

BRAIN BLOOM

PROJECT PROPOSAL



PROJECT

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PROJECT INFO::

COURSE: CSE 327

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Brain Bloom: A Virtual Group Study Platform

Project Description

Brain Bloom is a virtual group study platform designed to help university students collaborate, learn, and engage in interactive study sessions. The platform allows students to **create** or **join** study rooms based on their courses and topics. Users can upload PDFs, summarize content using AI, generate quizzes, and participate in rankings based on quiz scores.

Key Features of Brain Bloom:

- **User Registration & Authentication:**

Users register using their NSU email and complete OTP verification before accessing the platform.

- **Dashboard:**

A central hub for users to manage study rooms, profile, schedules, and uploaded study materials.

- **Study Rooms:**

Users can create public or private study rooms, selecting course-related topics and scheduling study sessions.

- **AI-powered PDF Review & Quiz Generation:**

Users can upload PDFs, and the AI will generate summaries and quizzes.

- **Chat & Collaboration:**

Users in a study room can chat with each other and engage with an AI chatbot.

- **Quizzes & Rankings:**

Users can take quizzes, answer AI-generated questions, and earn rankings based on their performance.

- **Partner Recommendation:**

The system will suggest study partners based on shared course interests and past interactions.

The platform aims to provide an interactive and engaging virtual study experience, helping students prepare more effectively through group discussions, quizzes, and AI-powered insights.

End Users of the Project

The primary users of Brain Bloom include:

1. **University Students:** Students who want to collaborate with peers, study together, and test their knowledge.
2. **Professors/Instructors (Optional Future Scope):** Teachers who may want to create study sessions, share materials, and monitor quiz performance.
3. **AI Chatbot:** Integrated into the system to provide instant explanations, summaries, and quiz questions.

Functional Requirements

These define the core functionalities of Brain Bloom.

User Management

- ❖ Users can **register** using their NSU email.
- ❖ Users receive an **OTP for verification** before accessing the platform.
- ❖ Users can **log in** using their email and password.
- ❖ Users can **manage their profile** (update username, change password, etc.).

Room Management

- ❖ Users can **create study rooms** (public/private) by selecting:

- **Department**
- **Course**
- **Topic Name**
- **Date & Time**
- **Public or Private**

❖ Users can **join public rooms** instantly.

- ❖ Users can **join private rooms** using a unique **join code**.
- ❖ Users can **view a list of all rooms they have joined** under "My Rooms".

Study & Collaboration Features

Users in a room can:

- **Chat** with other members.
- **Upload PDFs** for study purposes.
- Use AI to **summarize PDFs** into key points.
- Generate **quizzes** from uploaded PDFs.
- Answer quizzes and receive **real-time ranking updates**.

Quiz & Ranking

- Users can take quizzes based on study materials.
- AI generates quiz questions from uploaded PDFs.
- Users earn **points and rankings** based on quiz performance.

Partner Recommendation

The system suggests **study partners** based on:

- **Similar study topics**
- **Past interactions & performance**

Non-Functional Requirements

These define the system's performance, security, and usability.

Performance & Scalability

- ❖ The system should support **multiple users** accessing study rooms simultaneously.
- ❖ AI-powered features (summarization, quiz generation) should work **within a few seconds**.

Security & Privacy

- Secure login & authentication** (OTP verification, encrypted passwords).
- Role-based access** (users can only access their own private rooms).
- Data protection:** User data and uploaded files should be **securely stored**.

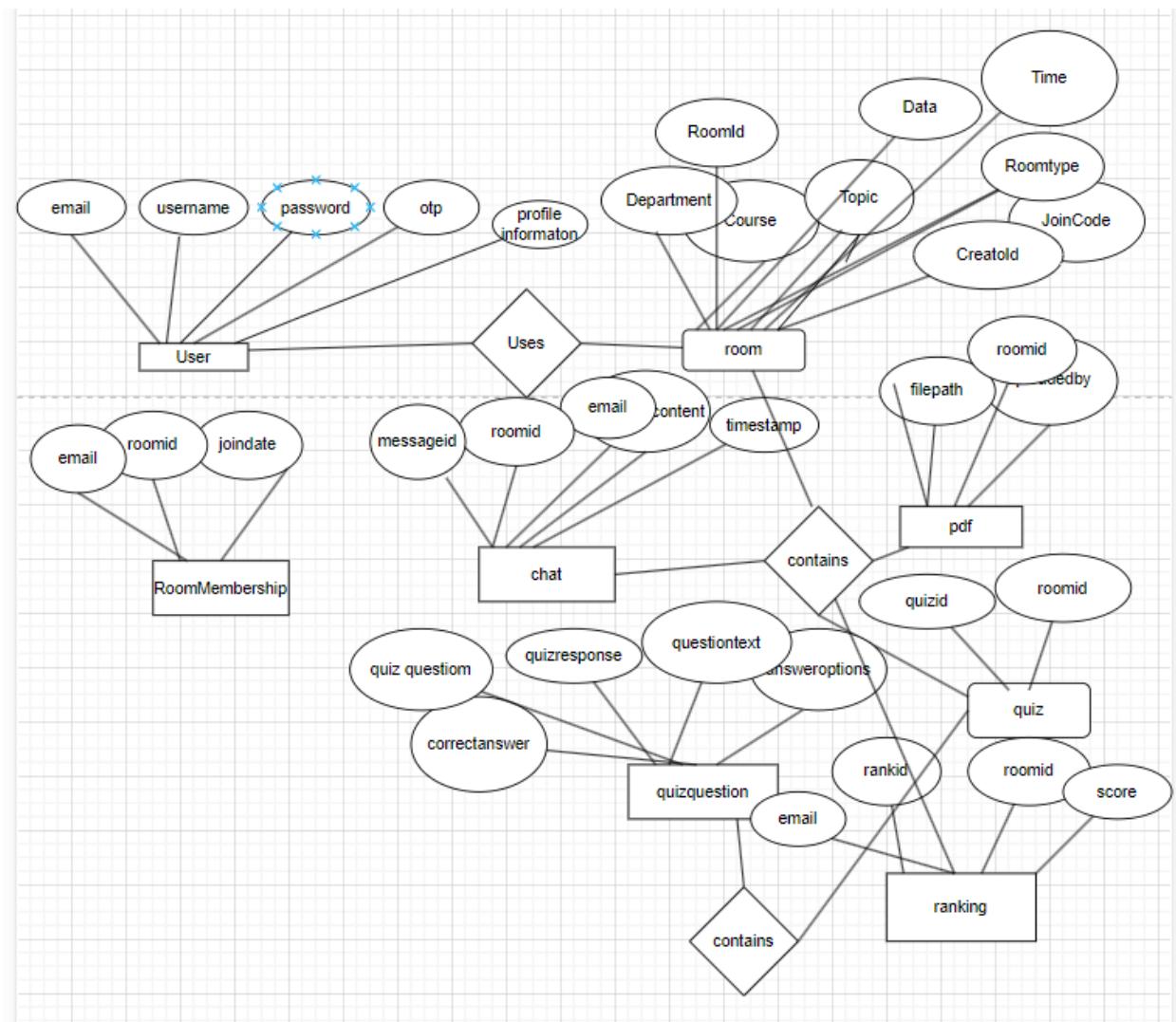
Usability & Accessibility

- ▀ The platform should have a **user-friendly interface** for easy navigation.
- ▀ The system should be **mobile-responsive** to work on phones and tablets.

Availability & Reliability

- ▽ The system should be available **24/7** with minimal downtime.
- ▽ Regular **data backups** should be maintained.

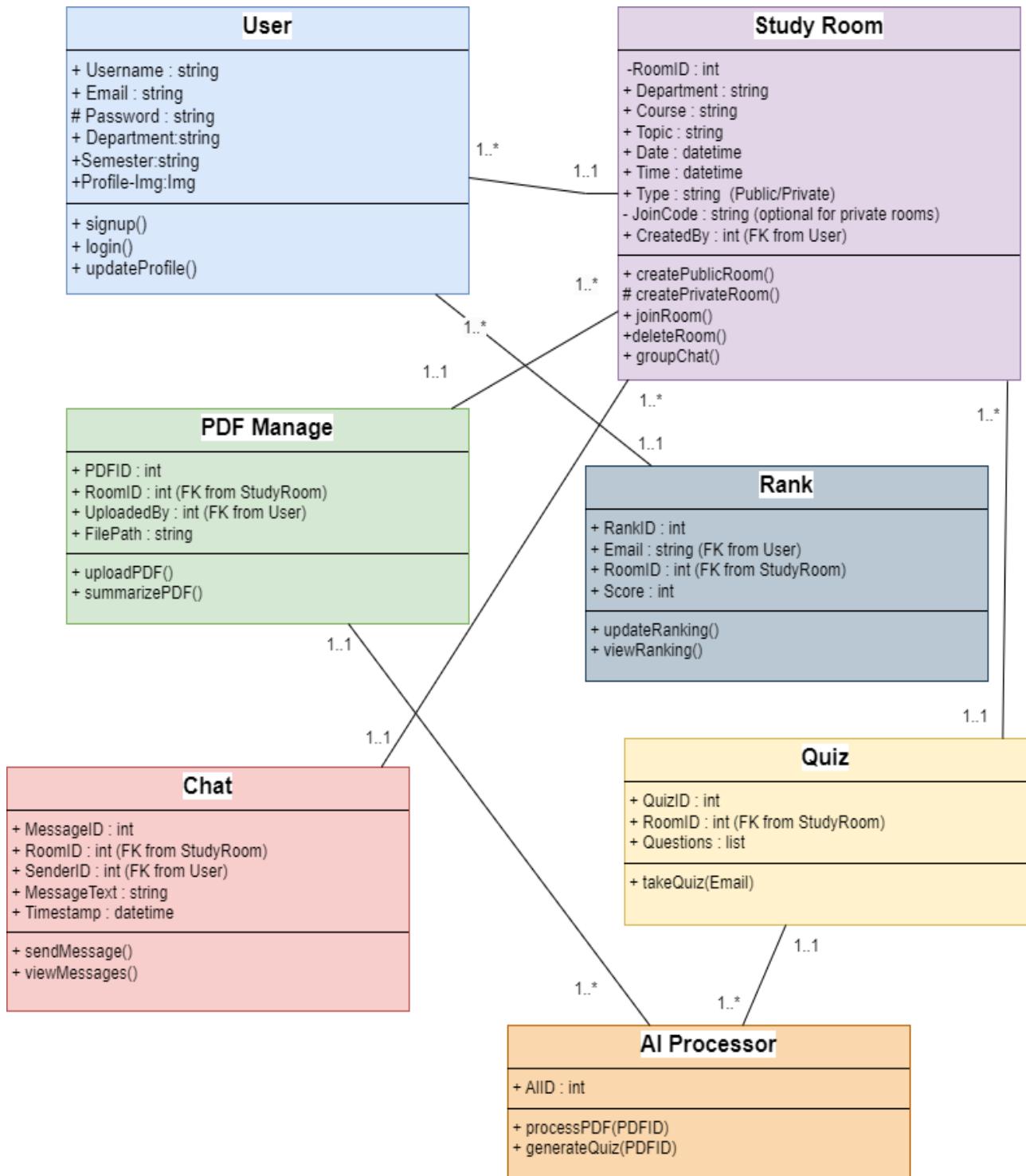
ER-Diagram:



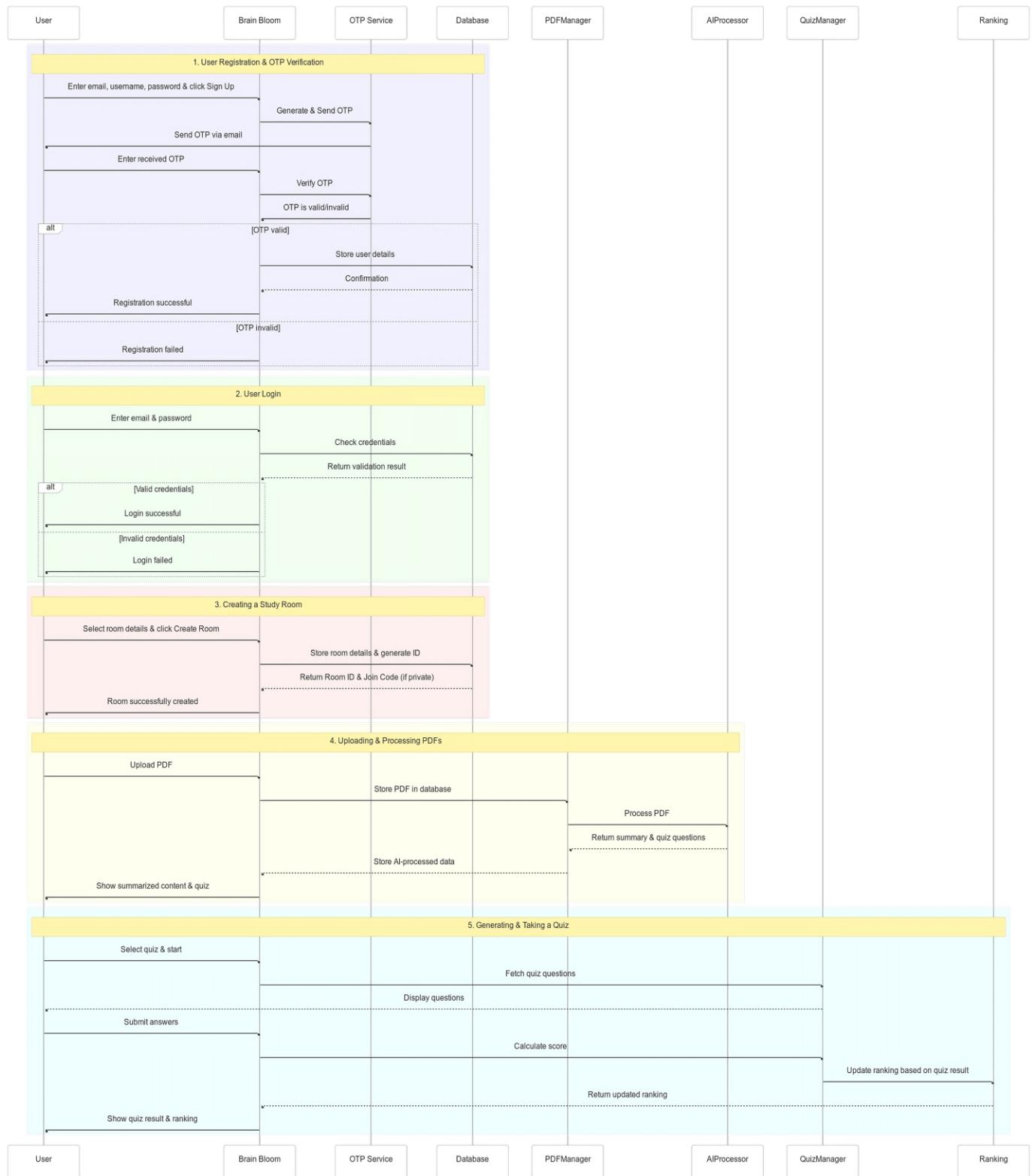
Use-Case Diagram:



Class Diagram:



Sequential Diagram:



Github Link:

<https://github.com/Anika2121/CSE-327-project.git>