

INFORMATION TECHNOLOGY WORKSHOP -II
PROJECT

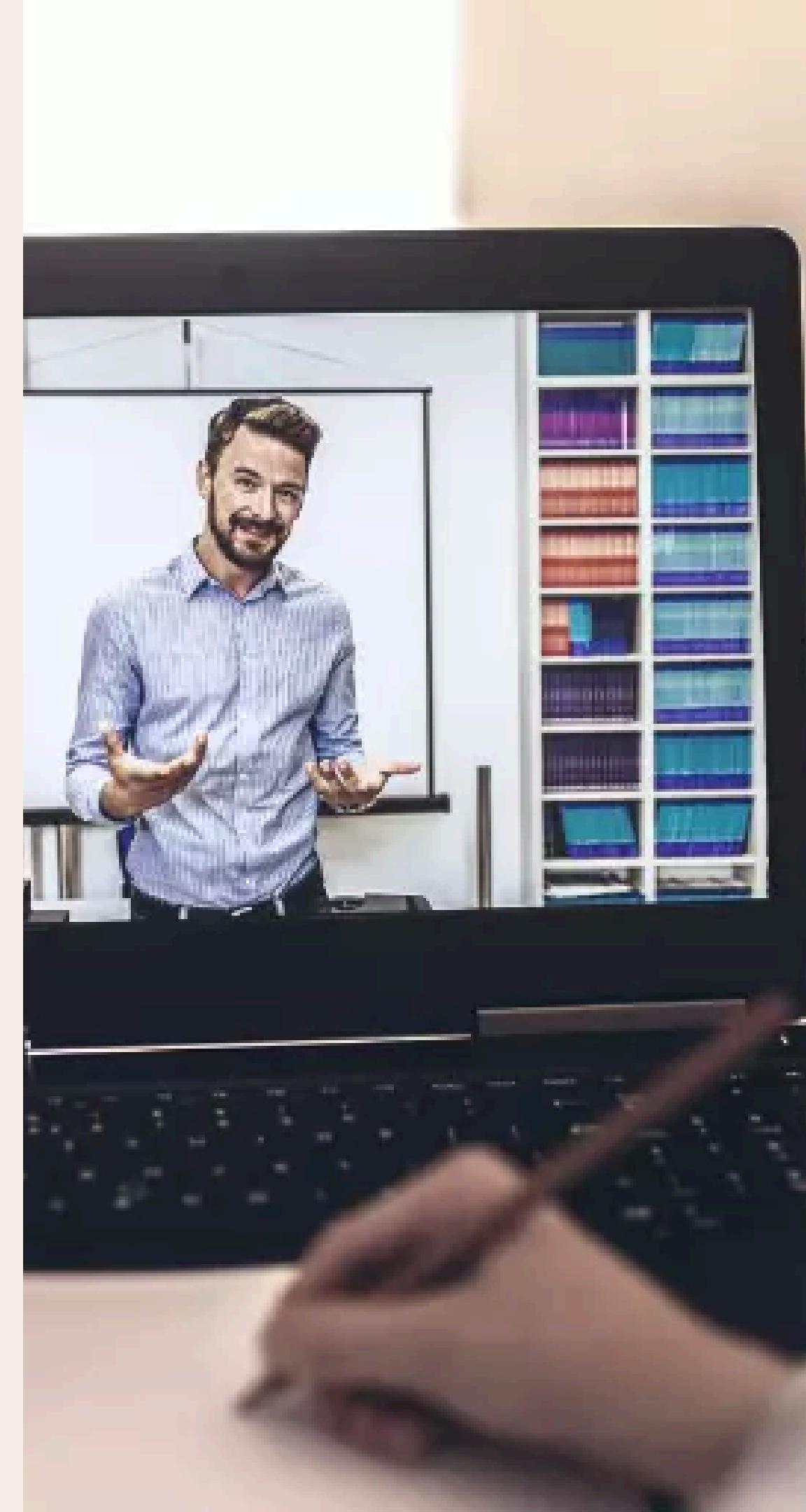
VIRTUAL CLASSROOM

BY-
TANVI BANSAL - 23074029
NAYANIMA JAISWAL - 23075050



OBJECTIVE OF THE PROJECT

The goal of this project is to develop a user-friendly Virtual Classroom platform that enhances online learning through SQL, Django, and HTML/CSS. By leveraging cutting-edge web technologies, this platform will provide students and educators with a range of tools to support interactive and personalized learning. SQL will manage data efficiently, handling student info, courses, assignments, and more, while maintaining data integrity. Django will serve as the core backend, enabling user authentication, content management, and seamless interaction with the SQL database. HTML/CSS will ensure a responsive, intuitive frontend, offering personalized dashboards, course navigation, and content delivery. Together, these technologies will create an interactive, scalable, and feature-rich learning environment for students and educators.



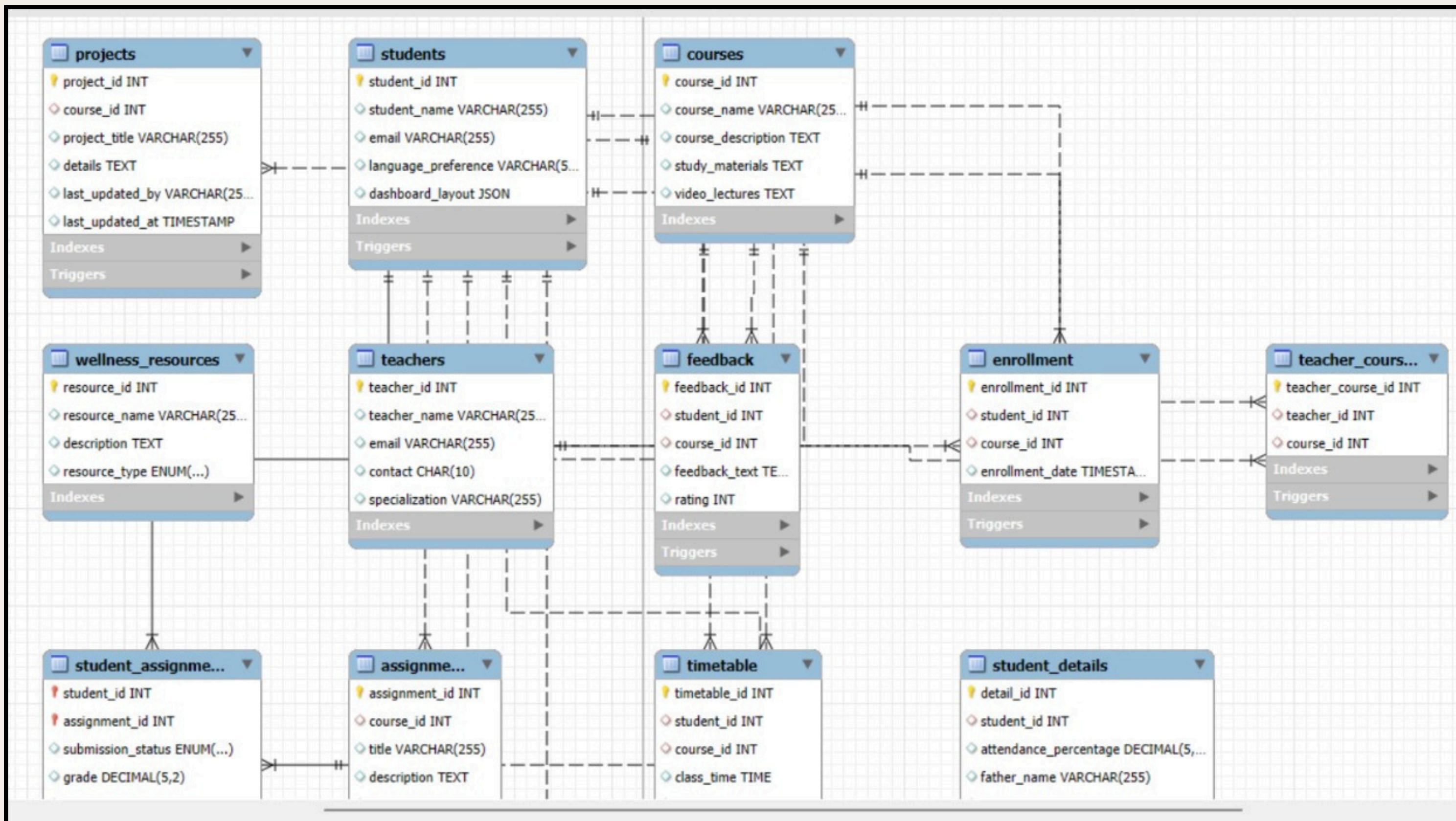


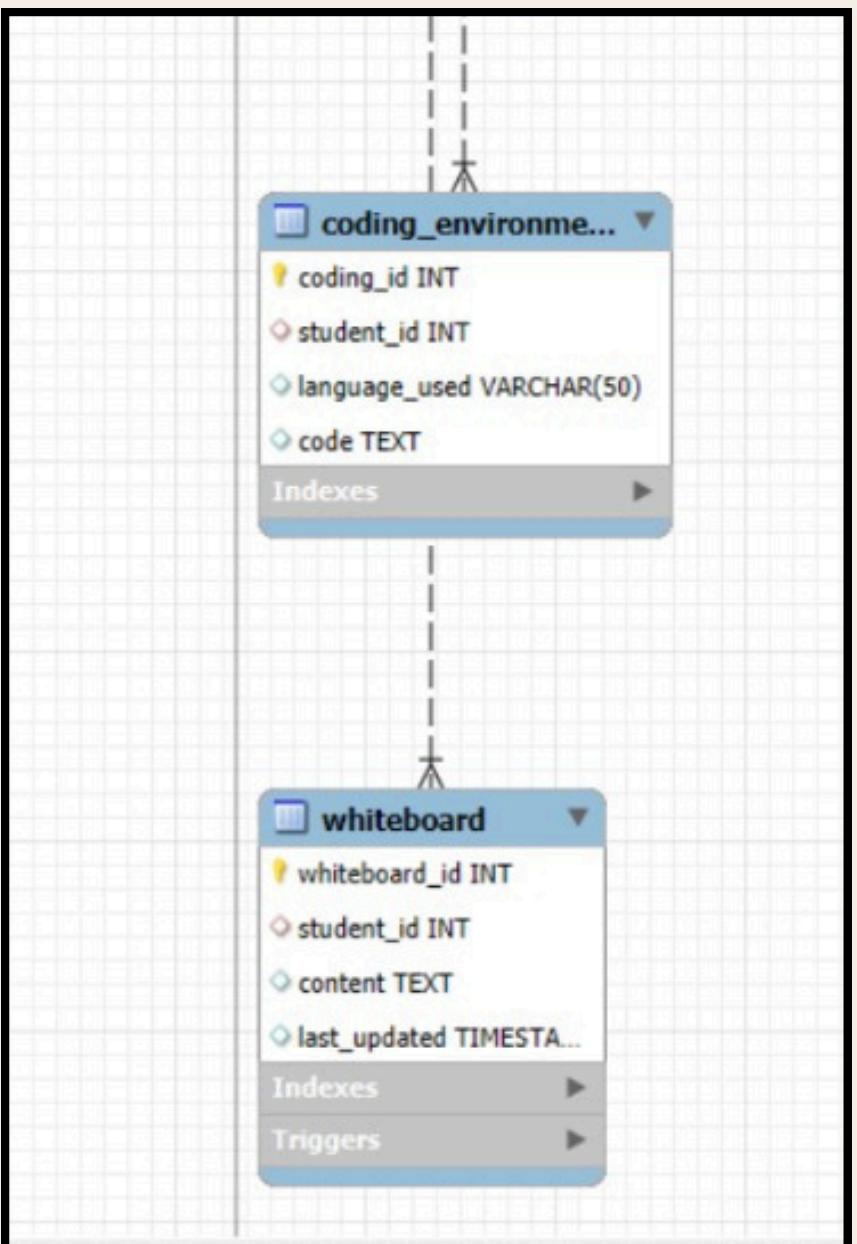
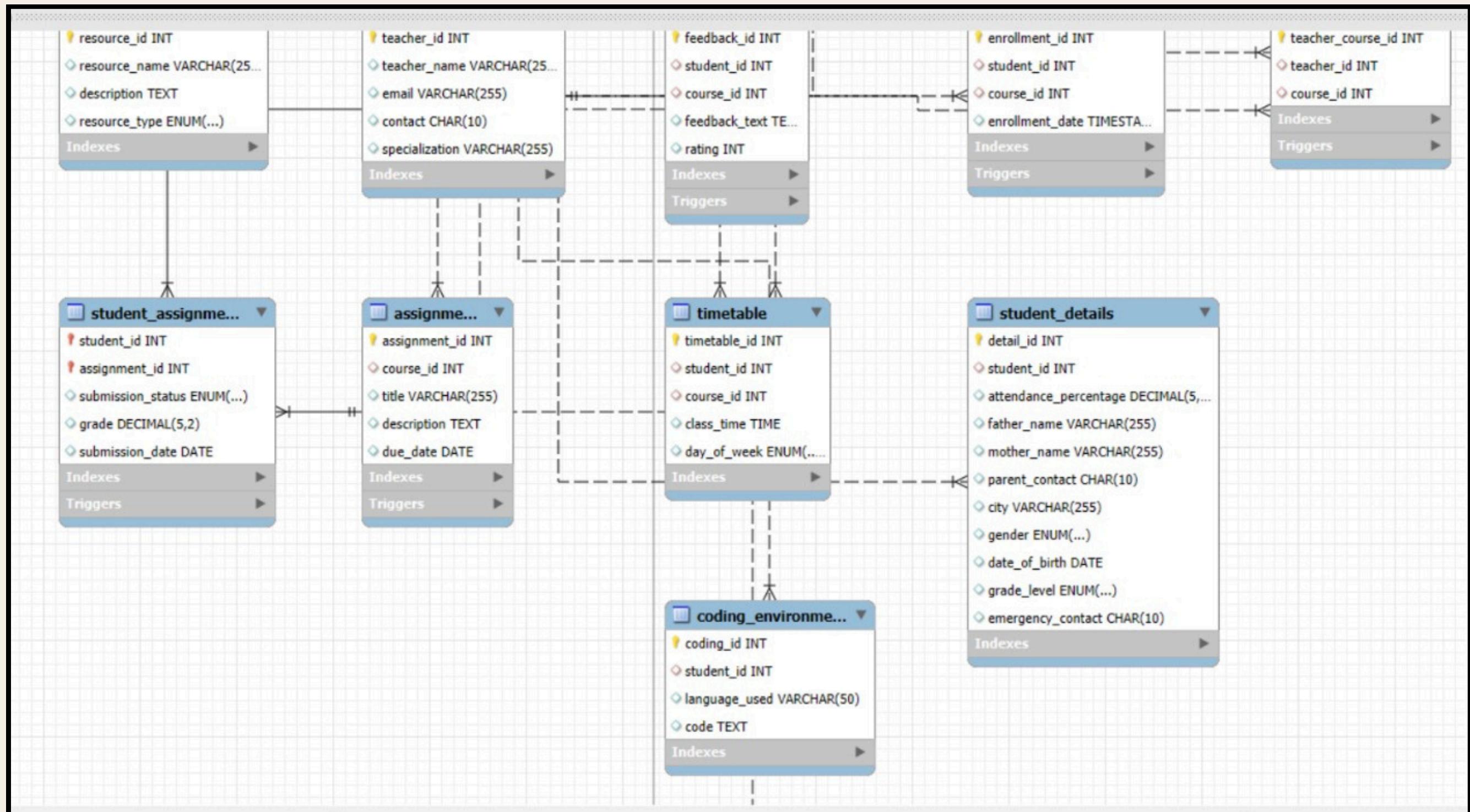
MOTIVATION

The main motivation behind this project is driven by the need for effective, flexible, and accessible online learning solutions that address the challenges faced by both educators and students in today's digital age. Online education offers the flexibility to learn at one's own pace and convenience, which is particularly important for working professionals or students with varying schedules.

1. Traditional classrooms often face limitations in terms of accessibility, location, and resources. We aim to bridge these gaps by making quality education available to students regardless of their geographic location.
2. Every student has unique learning preferences. to offer a personalized learning experience. Features like personalized dashboards, language preferences, and customized content delivery cater to the individual needs of each student.
3. Educators face challenges in managing educational resources efficiently. The virtual classroom platform is motivated by the desire to streamline the management of assignments, projects, and resources like study materials and video lectures.

DATABASE DESIGN





TABLES CREATED

- **Students** - Contains the basic data of all students.
- **Student_Details**- Contains more data on all the students.
- **Courses**- Contains the list of all the courses.
- **Teachers**- Contains information of all the teachers.
- **Teacher_Courses**- Information on which teacher is teaching which course. Many-to-many relationship.
- **Enrollment**- Enrollment information of all the students.
- **Assignments** - Contains details of assignments for each course, including the title, description, due date, and course association.
- **Projects** - Contains details of projects for each course, including the project title, details, and course association.
- **Student_Assignments** - Tracks students' assignment submissions, their status (e.g., Pending, Submitted, Graded), grades, and submission dates.
- **Timetable** - Stores the class schedule for each student, including course, time, and day of the week.
- **Feedback** - Stores feedback provided by students for each course, including the feedback text and a rating between 1 and 5.
- **Coding_Environment** - Contains data related to the coding environment for students, such as the language used and the submitted code.
- **Wellness_Resources** - Contains a list of wellness resources available to students, including the resource name, description, and type (e.g., Video, Article, Exercise).
- **Whiteboard** - Stores whiteboard content for students, including the content itself and a timestamp of when it was last updated.

TRIGGERS CREATED

- Trigger: update_attendance_percentage

Purpose: Automatically sets the attendance percentage of a student to 100% when they are enrolled in a new course.

Type: AFTER INSERT on the Enrollment table.

- Trigger: check_submission_date

Purpose: Ensures that a student's assignment submission date is not earlier than their course enrollment date. If the submission date is invalid, an error is triggered.

Type: BEFORE INSERT on the Student_Assignments table.

- Trigger: auto_update_graded_status

Purpose: Automatically changes the submission status of a student's assignment to "Graded" once a grade is entered for the assignment.

Type: AFTER UPDATE on the Student_Assignments table.

- Trigger: validate_feedback_rating

Purpose: Ensures that the feedback rating provided by students is between 1 and 5. If the rating is outside this range, an error is raised.

Type: BEFORE INSERT on the Feedback table.

- Trigger: cascade_delete_related_data

Purpose: Ensures that when a student is deleted, their related data (whiteboard content, coding environment, and feedback) is also deleted to maintain data integrity.

Type: BEFORE DELETE on the Students table.

- Trigger: log_whiteboard_updates

Purpose: Logs every update made to a student's whiteboard, capturing the student's ID, the activity type, and the timestamp of the update.

Type: AFTER UPDATE on the Whiteboard table.

- Trigger: validate_due_date

Purpose: Ensures that an assignment's due date is a future date. If the due date is in the past or the current date, an error is triggered.

Type: BEFORE INSERT on the Assignments table.

- Trigger: validate_teacher_specialization

Purpose: Validates that a teacher's specialization matches the course they are assigned to. If the specialization does not align with the course, an error is raised.

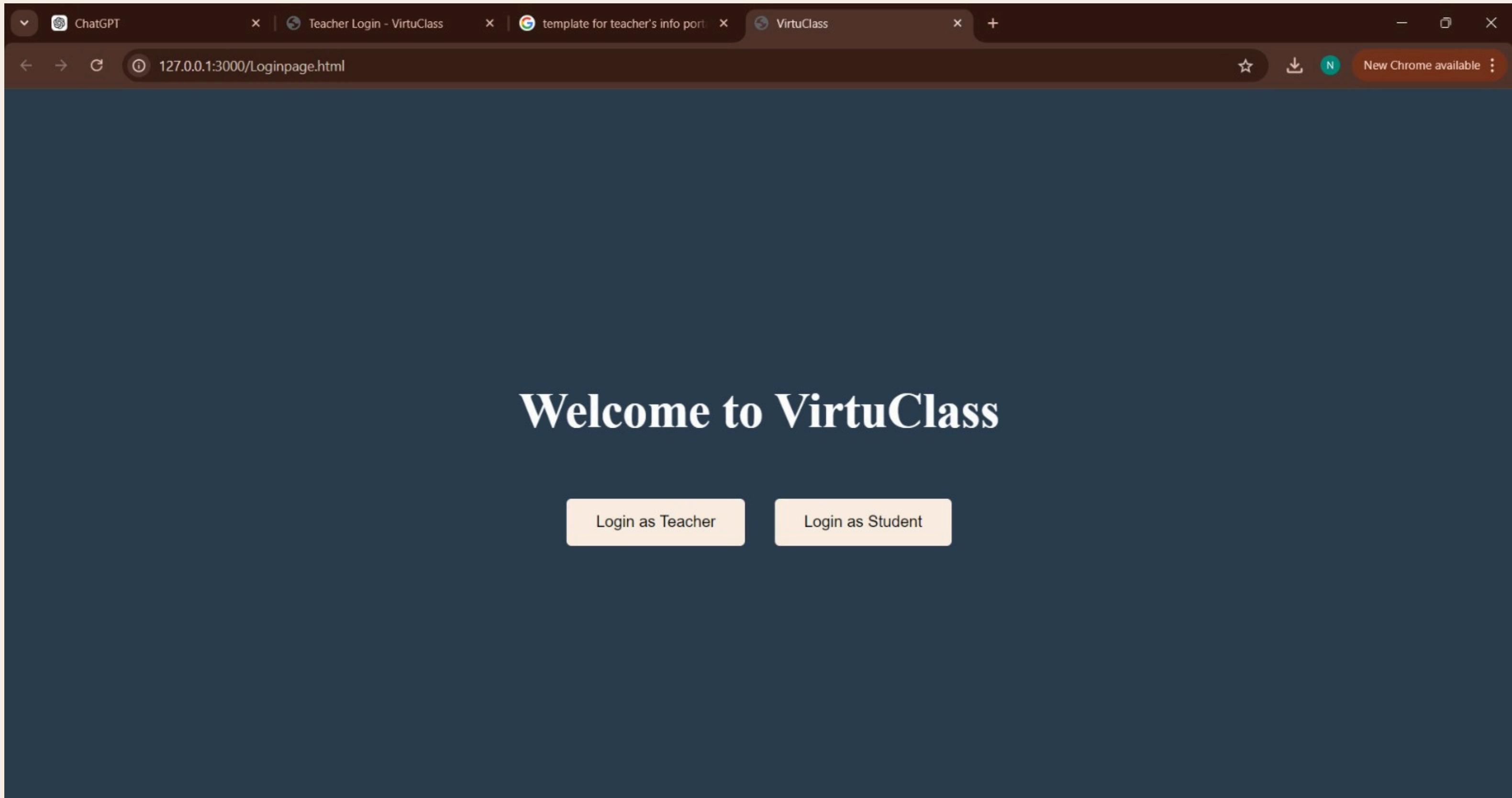
Type: BEFORE INSERT on the Teacher_Courses table.

- Trigger: validate_assignment_grade

Purpose: Ensures that the grade entered for an assignment is between 0 and 100. If the grade is outside this range, an error is raised.

Type: BEFORE INSERT on the Student_Assignments table.

WEBSITE HOME PAGE



STUDENT LOGIN PAGE

A screenshot of a web browser window showing a student login interface. The browser tabs include "ChatGPT", "Teacher Login - VirtuClass", "template for teacher's info port", and the active tab "Student Login - VirtuClass". The address bar shows the URL "127.0.0.1:3000/login_student.html". The main content area displays a "Student's Login" form with fields for "Roll Number" and "Password", a "Login" button, and a "Forgot Password?" link. The browser status bar at the bottom shows system information like weather (32°C Haze), search, file explorer, and system icons.

Student's Login

Roll Number

Password

Login

Forgot Password?

32°C Haze | Search | File Explorer | Task View | Edge | Google Chrome | File | System Icons | Weather | Network | Battery | ENG IN | 12:09 | 23-09-2024

Timetable

CSE B.Tech/IDD SEM- III
Time-Table

| Day/Time | 8:00 – 8:55 AM | 9:00 – 9:55 AM | 10:00 – 11:30 AM | BREAK | 1:30 – 2:25 PM | 2:30 – 3:25 PM | 3:30 – 4:25 PM | 4:30 – 5:25 PM |
|----------|-------------------------|-----------------|--------------------------|-------|----------------|----------------------|----------------------|----------------------|
| Mon | - | CSO-204 (LT-21) | ME-102 (LT-31) | - | - | CSE-205 Lab (UGL1+2) | CSE-205 Lab (UGL1+2) | CSE-205 Lab (UGL1+2) |
| Tue | MA-202 (Starts 8:30 AM) | MA-202 | CSO-211 (LT-3 Main Hall) | - | - | CSE-205 (LT-21) | ME-102 Tutorial | - |
| Wed | - | CSO-204 (LT-21) | ME-102 (LT-31) | - | - | CSO-211 Lab (UGL1+2) | CSO-211 Lab (UGL1+2) | LM |
| Fri | - | CSO-204 (LT-21) | - | - | - | MA-202 Tutorial | LM | LM |

Student_Name

[Student Information](#)[Classes](#)[Know Your Teachers](#)

Upcoming Deadlines

Quizzes Dates

Assignment Submission

Project Submission

Calendar

2021-22

2022-23

2023-24

Contact Details

Email: student@gmail.com

Phone: +91-9123567893

STUDENT
HOME
PAGE

STUDENT INFO PAGE



Rain Joseph
Student ID:0123456789
Grade Level: Sophomore

GENERAL INFORMATION

| | |
|-----------------------|------------------|
| Academic Year | : 2023-24 |
| Gender | : Female |
| Language Preferred | : English |
| Email | : rain@gmail.com |
| Attendance Percentage | : 85% |
| Father's Name | : Roy Joseph |
| Mother's Name | : Nisa Joseph |
| Parent's Contact | : 9876543210 |
| City | : Bangalore |
| DOB | : 01/02/2005 |
| Emergency Contact | : 1234567890 |

TEACHER INFO PAGE(AS SEEN BY STUDENTS)



Malya Verma

Contact: 0123456789



Ashwani Kumari

Contact: 0123456789



Vinod Kumar

Contact: 0123456789



Raihan Khan

Contact: 0123456789



Sudhanshu Srivastava

Contact: 0123456789

SUBJECTS PAGE(AS SEEN BY STUDENTS)

Subject List

Mathematics

Course ID: 1

Physics

Course ID: 2

Chemistry

Course ID: 3

Physics

Course ID: 2

Chemistry

Course ID: 3

English

Course ID: 4

Computer Science

Course ID: 5

Assignments

Projects

Study Materials

Video Lectures

TEACHER LOGIN PAGE AND HOME PAGE

Teacher's Login

Username

Password

Login

[Forgot Password?](#)

Teacher's Portal

My Courses

Physics

Mathematics

History

Geography

Queries

Teacher's Information

FUTURE WORK & UNIQUENESS OF OUR WEBSITE

VirtuClass stands out for its distinctive features that foster an enriching virtual learning experience. One of its key features is an integrated coding platform, where students can practice and improve their programming skills in a real-time environment. Additionally, the feedback forms for teachers offer a channel for students to voice their learning experiences, helping educators refine their teaching strategies. Wellness resources for stress management are another unique aspect, promoting mental health and balance amidst academic pressures. We have also added a Whiteboard in the classroom for students to use it to their needs. Moreover, VirtuClass streamlines academic tasks through video lectures, assignment deadlines, and timetables, ensuring students stay organized and on track.

Looking ahead, the future development of VirtuClass will focus on enhancing its backend using Django, a powerful web framework that will allow for smoother database interactions and scalable application logic. Parts of the frontend will continue to be improved using HTML and CSS for a more responsive and visually appealing user interface.



THANK YOU.