SYSTEM ANALYSIS AND PROJECT MANAGEMENT
MIS - 6308

- Group14

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UniConnect-
"Your Bridge to American Campus Life"

Contents

Project Idea

UniConnect is a mobile application designed to support international students transitioning to life in the United States. It serves as a centralized platform providing essential resources and information tailored to students' needs, facilitating a smoother adjustment to their new environment.

Problem Statement

International students in the United States often face significant challenges when transitioning to a new country, including adapting to a different academic system, navigating unfamiliar surroundings, and finding essential resources like banking, healthcare, and student-specific events. The overwhelming nature of adjusting to a new environment can lead to stress, isolation, and missed opportunities, particularly due to the lack of a single, reliable platform that provides comprehensive, up-to-date information tailored to student needs.

Solution

UniConnect, a user-friendly mobile application, aims to streamline the transition for international students, by offering a centralized hub of essential resources and information. The app will feature categorized sections covering key areas such as:

- **Banking:** Guidance on the process of opening accounts and choosing student-friendly banks.
- **Accommodation:** A list of nearby housing options, including on-campus and off-campus accommodations, student housing complexes, rental properties, and tips for securing affordable housing.
- **Shopping:** A directory of popular student shopping destinations, including deals on clothing, electronics, and essentials.
- **Entertainment:** Suggestions for local entertainment venues such as theatres, parks, sports facilities, and other recreational spots.
- **Healthcare:** Locations of nearby hospitals, clinics, pharmacies, and healthcare centres, with details on student health services and insurance.

- **Supermarkets:** A directory of grocery stores and supermarkets, including those offering international products and student-friendly deals.
- **Transportation:** Information on nearby public transportation options such as bus routes, train stations, ride-sharing services, bike rentals, and parking facilities, along with tips for navigating the city and campus efficiently.
- **Technological services:** Guidance on setting up essential tech services, including information on purchasing SIM cards, mobile plans, Wi-Fi setup for home and campus, and resources for obtaining student-discounted laptops, software, and tech support.
- **Interest groups:** An inventory of all the homegroups that provide students an opportunity to explore different cultures around and network with fellow peers over some fun activities and food.
- **Community Forum:** A dynamic networking forum for students to communicate about recent/new events around, on-going or upcoming student deals.
- **Wellness Resource**: Mental health services include counselling and workshops, while fitness options offer gyms and classes. UREC promotes outdoor and indoor activities and wellness coaching to enhance student well-being.

The recommendations for each of the categories above will be provided based on the current location of the student. The data incorporated in the above sections will consist of information gathered from current students and their experiences, as well as from the online informational websites available.

These features will ensure that the students have access to accurate and current data. This holistic approach ensures that UniConnect not only provides relevant information but also fosters a sense of community and belonging among students.

Feedback from Students

" *UniConnect sounds like a fantastic app! There's no existing platform that offers such a comprehensive one-stop solution for new students. For those moving to the United States, it's a much-needed resource that can simplify the transition by providing reliable information all in one place. It's going to be incredibly useful for settling in, and I can't help but wish I had*

something like this when I first arrived—it would have made a huge difference in navigating the initial challenges! "
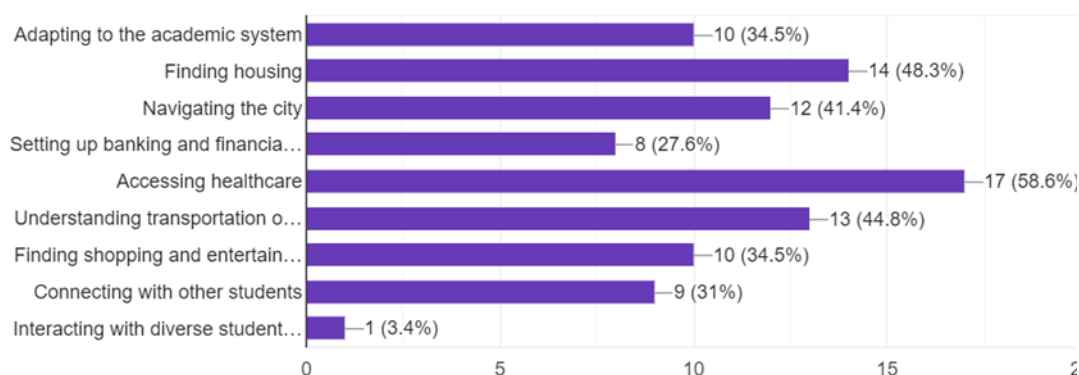
"We as international students really need a platform like this that guides us in the initial stages of moving abroad alone. I remember it took me around 3-4 months to completely settle in this new environment, wherein I had to figure out everything by myself – right from basic needs to exploring the city. I faced a major hindrance while creating my bank account here – I am 26 years old, and did not know that Chase bank asks students above the age of 25 to pay a monthly maintenance fee for the account. I struggled to find the best option for me and after visiting every possible bank, I finally opened an account in PNC. Had I known about this earlier, it would have been easier for me to manage. An app like UniConnect would help bridge this knowledge gap for all the students."

"As students who frequently help new arrivals, we often get asked numerous questions from those unfamiliar with how things work in the U.S. From opening a bank account to deciding which SIM card to use, finding the best way to get to Walmart, or choosing an electricity provider, they're constantly seeking advice on even the most basic tasks. A platform like UniConnect would be a game changer—it would save both new students and their helpers so much time and effort by providing all this essential information in one accessible place."

Survey Results

What were the biggest challenges you faced when transitioning to UTD?

29 responses

Challenge	Responses
Adapting to the academic system	10 (34.5%)
Finding housing	14 (48.3%)
Navigating the city	12 (41.4%)
Setting up banking and financia…	8 (27.6%)
Accessing healthcare	17 (58.6%)
Understanding transportation o…	13 (44.8%)
Finding shopping and entertain…	10 (34.5%)
Connecting with other students	9 (31%)
Interacting with diverse student…	1 (3.4%)

What additional features or functionalities would you like to see in the Comet-Aid app that weren't mentioned in the description? Please share any ideas or suggestions you have for improving the app.
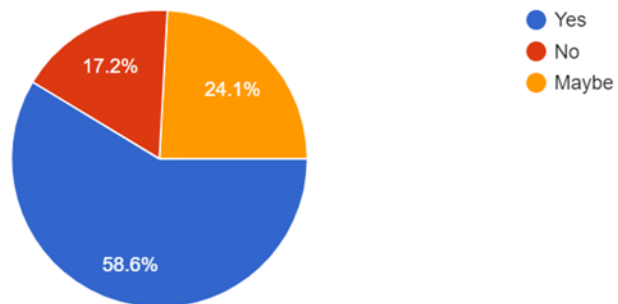
4 responses

N/A

Good so far

That would be all

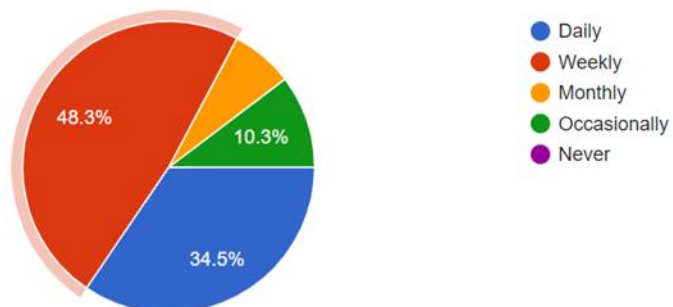Could you please add details of the best store sale for shopping during Black Friday and Labour Day

Would you be interested in participating in beta testing for the Comet-Aid app?
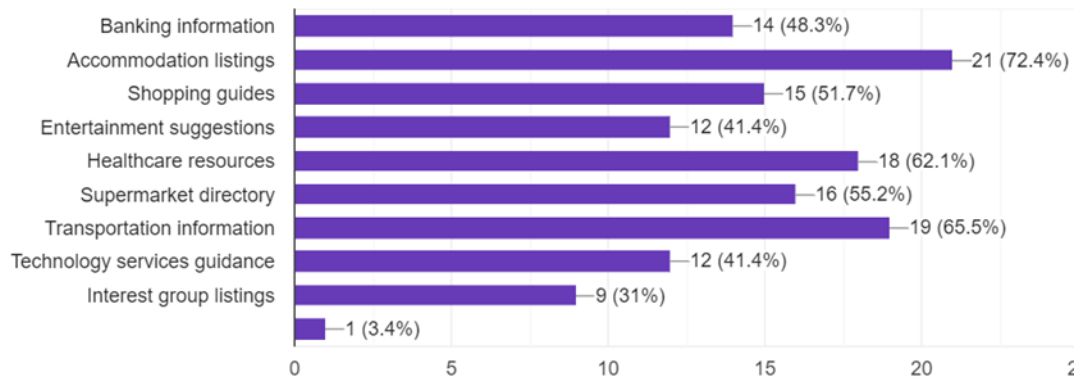
29 responses

- Yes
- No
- Maybe

17.2%
24.1%
58.6%

How often would you use an app like Comet-Aid if it were available?

29 responses

- Daily
- Weekly
- Monthly
- Occasionally
- Never

48.3%
10.3%
34.5%

Which of the following features of the proposed Comet-Aid app would you find most valuable?

29 responses

Feature	Count (%)
Banking information	14 (48.3%)
Accommodation listings	21 (72.4%)
Shopping guides	15 (51.7%)
Entertainment suggestions	12 (41.4%)
Healthcare resources	18 (62.1%)
Supermarket directory	16 (55.2%)
Transportation information	19 (65.5%)
Technology services guidance	12 (41.4%)
Interest group listings	9 (31%)
	1 (3.4%)

How do you currently find information about resources and services in the Dallas area?

29 responses

- Social media — 20.7%
- Student organizations — 17.2%
- University resources (e.g., website, orientation)
- Word of mouth from friends — 34.5%
- University apps or platforms — 13.8%
- Internet
- Online Google search
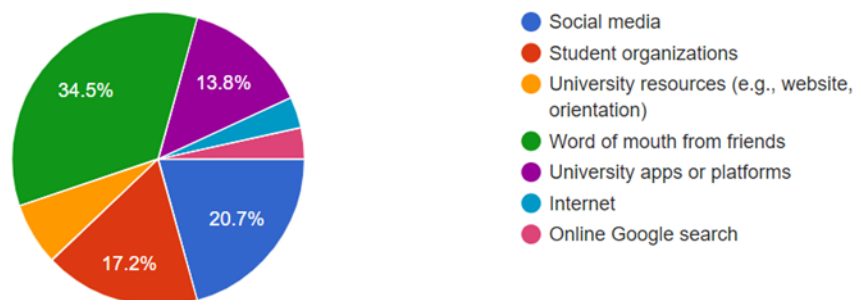
Use Case Diagram

The diagram below represents the use case diagram for the proposed application.
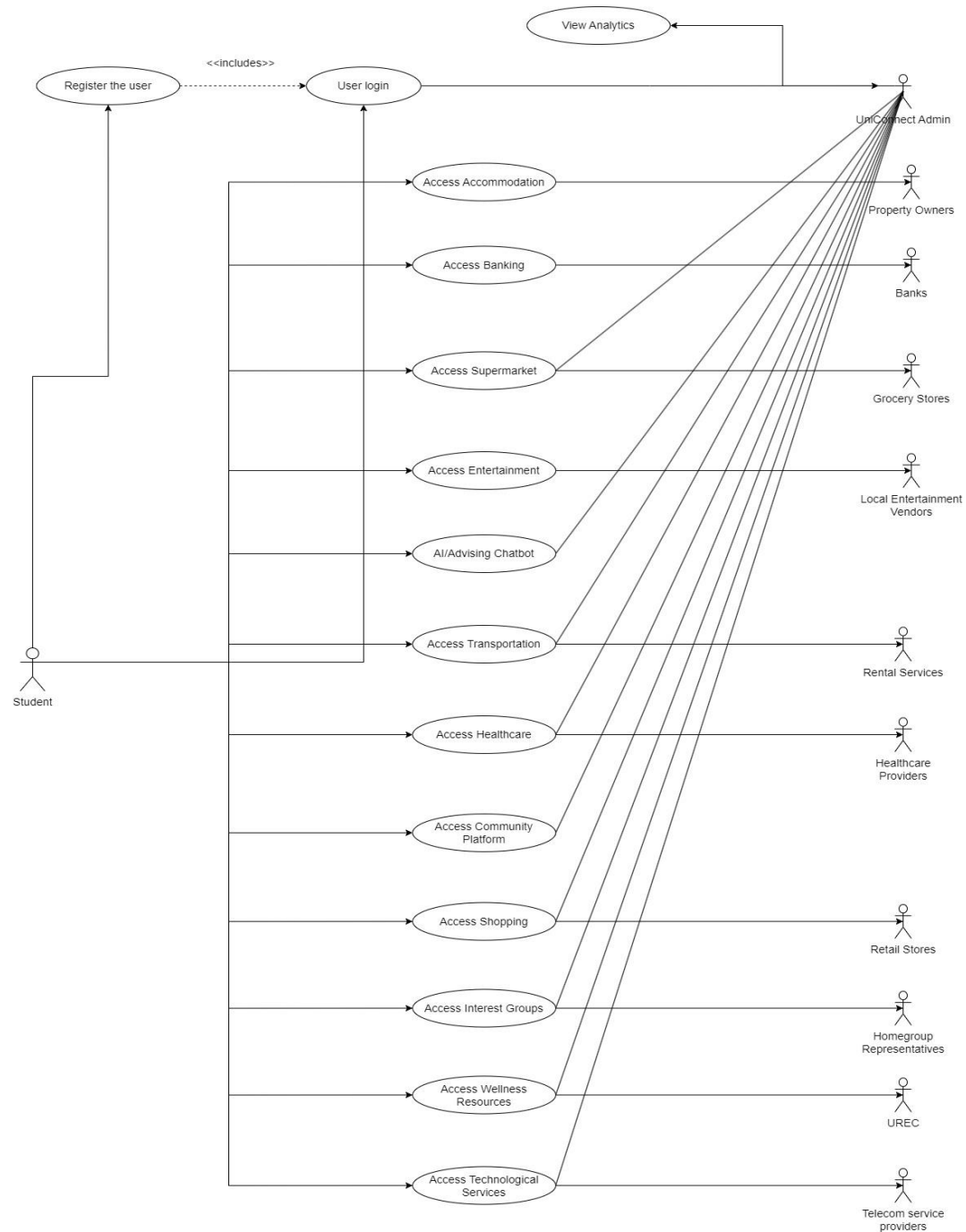
Use Case Descriptions

Use Case Description 1:

Use Case Name: Register Users
Primary Actor (s): Student
Stakeholder(s): UniConnect Admin
Brief Description: The new users of the application will be able to register and create a profile along with an option to customize their preferences
Trigger: The user opens the application
Normal Flow of Events: 1. Click on 'Register' on the app's welcome page 2. App prompts for personal details (name, email, student ID, password, etc.) 3. Submit the details, and the app verifies the information 4. User creates a profile with optional fields for preferences (e.g., banking, shopping) 5. App confirms registration and redirects the user to their profile
Exception Flow: If email or student ID is already in use, the app notifies the user to try again or reset the password
Security Measures: - **Two-Factor Authentication (2FA)**: Requires the user to verify their identity through an additional code sent via email - **Email Verification**: Ensures the user has access to the provided email account before registration completion

Use Case Description 2:

Use Case Name: Login Users

Primary Actor (s): Student

Stakeholder(s): UniConnect Admin

Brief Description: The existing users must be able to login to the application with their credentials

Trigger: The user opens the application

Normal Flow of Events:

1. Click on Login on the app's welcome page
2. App prompts for username and password
3. Submit the details, and the app verifies the information
4. App confirms the information and redirects the user to their profile

Security Measures:

- **Two-Factor Authentication (2FA)**: Requires the user to verify their identity through an additional code sent via email

Use Case Description 3:

Use Case Name: Access Accommodation Guide

Primary Actor (s): Student

Stakeholder(s): Property Owners, UniConnect Admin

Brief Description: Provide an option for students to explore nearby accommodation options and read reviews for on-campus and off-campus housing

Trigger: The student navigates to the Accommodation section of the application to find housing options

Normal Flow of Events:

1. Student opens the *Accommodation* section in the app
2. The app provides a list of available nearby accommodations
3. Student reads details about each option, including pricing and amenities
4. Student views reviews from other students on different accommodations
5. Student bookmarks or selects a property for further exploration

Exception Flow: If the student's location services are disabled, the app will prompt the student to enable them for tailored recommendations

Use Case Description 4:

Use Case Name: Access Banking Guide

Primary Actor (s): Student

Stakeholder(s): Banks, UniConnect Admin

Brief Description: Provides guidance for international students on opening accounts, choosing banks, and understanding student-friendly banking options

Trigger: The student navigates to the Banking section in the app to find nearby banks based on their preferences

Normal Flow of Events:

1. Student selects the *Banking* section in the app
2. The app provides a list of nearby banks

3. Students can view options with details on student-specific benefits and fees
4. Students can read tips and reviews from other students about each bank
5. Student makes a choice or bookmarks options for later

Exception Flow: If the student's location services are disabled, the app will prompt the student to enable them for tailored recommendations

Use Case Description 5:

Use Case Name: Access Groceries Guide

Primary Actor: Student

Stakeholders: Grocery Stores, UniConnect Admin

Brief Description: This section helps students to search for local grocery stores and supermarkets to aid them in fulfilling their daily needs

Trigger: The student navigates to the Supermarket section in the app to find nearby department stores based on their preferences

Normal Flow of Events:

1. Student opens the *Supermarket* section in the app
2. The app displays a list of nearby grocery stores based on the student's location
3. Student views details such as store hours, pricing, and available discounts (including student-specific offers)
4. Student checks reviews from other students regarding store quality, pricing, and availability of specific items
5. Optionally, the app suggests online grocery delivery services in the student's area
6. Student bookmarks a store or delivery service for later reference

Exception Flow: If the student's location services are not enabled, the app will prompt the student to enable them to find nearby grocery stores based on proximity

Security Measures:
- **Location Access Permission:** The app requests permission to access the student's location to provide relevant grocery store listings
- **Privacy Safeguard**: The app ensures that personal data is kept confidential and does not share location data without explicit permission

Use Case Description 6:

Use Case Name: Access Community Forum

Primary Actor: Student

Stakeholders: Event Organizers, UniConnect Admin

Brief Description: Provides a platform for the students to post reviews, and information about upcoming events that would help students with networking and make informed decision

Trigger: The student navigates to the Community Forum.

Normal Flow of Events:

1. Student opens the *Community Forum* section in the app
2. The app displays a list of upcoming events (academic, social, sports, etc.)
3. Student can filter events by category, date, or location
4. The app provides details about each event, such as date, time, venue, and description
5. Student reads feedback or reviews from other students who attended previous events
6. The app offers the option for students to post a review

7. The app provides real-time updates or notifications for any changes or reminders about the event

Use Case Description 7:

Use Case Name: Access Interest Groups
Primary Actor: Student
Stakeholders: Group Coordinators, UniConnect Admin
Brief Description: Allows students to join or create groups for shared activities, study sessions, or living arrangements, fostering a sense of community within the student body
Trigger: The student navigates to the Interest Groups section to find or create a group
Normal Flow of Events: 1. Student opens the *Interest Groups* section in the app 2. The app displays existing groups that the student can join, categorized by activities, interests, or living arrangements 3. Student views details about each group, including group size, purpose (e.g., study group, social group), and group activity schedule 4. The app provides the option to join a group or request an invite from the group coordinator 5. If no suitable group is found, the student can create a new home group, specifying details like the group's name, purpose, and any joining criteria 6. The app sends confirmation and notifies other students interested in joining 7. Once in a group, the student can use the app to stay updated on group activities, send messages, and organize events
Exception Flow: If the student's location services are not enabled, the app will prompt the student to enable them to find nearby home groups based on proximity

Security Measures:
- Group Privacy Settings: Group coordinators can set privacy levels for their groups (e.g., invite-only, public, or private)
- Data Security: Personal data of group members, including messaging within groups, is encrypted to ensure privacy

Use Case Description 8:

Use Case Name: Access Wellness Resources

Primary Actor: Student

Stakeholders: UniConnect Admin, UREC

Brief Description: Provides guidance and access to mental health services, fitness options, and wellness activities to enhance student well-being

Trigger: The student navigates to the Wellness Resources section in the app

Normal Flow of Events:

1. Student selects the *Wellness Resources* section in the app
2. The app displays a list of available resources, including:
   a. **Mental Health Services**: Counselling
   b. options and workshops
   c. **Fitness Options**: Gyms, fitness classes, and schedules
   d. **UREC Activities**: Information about outdoor and indoor activities, wellness coaching, and events
3. Students can view detailed descriptions of each resource, including eligibility, scheduling options, and benefits
4. Students can read testimonials and reviews from peers regarding their experiences with the resources

5. Student chooses a resource to explore further or bookmarks it for later access

Exception Flow: • If the student is in crisis and attempts to access regular resources, the app prompts them with an emergency help option, directing them to immediate support services • If the student encounters a technical issue, the app displays a message with troubleshooting tips or contact information for tech support

Use Case Description 9:

Use Case Name: Access Local Entertainment Resources
Primary Actor: Student
Stakeholders: Local Entertainment Venues, UniConnect Admin
Brief Description: Provides students with suggestions and information about local entertainment venues, including theatres, parks, sports facilities, and other recreational spots
Trigger: The student navigates to the Entertainment section in the app

Normal Flow of Events:
 	
1. The student selects the *Entertainment* section from the main menu
2. **View Categories**: The app displays categories such as:
    a. Theatres
    b. Parks
    c. Sports Facilities
    d. Recreational Spots

3. **Browse Options**: The student clicks on a category to view a list of local venues within that category
4. **View Venue Details**: The student selects a specific venue to see:
    a. Address and contact information
    b. Operating hours
    c. Available events or activities
    d. Student discounts or special offers
5. **Read Reviews**: The student can read reviews and ratings from other students about their experiences at the venue
6. **Get Directions**: The app provides an option to view directions to the venue using a map feature
7. **Bookmark Venues**: The student can bookmark their favorite venues for future reference
8. **Share Options**: The student can share venue details with friends via social media or messaging apps

Exception Flow:
- If the student cannot find specific venues or events, the app provides a search function with suggestions for keywords
- If location services are not enabled, the app prompts the student to enable them for personalized suggestions

Use Case Description 10:

Use Case Name: AI Chatbot for International Student Support

Primary Actor: Student

Stakeholders: UniConnect Admin

Brief Description: The AI chatbot provides international students with instant assistance on various topics related to their transition to the U.S., including banking, accommodation, healthcare, transportation, and general student inquiries. The chatbot delivers real-time, location-based information to enhance the student's experience

Trigger: The student initiates a conversation with the chatbot through the UniConnect app

Normal Flow of Events:

1. **Student Accesses Chatbot**:
   The student clicks on the chatbot icon within the UniConnect app
2. **Initiate Conversation**:
   The chatbot greets the student and helps across categories like banking, accommodation, healthcare, transportation, etc.
3. **Select Inquiry Type**:
   The student chooses from predefined categories, such as:
   a. Banking
   b. Accommodation
   c. Healthcare
   d. Supermarkets
   e. Transportation
   f. Shopping
   g. Wellness Resources
   h. Interest Groups
   i. Entertainment
4. **Provide Information**:
   The student types a specific question or selects from the chatbot's suggested options (e.g., "How do I open a bank account near campus?")
5. **Receive Instant Response**:
   The chatbot provides an immediate, personalized answer, including location-specific details like:
   a. A list of nearby banks with student-friendly services
   b. Housing options with price and location filters
   c. Healthcare facilities and student health insurance options
6. **Follow-Up Questions**:
   The student can ask follow-up questions for more details or clarification
7. **Resource Links**:
   The chatbot provides direct links to relevant resources (e.g., detailed guides for opening a bank account, housing search websites)
8. **Feedback Request**:
   After the conversation, the chatbot prompts the student for feedback on their experience to improve future interactions

Exception Flow:
- **Unclear Query:**
  If the chatbot cannot understand the student's question, it prompts the student to rephrase or provides a list of common questions
- **Human Assistance:**
  If the inquiry is too complex for the chatbot to handle, it offers to connect the student with live support or directs them to appropriate university services

Use Case Description 11:

Use Case Name: Access Transportation Guide

Primary Actor (s): Student

Stakeholder(s): Rental service owners, Students, UniConnect Admin

Brief Description: This use case involves searching for economic transportation facilities available to different locations in the city, while also exploring the ride-sharing services, bike rentals, and parking facilities

Trigger: The student navigates to the Transportation section of the application to find the transit options

Normal Flow of Events:

1. Student opens the *Transportation* section in the app
2. Student inputs the locations of their travel i.e. origin and destination locations
3. The app provides a list of available modes of transport for the specified route
4. Student sorts the available options based on filters such as pricing and time duration
5. Student views convenient ride-share services offered by fellow peers
6. Student selects the best option as per their preferences

Exception Flow: If the student's location services are disabled, the app will prompt the student to enable them for tailored recommendations

Use Case Description 12:

Use Case Name: Access Healthcare Guide
Primary Actor (s): Student
Stakeholder(s): Hospitals, Dispensaries, Pharmacy stores, UniConnect Admin
Brief Description: The user searches for available healthcare facilities and health insurance services around their location
Trigger: The student clicks on the Healthcare section of the application
Normal Flow of Events: 1. Student opens the *Healthcare* section in the app 2. Student selects from hospitals, dispensaries, pharmacies, and health insurance services from the menu 3. From the selection, the app provides a list of available healthcare services based on the student's location 4. Student views the available options based on filters such as expenses, accepted student insurances, distance 5. Student selects the best option as per their needs
Exception Flow: If location services are disabled, the app will prompt the student to enable them for personalized recommendations

Use Case Description 13:

Use Case Name: Access Technological Services Guide
Primary Actor (s): Student

Stakeholder(s): UniConnect Admin, Telecom service providers

Brief Description: This section helps students to search for available technological services around thier location

Trigger: The student clicks on the Technological Services section of the application

Normal Flow of Events:

1. Student opens the *Technological Services* section in the app
2. Student selects from SIM cards, mobile plans, Wi-Fi setup for home and campus, and resources for obtaining student-discounted laptops from the menu
3. From the selection, the app provides a list of available services based on the student's location
4. Student views the displayed options
5. Student selects the best option as per their needs

Exception Flow: If location services are disabled, the app will prompt the student to enable them for personalized recommendations

Use Case Description 14:

Use Case Name: Access Shopping Guide

Primary Actor (s): Student

Stakeholder(s): Retail stores, UniConnect Admin

Brief Description: The user searches for available retail stores around their location to meet their leisure shopping purposes

Trigger: The student clicks on the Shopping section of the application

Normal Flow of Events:

1. Student opens the *Shopping* section in the app
2. The app displays a list of nearby retail stores based on the student's
3. location
4. Student views details such as store hours, pricing, and available discounts (including student-specific offers and seasonal sales)
5. Student checks reviews from other students regarding store quality, pricing, and availability of specific items
6. Optionally, the app suggests online delivery services in the student's area
7. Student bookmarks a store or delivery service for later reference

Exception Flow: If location services are disabled, the app will prompt the student to enable them for personalized recommendations

Use Case Description 15:

Use Case Name: View Analytics

Primary Actor (s): UniConnect Admin

Stakeholder(s): NA

Brief Description: This use case allows the admin to view detailed analytics on user engagement, usage patterns, and resource interactions within UniConnect
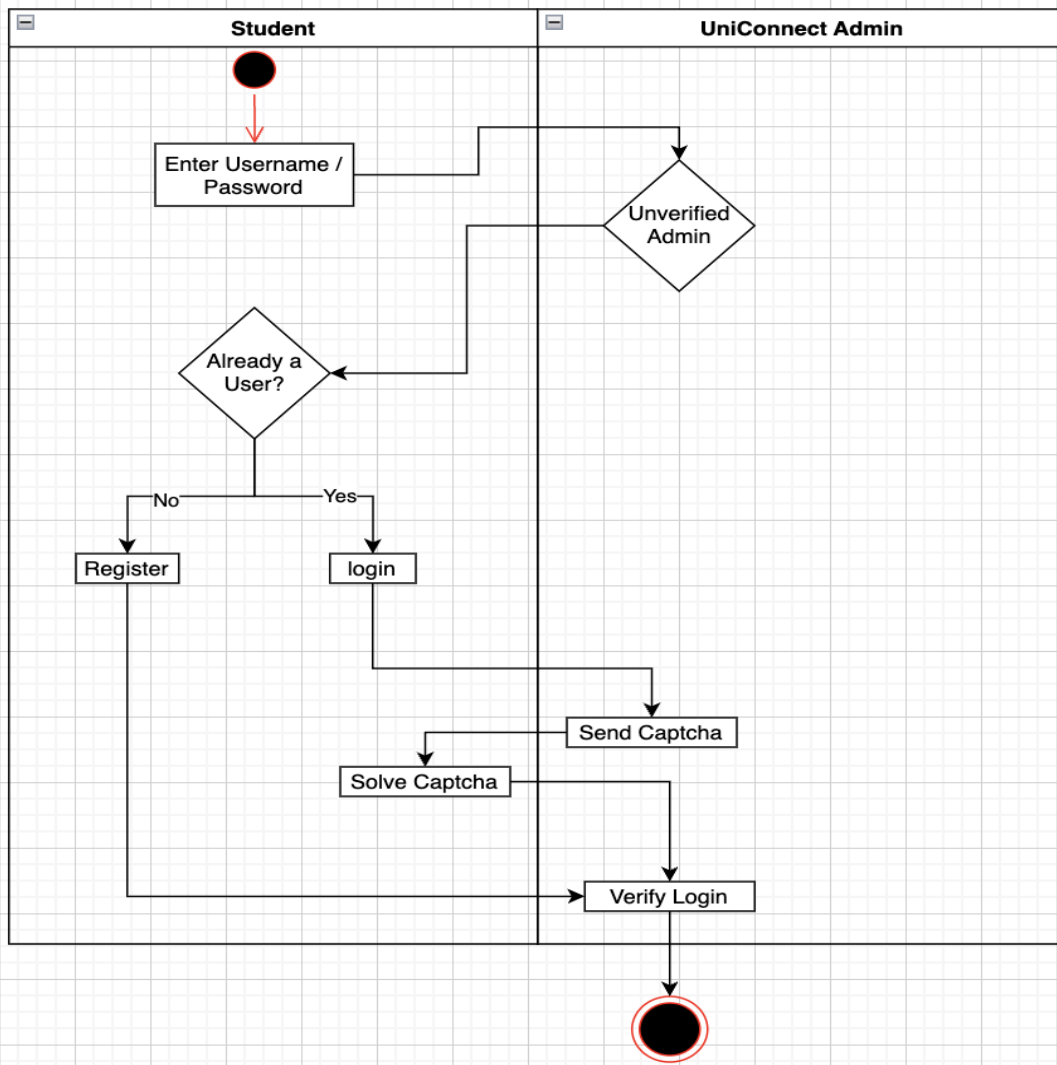
Trigger: The admin selects View Analytics from the UniConnect application
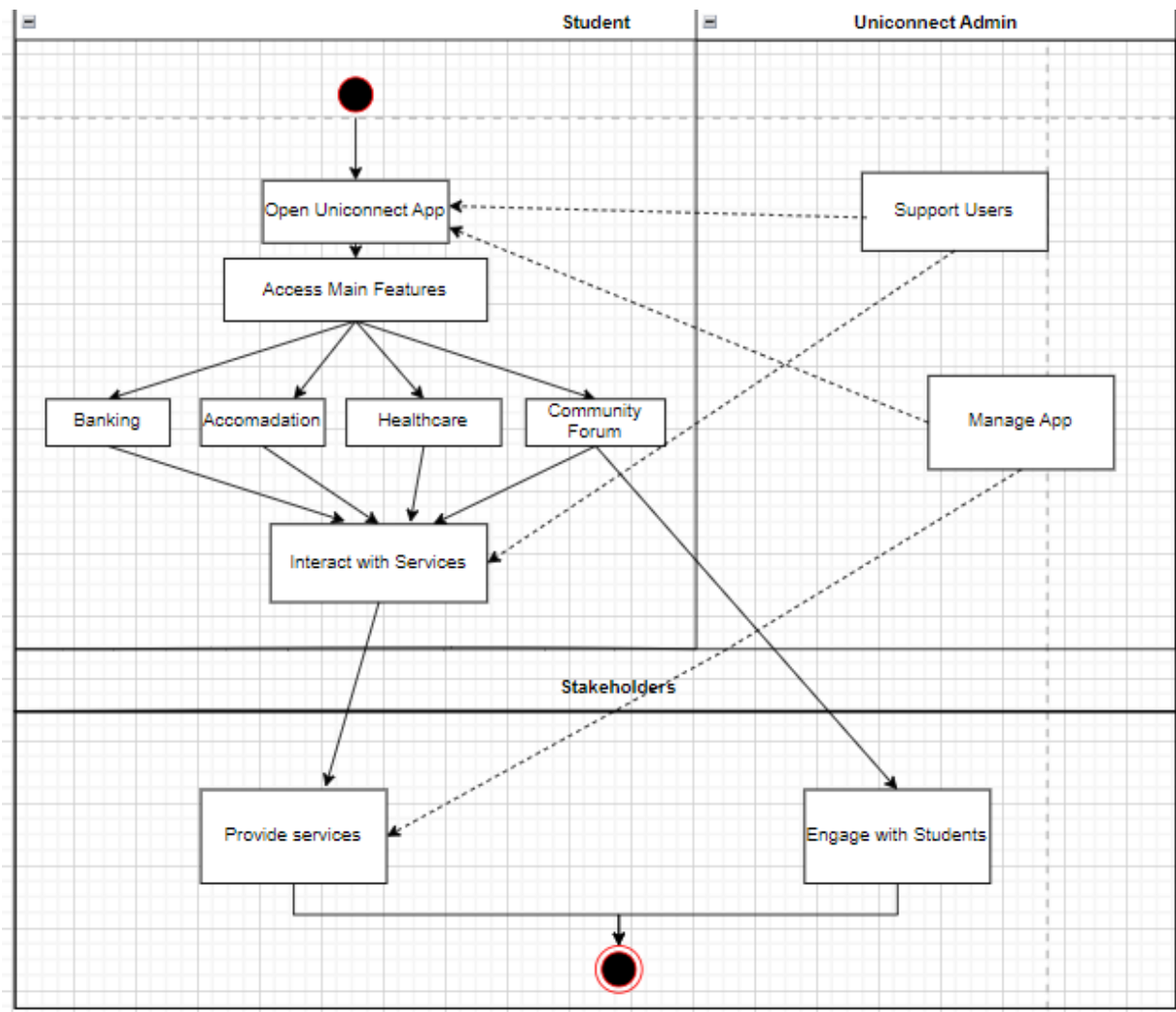
Normal Flow of Events:

1. Admin selects *View Analytics* on the dashboard
2. System retrieves analytics data from the database
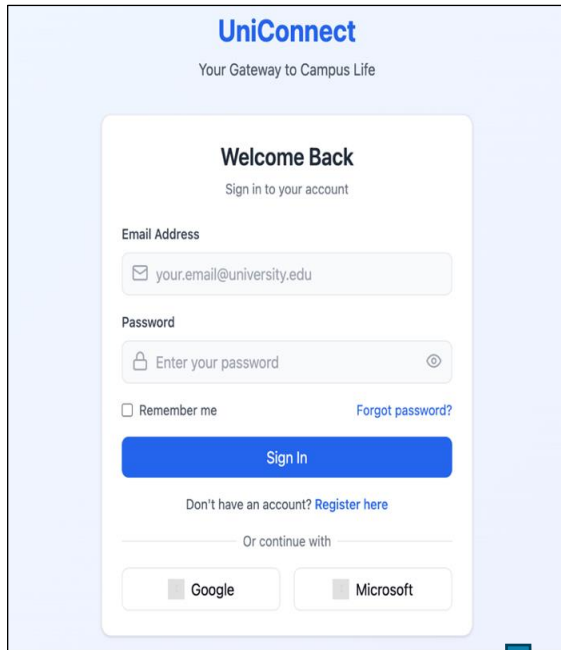3. Admin has the option to export the filtered data as a CSV or PDF report

Activity Diagram

The diagrams below represent the Activity diagrams for the proposed application:
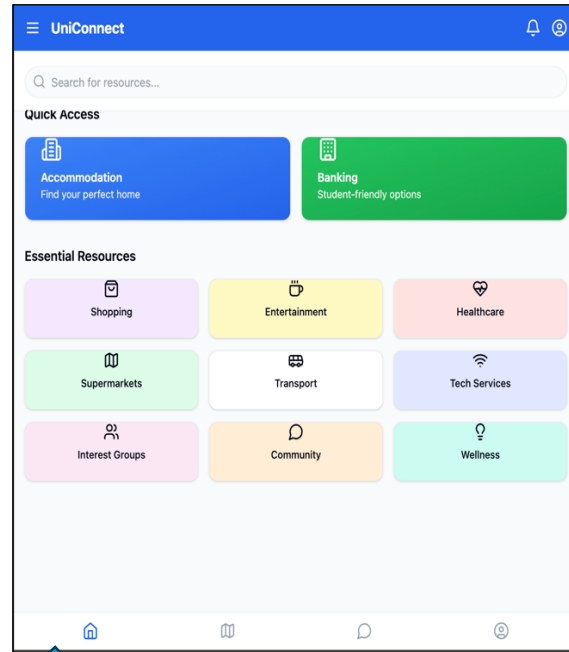
UI Designs

Login to UniConnect

Discover essential information at your fingertips with options for banking, shopping, accommodation, and more tailored to meet your every need.

Information Guide for each of the options available:
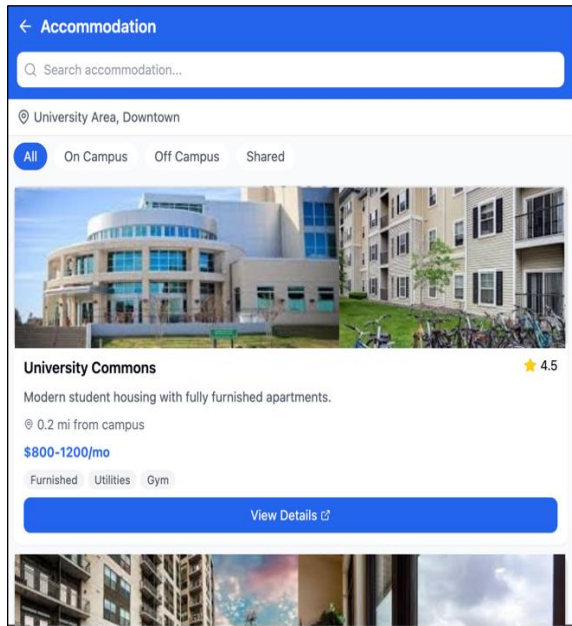
Accommodation Guide
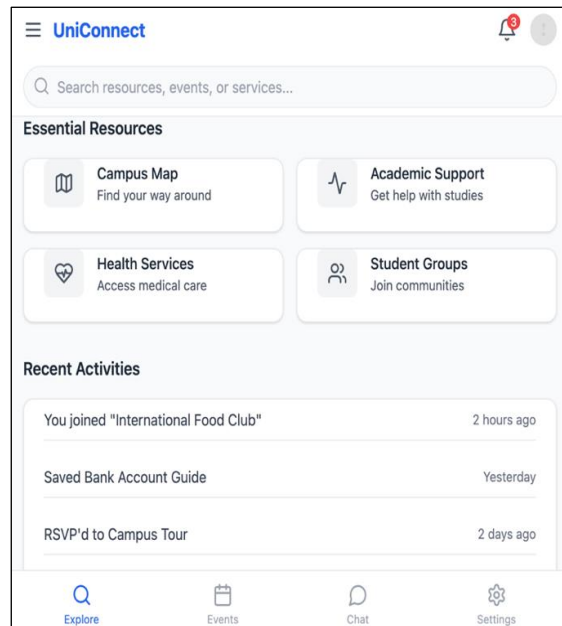
Wellness Resouces

Banking Guide

AI ChatBot

Shopping Guide

Class Diagram

Admin
+ adminID: String

+ viewAnalytics(): List<Analytics>
+ exportData(format: String): File

User
+ userID: String
+ name : String
+ email : String
+ studentID : String
+ password : String
+ preferences : List<String>

+ register (email: String, password: String): boolean
+ login (email: String, password: String): boolean
+ updateProfile(name: String, preferences: List<String>): Void
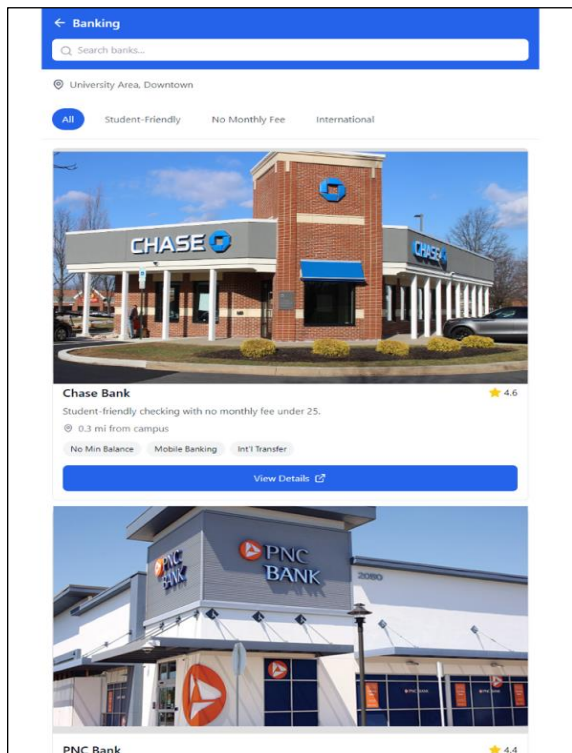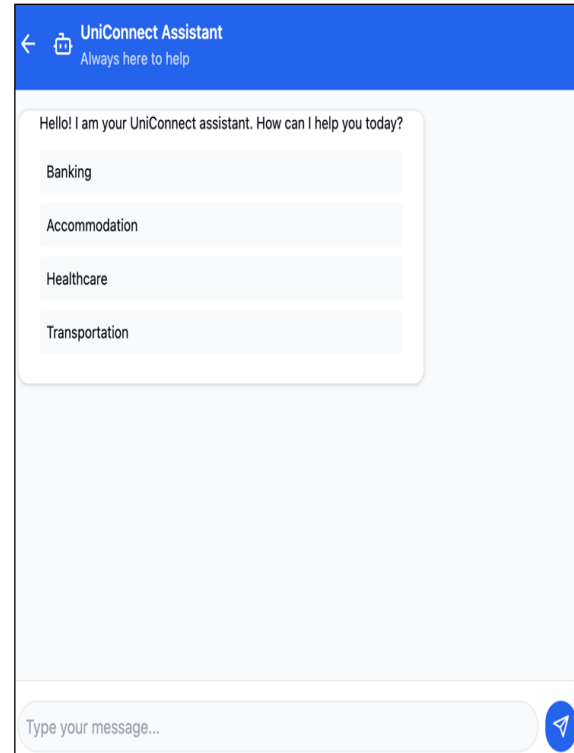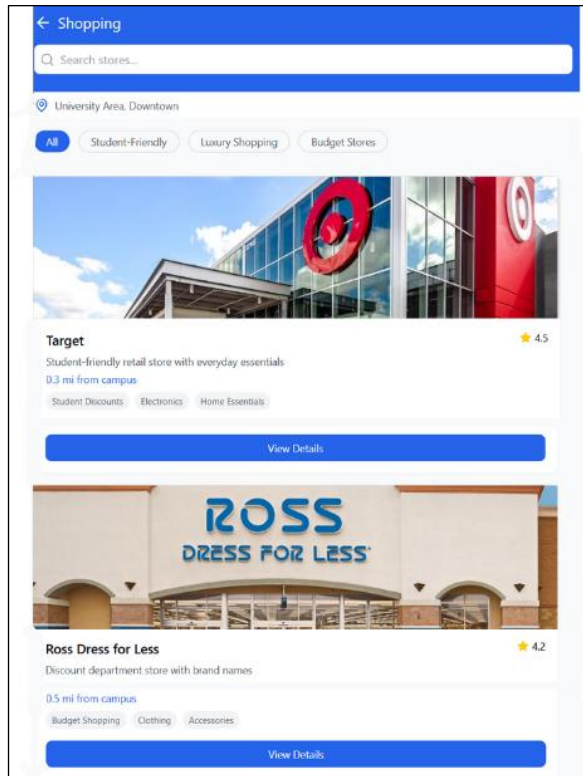+ resetPassword(email: String): Boolean
+ twoFactorAuth(code: Int): Boolean

EntertainmentResource
+ venueID: String
+ type: String
+ location: String
+ hours: String
+ discounts: Map<String, Float>

+ viewVenueDetails(): String
+ bookmarkVenue(userID: String): Boolean

ChatBot
+ chatbotID: String
+ responseHistory: List<String>

+ startConversation(userID: String): String
+ provideInformation(query: String): String
+ askFeedback(userID: String): Boolean

Forum
+ postID: String
+ title: String
+ content: String
+ category: String
+ postedBy: User

+ postReview(content: String, userID: String): Boolean
+ filterEvents(category: String): List<Forum>
+ getNotifications(userID: String): List<String>

InterestGroup
+ groupID: String
+ name: String
+ purpose: String
+ groupSize: Int

+ joinGroup(userID: String): Boolean
+ createGroup(name: String, purpose: String): Boolean
+ sendMessage(groupID: String, message: String): Boolean

Guide
+ guideID: String
+ title: String
+ description: String
+ locationData: String

+ viewGuide(): String
+ bookmark(userID: String): Boolean
+ filterOptions(filters: Map<String, String>): List<Guide>

WellnessResource
+ resourceID: String
+ type: String
+ description: String
+ availability: Boolean

+ viewResourceDetails(): String

AccomodationGuide
+ amenities: List<String>
+ reviews: List<String>
+ priceRange: String

+ listProperties(): List<String>
+ readReviews(): List<String>

BankingGuide
+ bankList: List<String>
+ studentBenefits: Map<String, String>

+ viewBankDetails(): List<String>

GroceriesGuide
+ storeList: List<String>
+ discounts: Map<String, Float>
+ reviews: List<String>

+ listStores(): List<String>
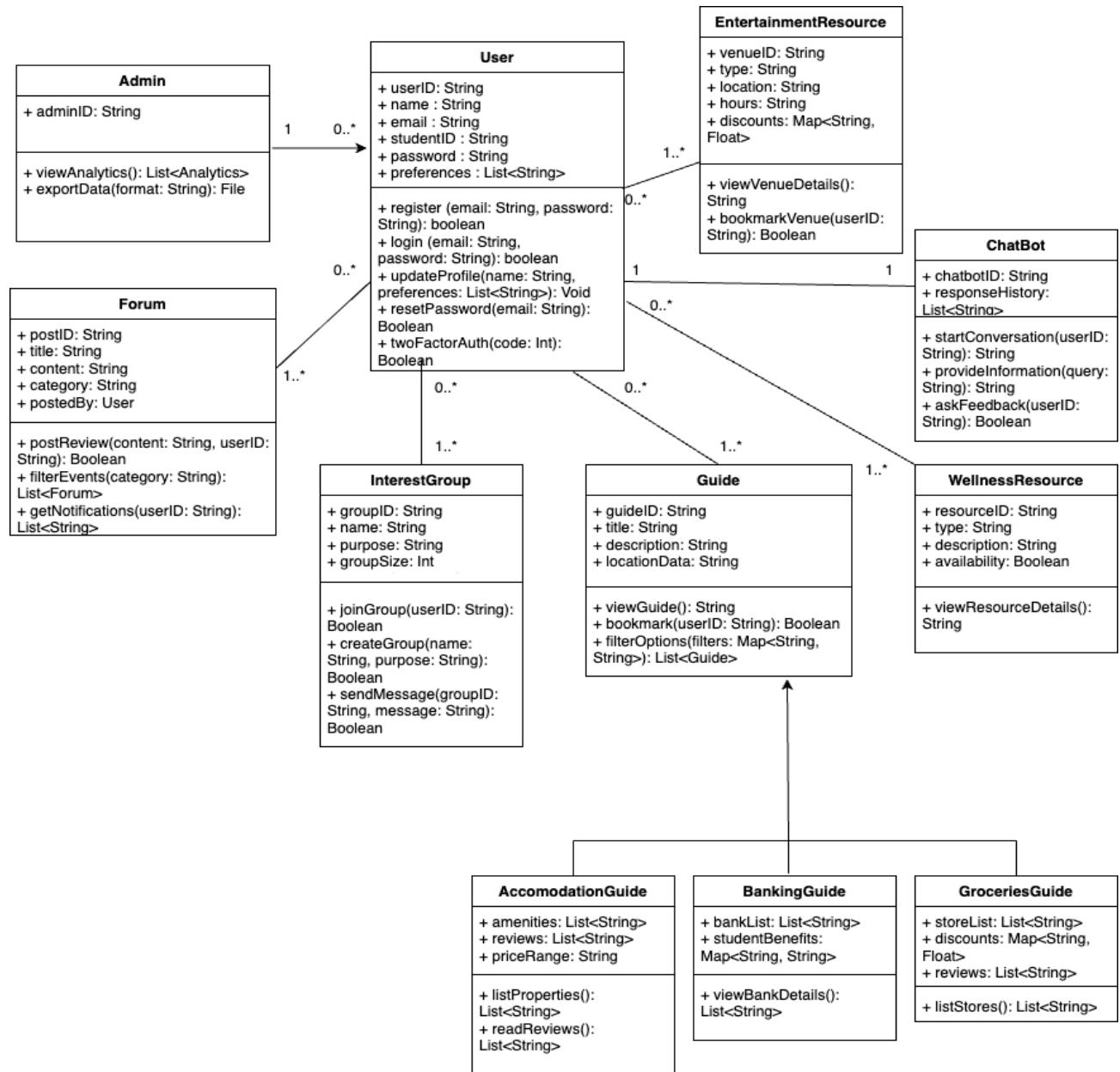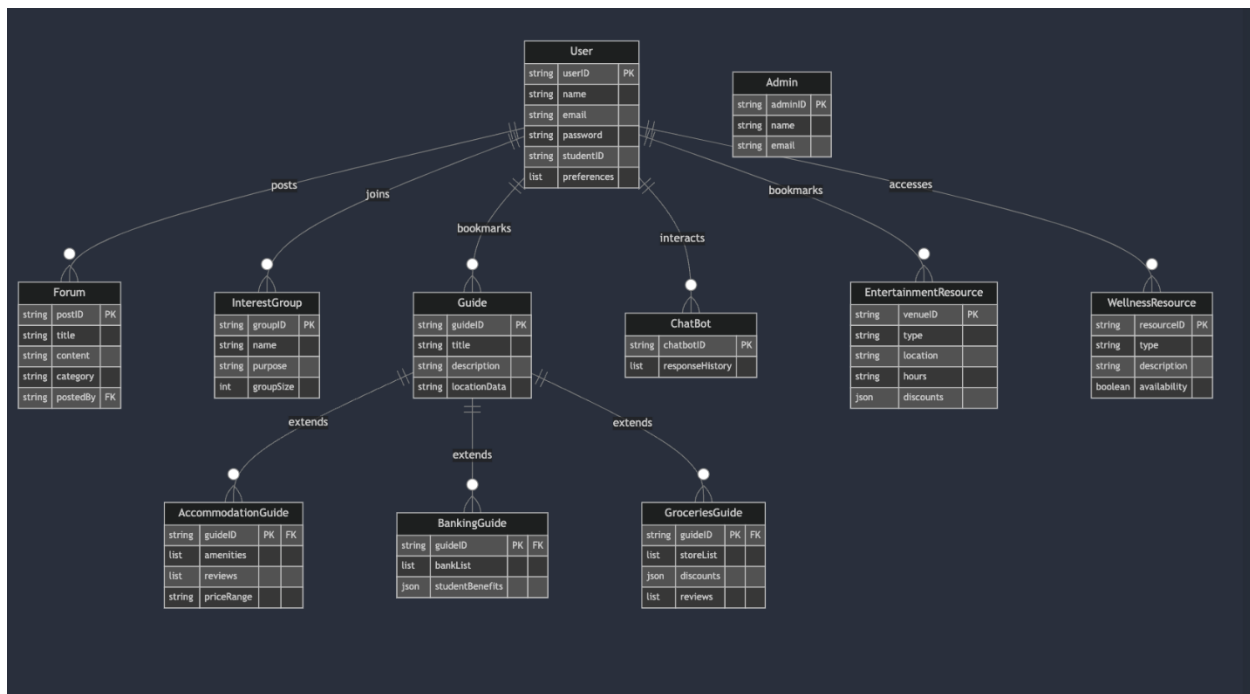
ERD Diagram

This database supports a comprehensive student support platform that helps students navigate university resources, entertainment, wellness, and community engagement.

i) Core Database Tables:

1. **User Table:**
   - Stores essential user information including userID, name, email, password, studentID
   - Maintains user preferences as a list
   - Serves as the central entity connecting to various platform features
2. **Admin Table:**
   - Contains administrator information with adminID, name, and email
   - Manages platform oversight and maintenance
3. **Forum Table:**
   - Tracks discussion posts with postID, title, content, and category
   - Links posts to users through postedBy foreign key
   - Facilitates community discussions and information sharing
4. **InterestGroup Table:**
   - Manages student groups with groupID, name, purpose, and groupSize
   - Enables student community building and shared interest networking

5. **Guide Table:**
   - Central repository for various guides with guideID, title, description, and locationData
   - Extends into specialized guides for specific purposes

ii) Specialized Guides:

1. **AccommodationGuide:**
   - Extends Guide table with housing-specific information
   - Contains amenities list, reviews, and priceRange
   - Helps students find suitable accommodation options
2. **BankingGuide:**
   - Extends Guide table for financial services
   - Includes bankList and studentBenefits
   - Assists students with banking and financial decisions
3. **GroceriesGuide:**
   - Extends Guide table for shopping information
   - Contains storeList, discounts, and reviews
   - Helps students locate and compare grocery options

iii) Additional Resources:

1. **EntertainmentResource:**
   - Tracks venue information including venueID, type, location, hours
   - Maintains discounts in JSON format
   - Helps students discover recreational activities
2. **WellnessResource:**
   - Manages health and wellness resources with resourceID, type, description
   - Tracks resource availability
   - Supports student well-being
3. **ChatBot:**
   - Provides automated assistance with chatbotID
   - Maintains responseHistory for context
   - Offers instant support to students

iv) Relationships:

1. **User-Centric Connections:**
   - Users can create posts in Forum
   - Users can join InterestGroups
   - Users can bookmark Guides and EntertainmentResources
   - Users can access WellnessResources
   - Users can interact with ChatBot
2. **Guide Extensions:**
   - Guide table extends into specialized guides (Accommodation, Banking, Groceries)
   - Each specialized guide inherits base guide properties while adding specific features

This database schema supports a comprehensive student support system that integrates community engagement, resource access, and personalized assistance through various interconnected services and guides.