PROJECT REPORT

LEARNING MANAGEMENT SYSTEM

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Executive Summary:

The Learning Management System is an EdTech application that helps in delivering and managing courses smoothly. This application helps in providing an interface between the educator and the educatee. The main aim is to increase the interaction between students and teachers through discussion forums, deadline notifications, and so on.

The LMS has three roles:

1. Admin: He/she is responsible for registering a user to the LMS, assigning courses to educator and educatee, etc.
2. Educator: An educator can add assignments, notes, grades, etc. for the educatees and post in the discussion forum of their subject.
3. Educatee: An educatee can submit assignments, view their grades, and ask or respond to doubts in the discussion forum.

The project is built in python-flask as it provides a wide functionality and utility of various python packages and also facilitates easy database integration. The user interface is developed using simple HTML and CSS.

An incremental and iterative model of development was followed throughout the project as tasks were divided into weekly goals and continuously improved over time.

In the current circumstances where the learning is shifted to hybrid mode, this application will provide a smoother experience to an educational institute by replicating some part of the actual offline learning environment.

Requirements:

A platform for students and facilitators to manage the course in an online environment, The main requirements for the project are:

- User profiles
    - Authentication process for login and registration of users.
    - Manage 3 different types of users(admin/educator/educatees)
    - Proper access control for different types of users.

- Courses
    - Different types of users specifically (educators and educatee should be added to courses)
    - There should be a different type of users (admins) who can manage courses (creation and modification) and add educator to the course
    - Educators and admin both should be able to add educatees to the course.

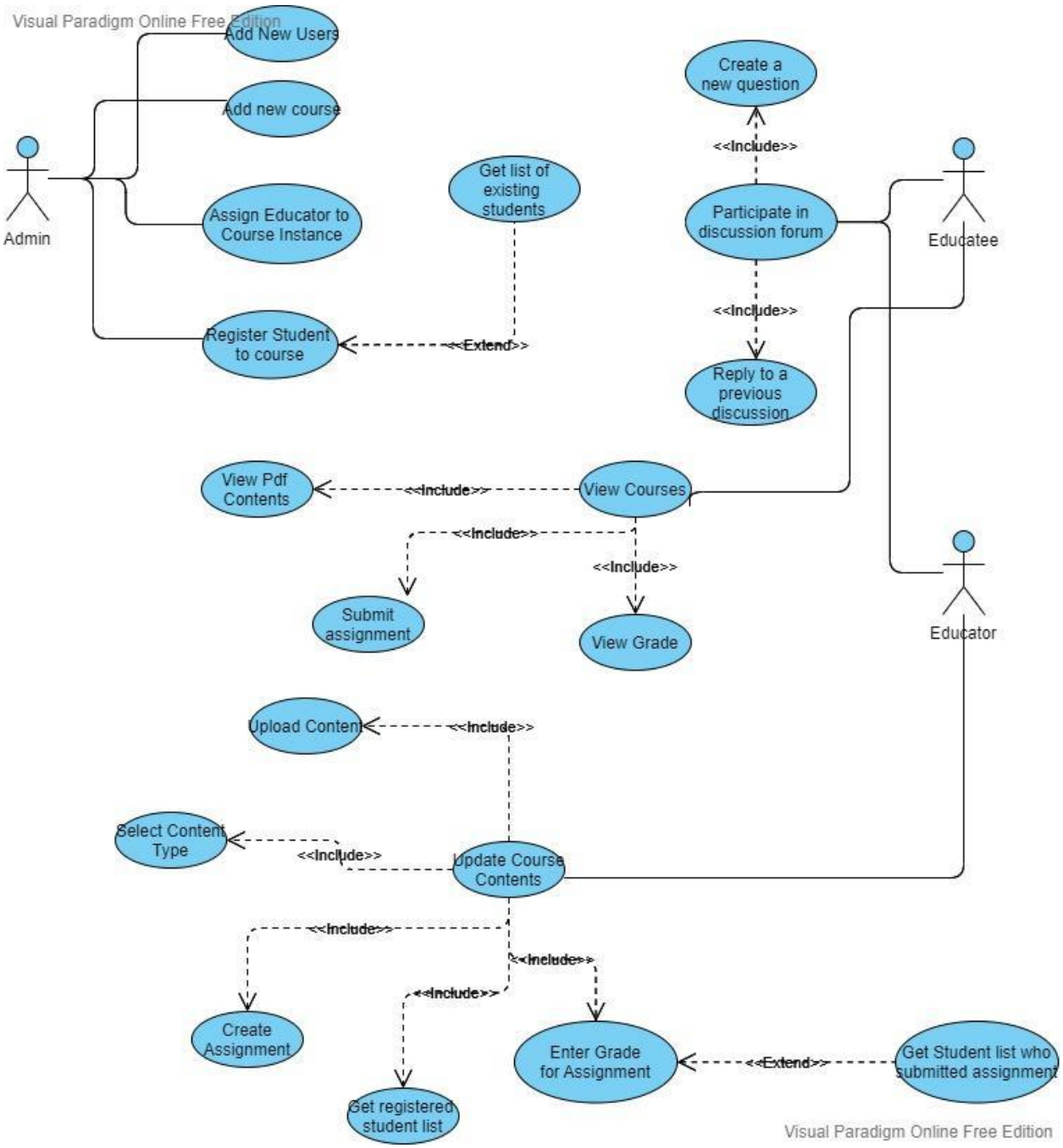
- Assignments
    - Educators should be able to upload assignments for courses and notify educatees about the same.
    - Educatees should be able to submit assignments.
    - A way to notify Educatees to submit assignments before their due date, they should get a notification mail before the due date of any assignment.

- Grades
    - Educator should be able to assign grades to educatees as per their performance in the course
    - Educatees should be able to view the grades and feedbacks from the educators

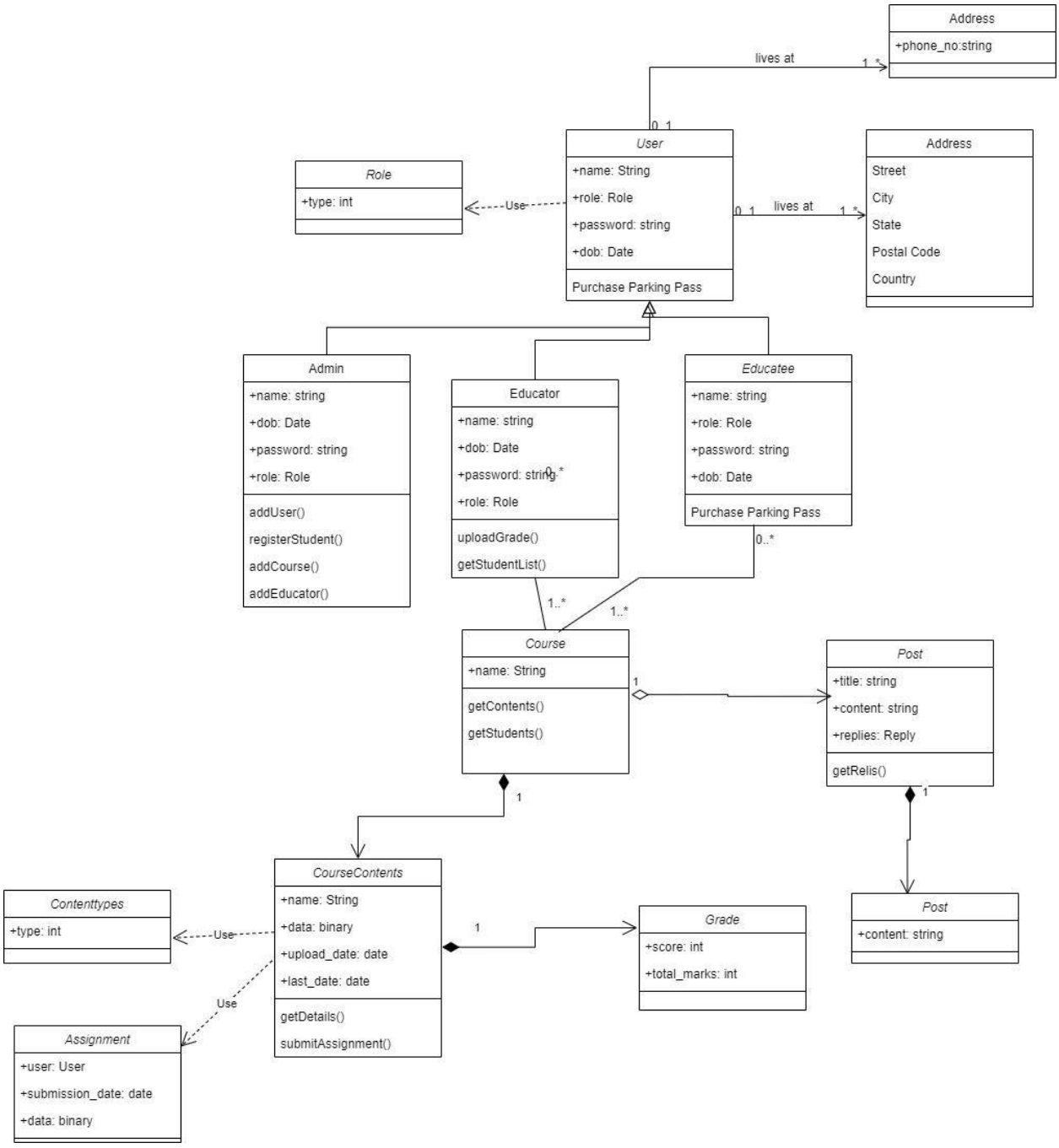
- Discussion forum
    - A forum for students from a particular course for discussion

Design and Architecture:

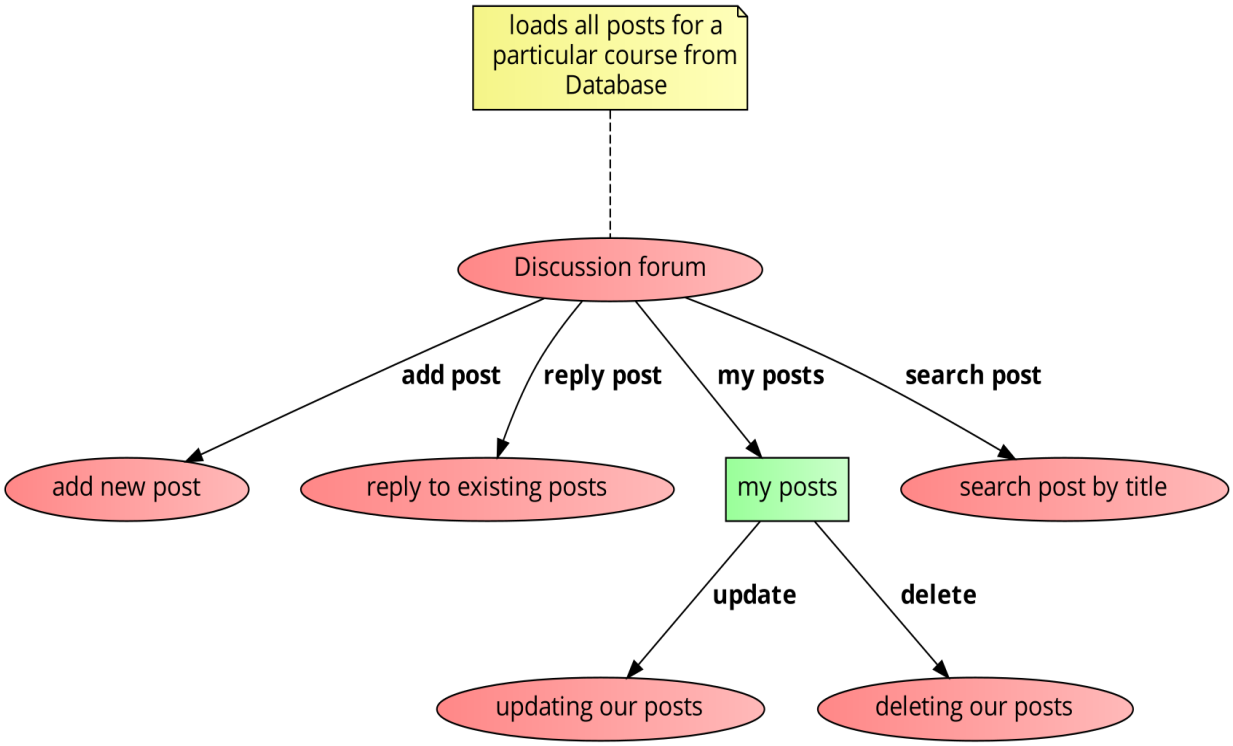
Use Case Diagram of the LMS portal:



Class Diagram of the LMS portal:



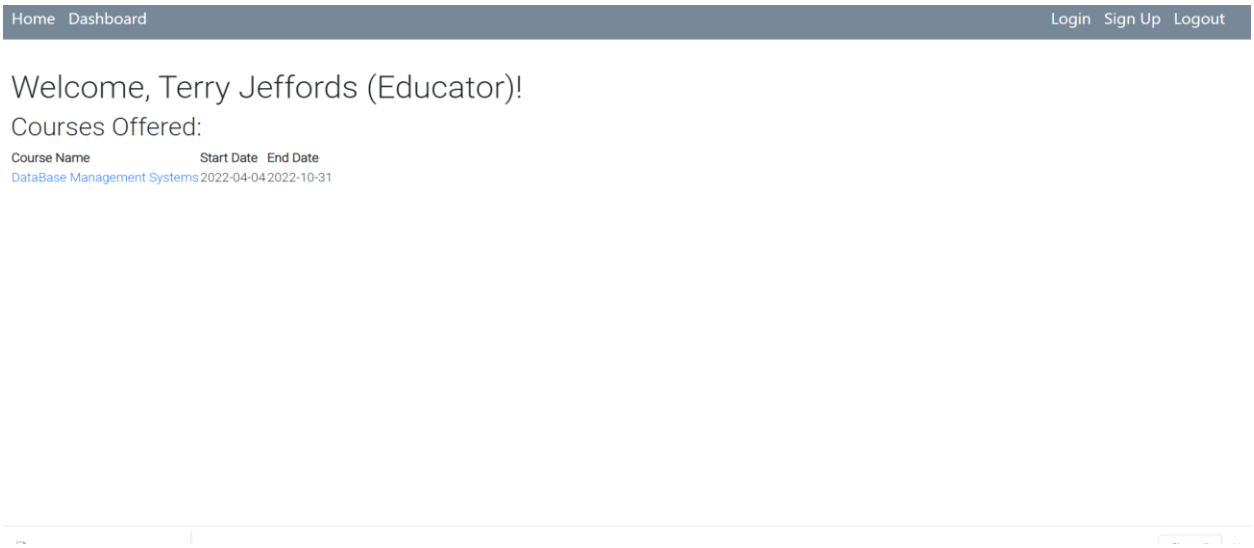
Functionality Diagram for Discussion Forum:



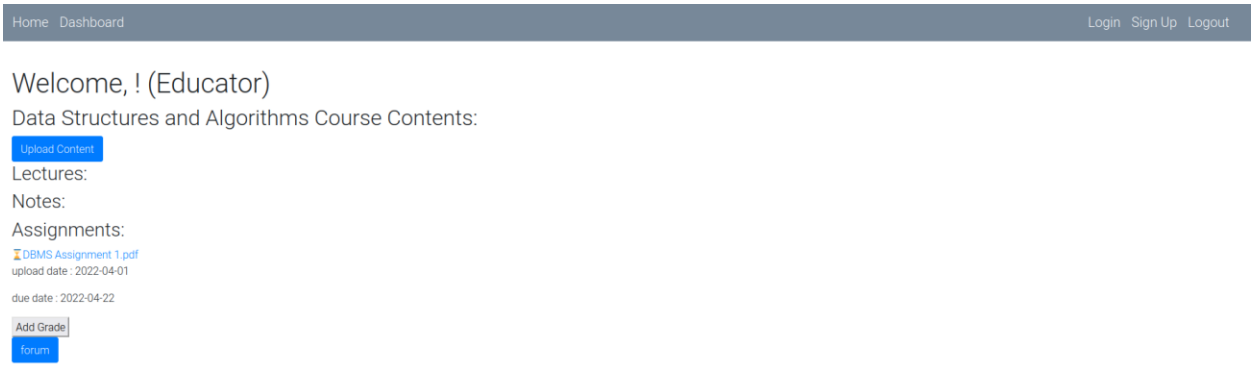
Snippets:

Admin Dashboard:

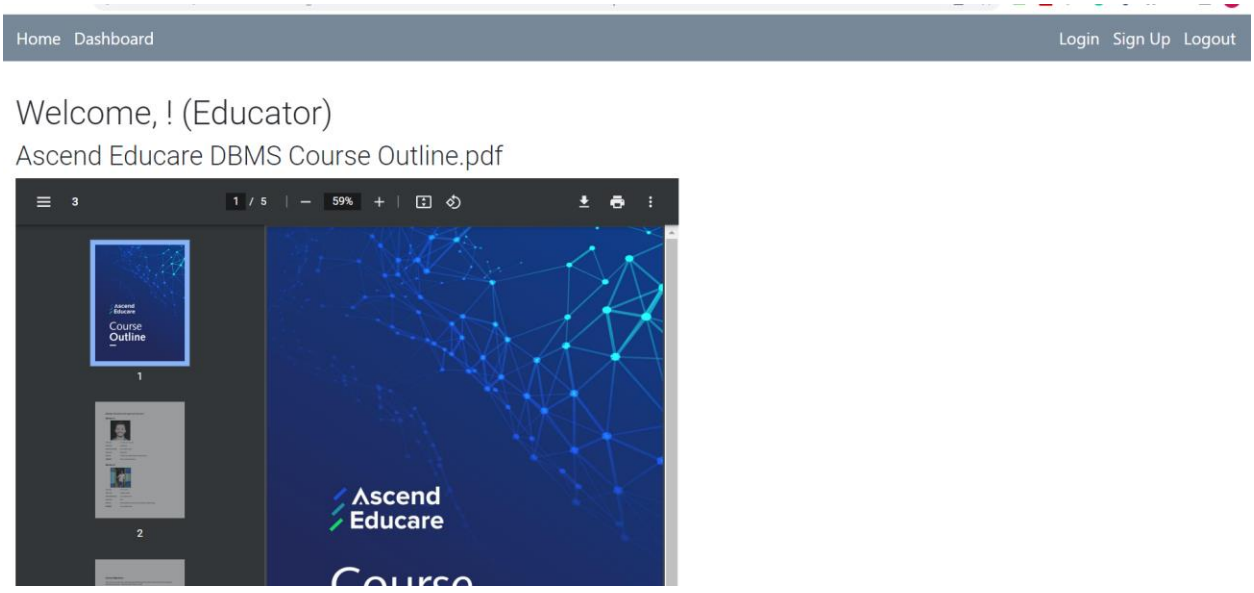
Educator Dashboard:



Course Page Educator View:



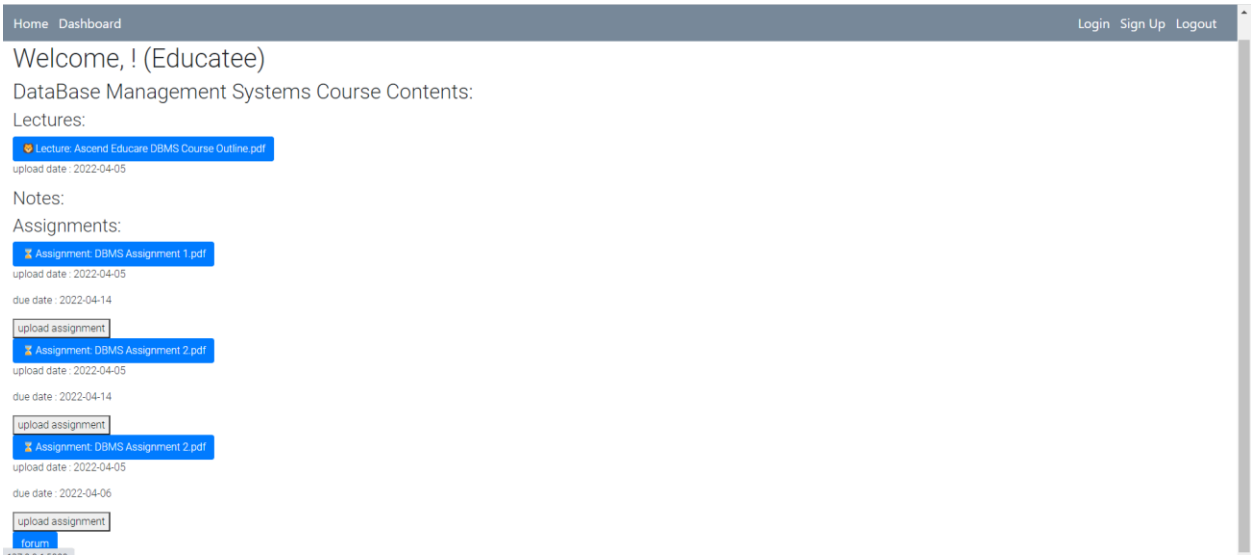
PdfViewer:



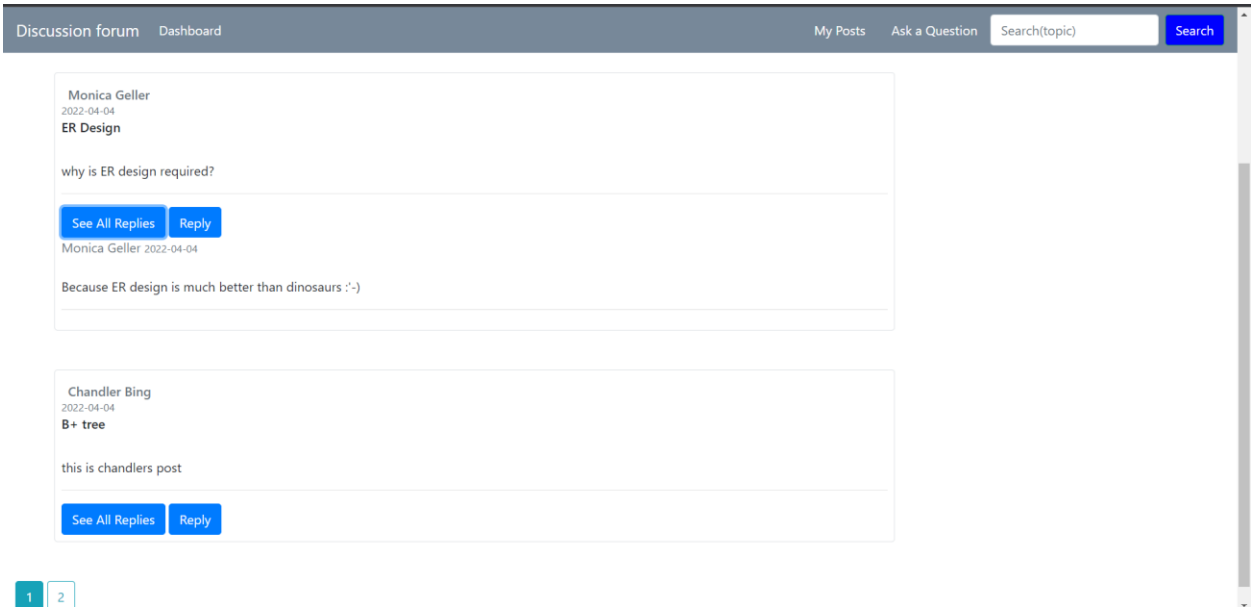
Educator functionality(Upload Content):

Educatee Dashboard

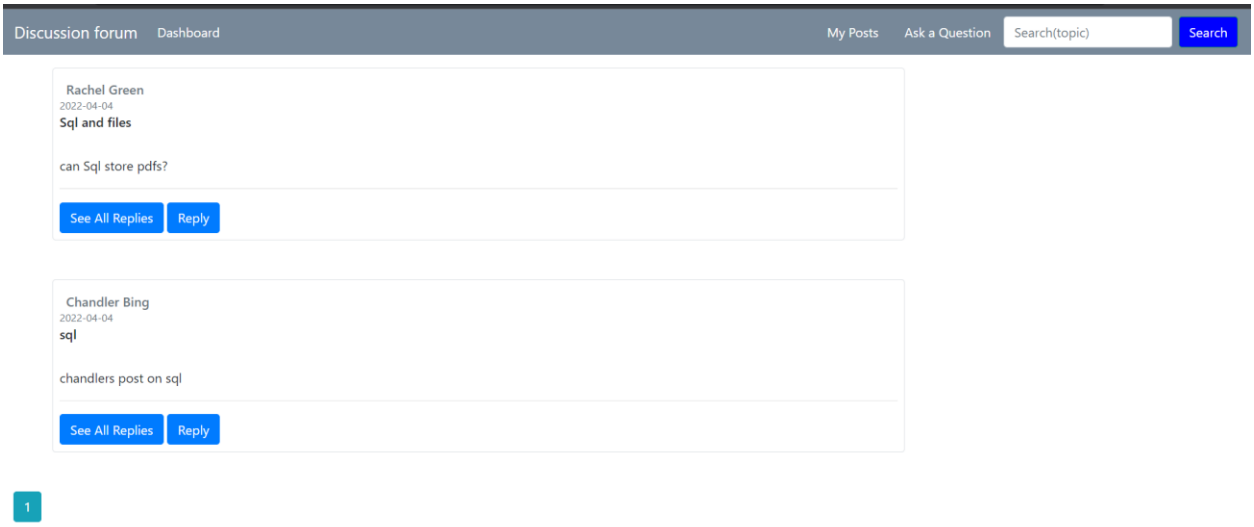
Course Page Educatee View:



Discussion Forum:



Discussion forum searching using a Keyword:



Future Scope:

- This LMS can be scaled to have more than one Mentor per Course Instance.
  Currently the structure is like a particular course(let's say DBMS) can have multiple Instances (DBMS Sem1, DBMS Sem2) and each instance can have only one Educator assigned to it as Mentor.
- We can add a Meeting Scheduling option in the LMS itself. Which can work in two ways:
    - Mentorcan schedule class meeting for a Course that will be visible on registered students side as upcoming lecture
    - Educatee can request to schedule a meeting with a mentor selecting from slots provided by the Mentor.
- Currently the LMS has functionality to send emails to registered students when Assignment deadline is close. Along with this we can have a personal schedule where every upcoming commitment will be shown in the Dashboard itself.
  Also the user will be able to add their own tasks in that schedule.
- LMS is currently for one institution; it can be scaled to manage multiple institutions or individual tutors.
- LMS can have a built-in exam portal. Educator can create an exam adding questions, setting time duration etc. After Educatee takes the exam it will be autograded.

References:

Python-flask: https://www.javatpoint.com/flask-tutorial

https://www.youtube.com/watch?v=x_c8pTW8ZUc&t=5821s

For several issues: https://stackoverflow.com/

For SQLAlchemy: https://docs.sqlalchemy.org/en/14/core/tutorial.html

For CSS :BOOTSTRAP