here.

6.6 Domain Requirements

Data Protection Regulations

Domain Requirement (D1): The system must comply with data protection regulations, including but not limited to the General Data Protection Regulation (GDPR) for the protection of user data and privacy.

Educational Best Practices

Domain Requirement (D2): The system should follow educational best practices, including adherence to principles of academic honesty and integrity. It should encourage students to use resources responsibly and in accordance with academic standards.

Community Engagement Guidelines

Domain Requirement (D3): The system should adhere to community engagement guidelines that promote respectful and constructive interactions among users. It should include mechanisms for reporting and moderating inappropriate content.

7. Other Requirements:

Database Requirements

1. The system shall use a relational database management system (RDBMS) for data storage and retrieval.
2. The database shall be designed to efficiently handle a large volume of user-generated content, including text, images, and documents.

Internationalization Requirements

1. The user interface of the system should be designed to support multiple languages, allowing users to select their preferred language.
2. Date and time formats should be displayed according to the user's locale and preferences.

Legal Requirements

1. The system must comply with all relevant legal requirements, including copyright laws, intellectual property rights, and accessibility standards.

Reuse Objectives

1. The project team should identify and document components or modules of the system that have the potential for reuse in future projects.

Data Backup and Recovery

1. The system should implement regular data backup procedures to ensure data integrity and provide a mechanism for data recovery in case of system failures.

Reporting and Analytics

1. The system should include reporting and analytics features to allow administrators to monitor system usage and user engagement.

Appendix A: Glossary

Project Overview:

- Academic Level: The year or level of study that a student has achieved within an educational institution, e.g., 1st Year,2nd Year and so on
- Admin: A user with administrative privileges responsible for managing the Campus Compass system, including user roles, announcements, and mentor approval.
- Announcement: Important messages or notifications shared by educational institutions within the Campus Compass system.
- Branches and Departments: Different sections or faculties within an educational institution, used for categorizing and organizing users and information.
- Community Engagement: A feature that encourages academic discussion and participation among users.
- Developers: People responsible for technical aspects, such as sound engineering and stage setup, to ensure the performance runs smoothly.
- Designers: Individuals involved in visual and stage design to create an appealing and captivating atmosphere during the live performance.
- Doubt Resolution: A feature that allows users to post academic questions or doubts and receive responses from peers and mentors.

- Functional Requirements: Detailed descriptions of the software capabilities that must be present in the Campus Compass system to fulfill specific features.
- Mentor Approval System: A feature responsible for reviewing and approving mentorship applications from users seeking to become mentors.
- Mentorship: A guidance and support system within the Campus Compass, where experienced users (mentors) help other users (mentees) with academic and career related concerns.
- Performance Requirements: Specify the system's expected performance under different circumstances, such as response times for specific features and concurrent user support.
- Project Managers: Those overseeing the logistics, planning, and coordination of the live performance to ensure it's a success.
- Quality Attributes: Characteristics that the Campus Compass system aims to exhibit, including usability, reliability, and maintainability.
- Safety Requirements: Address possible loss, damage, or harm that could result from system use and emphasize data protection and privacy.
- Security Requirements: Specify measures to ensure the security and privacy of user data and interactions within the Campus Compass system.
- Stakeholders: Individuals or groups who have an interest or investment in the project or performance. In this context, it could refer to fans, sponsors, or anyone with a keen interest in the band's live performance.
- System Feature: A major service or capability provided by the Campus Compass system.
- User Profile Management: A feature that allows users to edit and manage their profile information.
- User Registration and Authentication: A feature that handles the registration of new users and the authentication of existing users to access the Campus Compass system.

Acronyms:

- API: Application Programming Interface
- CSS:Cascading Style Sheets
- CSRF:Cross-Site Request Forgery
- HTML: Hypertext Markup Language
- JavaScript:A programming language used for web development
- MySQL: An open-source relational database management system

- SQL: Structured Query Language
- SRS:Software Requirements Specification
- UI:User Interface

Abbreviations:

- Admin:Administrator
- Doubt Resolution:Feature allowing users to post academic questions or doubts
- Mentor:Experienced user offering guidance and support
- SRS:Software Requirements Specification
- User:Individual interacting with the system
- User Profile Management:Feature allowing users to edit and manage their profiles
- User Registration and Authentication:Feature involving user registration and authentication

Appendix B: Field Layouts

Student Registration

Field	Length	Data type	Description	Is Mandatory
student_id	15	Alphanumeric	Unique student identifier (Primary Key)	Yes
First name	255	String	First name of student	Yes
Last name	255	String	Last name of student	Yes
Email id	255	String	Email id	No
College email id	255	String	Email id provided by college	Yes

Password	255	String(hashed)	Password of student	Yes
Phone no.	255	Numeric	Contact number	No
Branch Name	255	String	Branch Name of student	Yes
Department Name	255	String	Department name of student	Yes

Mentor Registration

Field	Length	Data type	Description	Is Mandatory
Domain	255	String	Domain of Interest of mentor	Yes
Bio	1000	String	Short Description about mentor	No
Resume file	Limit to 5MB	File: .pdf	Resume of Mentor	Yes

Post Creation

Field	Length	Data type	Description	Is Mandatory
Title	500	String	Title of the post	Yes
Branch name	255	String	Branch targeted for post	No
Student name	510	String	Name of student who wants to	Yes

			post	
Body	10000	Rich text	Content of the post	Yes

Report Requirements: Include the fields to be included in the report

Registration Report	**Mentor Report**	**Post Report**
student_id	Domain	Title
First name	Bio	Branch name
Last name	Resume file	Student name
Email id		Body
College email id		
password		
Phone no.		
Branch Name		
Department Name		

Appendix C: Requirement Traceability matrix

Sl. no.	Requirement ID	Brief Description of Requirement	Architecture Reference	Design Reference	Code File Reference	Test Case ID	System Test Case ID
1	REQ-1	User Registration	AR-001	DR-001	CR-001	TC-001	STC-001

		and Authentication - High Priority					
2	REQ-2	User Profile Management - High Priority	AR-002	DR-002	CR-002	TC-002	STC-002
3	REQ-3	Resource Sharing - Medium Priority	AR-003	DR-003	CR-003	TC-003	STC-003
4	REQ-4	Mentorship and Guidance - High Priority	AR-004	DR-004	CR-004	TC-004	STC-004
5	REQ-5	Doubt Resolution - Medium Priority	AR-005	DR-005	CR-005	TC-005	STC-005
6	REQ-6	Community Engagement - Medium Priority	AR-006	DR-006	CR-006	TC-006	STC-006
7	REQ-7	Year-Based Roles (Student Hierarchy) - Medium Priority	AR-007	DR-007	CR-007	TC-007	STC-007
8	REQ-8	Vital Announcements - High Priority	AR-008	DR-008	CR-008	TC-008	STC-008
9	REQ-9	Admin Management - High Priority	AR-009	DR-009	CR-009	TC-009	STC-009
10	REQ-10	Mentor Page - Medium Priority	AR-010	DR-0010	CR-010	TC-010	STC-010
11	REQ-11	Mentor Approval System - High Priority	AR-011	DR-0011	CR-011	TC-011	STC-011