



**Software Engineering
Project (May 2024 Term)
Team 21**

SMART SEEK PORTAL



<https://github.com/uruiitm/soft-engg-project-may-2024-se-may-21.git>

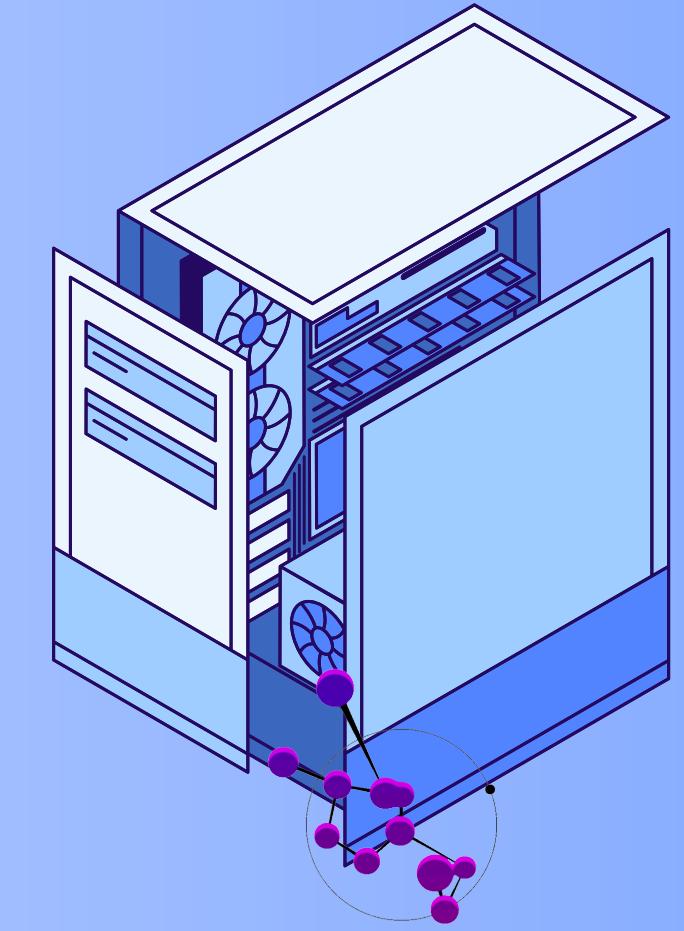
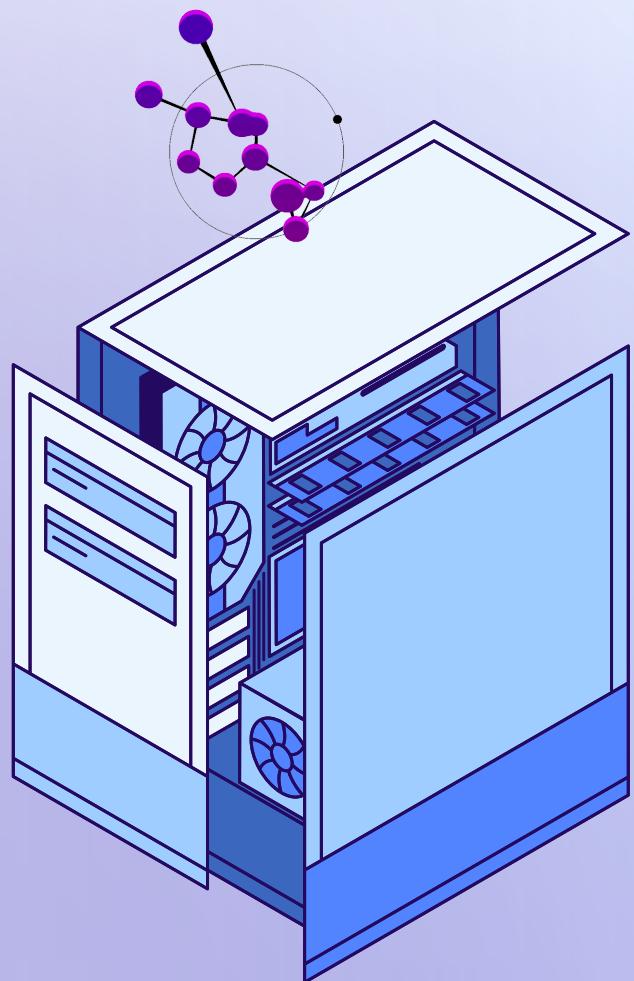




DEFINITION AND SCOPE

Effective integration of Generative AI into programming learning environments

- **Self-Paced Learning:** Provides videos, assignments, and doubt clearing in the SEEK course portal.
- **Generative AI Integration:** Exploring how GenAI can enhance feedback, provide real-time support, and increase interactivity in the SEEK learning environment.





Team 21

REQUIREMENT

GATHERING TECHNIQUE



Personal Interviews:

- Conducted interviews with peers in the BS Degree Programme.
- Discussed difficulties with the SEEK portal and potential GenAI enhancements for a more engaging learning experience.

Naturalistic Observations:

- Leveraged our experience as students to observe peer interactions with GenAI.
- Identified effective ways GenAI is currently used to enhance learning.

Documentations and Research Papers:

- Reviewed research on Large Language Models and GenAI advancements.
- Informed feature selection to meet user requirements based on cutting-edge AI capabilities.



Team 21

**As a Student ,
I want an AutoGenerated Skill Report on
the Basis of my Grade Card.
So that it can help me while Creating my
resume as well as giving references.**

**As an instructor,
I want to use GenAI to create questions
So that I can efficiently generate high-quality
questions for my educational content.**

USER STORIES

Primary Users

- Students

Secondary users

- Instructors

Tertiary Users

- Admin



- Course Introduction
- Week 1
- Week 2
- Week 3
- Week 4
- Week 5
- Supplementary Contents

Input: 7
Output: True (7 is a prime number)

Input: 10
Output: False (10 is not a prime number)

test1 test2

Your AI mate guide

Certainly! Let's provide some constructive feedback to help correct the code and solve the problem:

1. Issue: Treating 0 and 1 as Prime Numbers
 - Feedback: The function currently treats 0 and 1 as prime numbers, which is incorrect. Remember that prime numbers are positive integers greater than 1. Adjust the condition to exclude 0 and 1 from being considered prime.
2. Issue: Returning True When Divisor Is Found
 - Feedback: The function returns True as soon as it finds any divisor. However, it should return False if no divisors are found. Consider changing the return value when a divisor is found.
3. Issue: Loop Range
 - Feedback: The loop should run up to `number // 2` (or even better, `int(number**0.5) + 1`) for efficiency. Currently, it runs up to `number - 1`, which is unnecessary.

```
def is_prime(number):
    """
    Incorrect function to check if a number is prime.
    """

    if number <= 1:
        return False # Incorrect: Treating 0 and 1 as prime numbers

    for i in range(2, number):
        if number % i == 0:
            return True # Incorrect: Returning True if any divisor is found

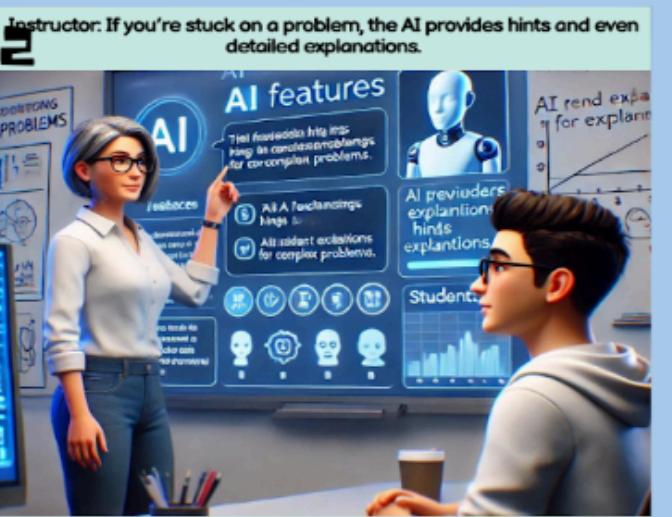
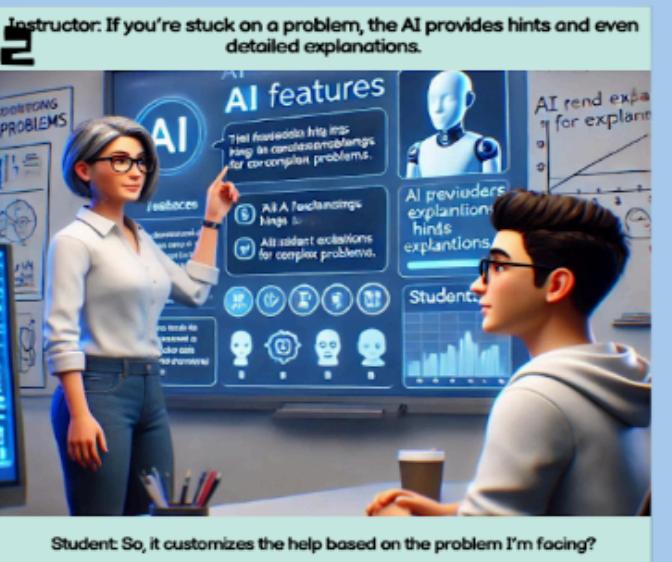
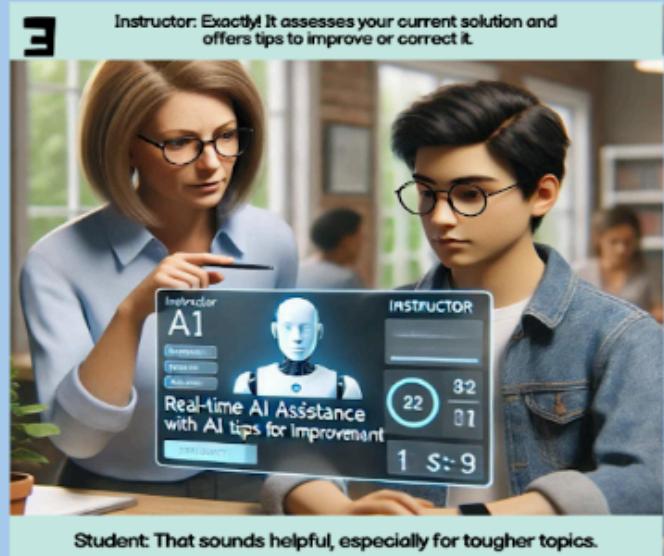
    return True # Incorrect: Should return False if no divisors are found

# Example usage
print(is_prime(7)) # Incorrect output: True
print(is_prime(10)) # Incorrect output: True
```

WIREFRAMES AND PROTOTYPES

STORY BOARDS

STORY BOARD : INSTRUCTOR – STUDENT



Student: How exactly does it assist us?

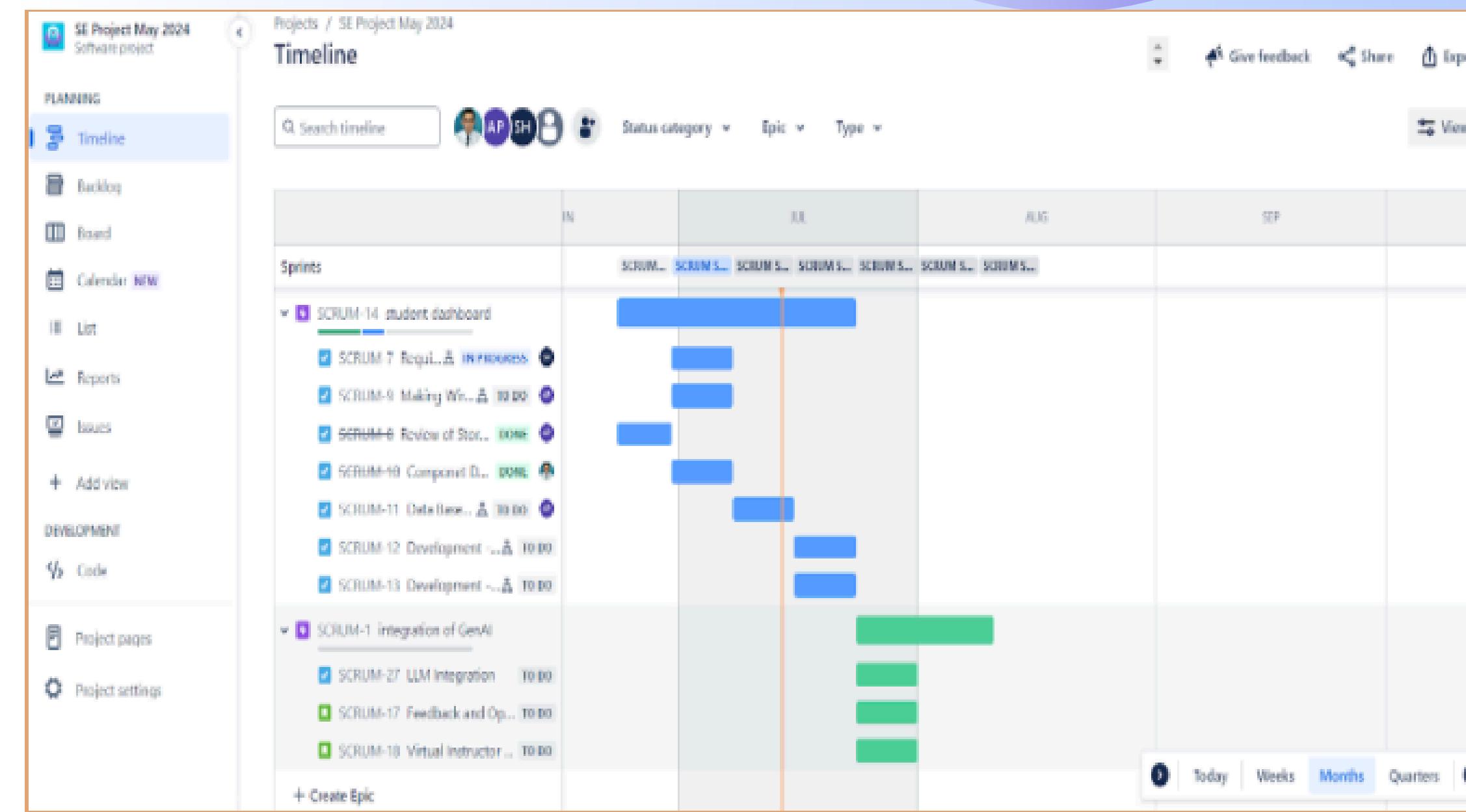
Instructor: Exactly! It assesses your current solution and offers tips to improve or correct it.

Student: That sounds helpful, especially for tougher topics.

Instructor: It also tracks your progress and suggests review materials based on your performance.

Student: Can it help with other subjects too?

GANTT CHART



WORKBREAKDOWN STRUCTURE

Project May 2024
project

Projects / SE Project May 2024

All sprints

Search



Epic

Sprint

GROUP BY

None

Insights



TO DO

+ Create issue

PROJECT MANAGEMENT USING JIRA

(SCRUM BOARD)

IN PROGRESS

DONE 7 ✓

Requirement Gathering and User Stories

STUDENT DASHBOARD

 SCRUM-7

Making Wireframes and Designs

STUDENT DASHBOARD

 SCRUM-9

Componet Design

STUDENT DASHBOARD

 SCRUM-10

Data Base Design and ER

STUDENT DASHBOARD

Quickstart

Sprint insights

View your sprint health and progress toward goals.

Sprint: SCRUM Sprint 2

Issues for attention

There are no issues for attention right now. If you have stuck, blocked or flagged issues, you'll find them. [Learn more](#)

Sprint progress

Add estimates to track your progress

This insight helps you stay across the status of work in your sprint, so your team can adjust as needed, and confidently meet sprint goals. [Learn more](#)

Sprint burndown

0 points, you have issues that aren't estimated

CODING

1. Authentication & Authorization

- Tech Stack: Google Auth, Role-Based Access Control (RBAC)
- Components: User roles (Student, Instructor)

2. Course Management

- Tech Stack: CRUD Operations, Vue Router, GenAI Integration
- Components: Student Dashboard, Instructor Dashboard

3. Programming Assignments

- Tech Stack: In-Browser Text Editor, GenAI API
- Components: Code Editor, GenAI-powered suggestions

4. Virtual Instructor Integration

- Tech Stack: GenAI Models (Gemini), API Integration
- Components: AI-Powered Query Resolution

5. Large Language Model (LLM) Integration

- Tech Stack: Gemini API, Backend Integration
- Components: Content Generation, Query Handling

6. Database Design & API Endpoints

- Tech Stack: ER Diagrams, API Development
- Components: Courses, Modules, Assignments, Virtual Instructor Queries

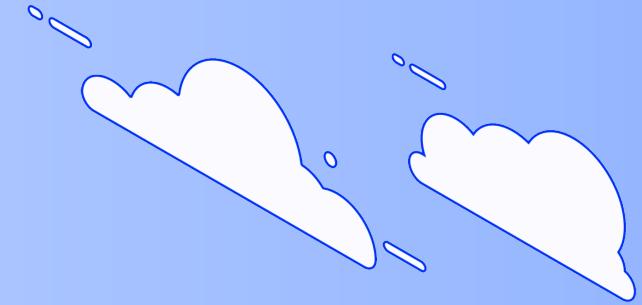
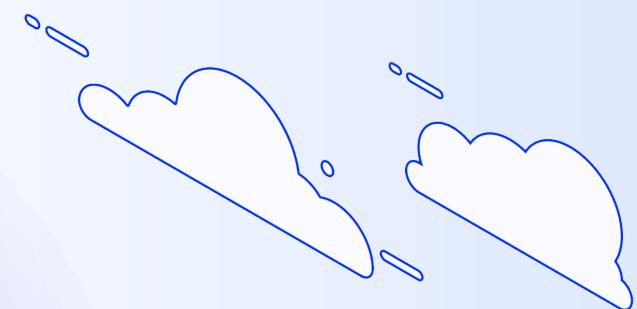
The screenshot shows a GitHub repository interface for a project named "soft-engg-project-may-2024-se-may-21" under the "frontend" branch. The commit history is as follows:

Name	Last commit message
Gitmy3	Preetam made Final Admin files Update
..	added missing files
.vscode	added missing files
public	added missing files
src	Preetam made Final Admin files Update
README.md	added missing files
index.html	added vue router and go
package-lock.json	added vue router and go
package.json	added vue router and go
vite.config.js	added missing files
README.md	

GEN AI INTEGRATION IN OUR APP

Key Features:

- Virtual Instructor: AI-powered tutor for instant, personalized support.
- Personalized Learning Paths (Student Planner): Adapts content based on student progress.
- Feedback: AI-driven feedback on assignments.
- Content Planner: Assists instructors in creating tailored materials.



Benefits:

- Efficiency: Reduces manual tasks.
- Engagement: Boosts student interaction with instant responses.
- Personalization: Offers unique learning experiences.



TESTING

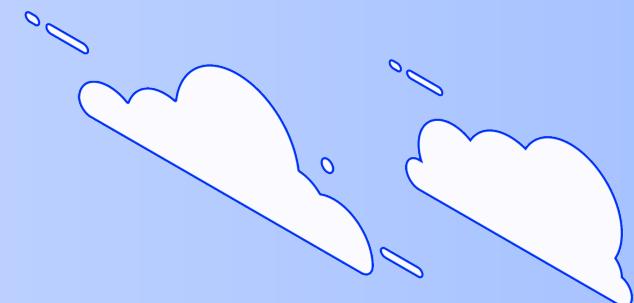
Objective:

- Ensure functionality, reliability, and user satisfaction across all components.

Key Testing Areas:

1. Student Components

- Tests: User authentication, profile management, error handling.
- Outcomes: Verified secure login, accurate profile updates.



2. Course Management

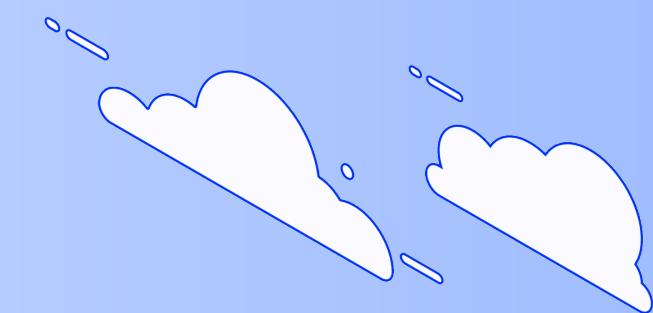
- Tests: Course creation, content management, instructor assignment.
- Outcomes: Streamlined course operations, seamless instructor integration.

3. Modules & Lectures

- Tests: Creation, editing, and deletion of modules/lectures.
- Outcomes: Ensured content integrity and consistency.

4. Assignments

- Tests: Assignment creation, submission handling, grading accuracy.
- Outcomes: Reliable submission process, accurate and fair grading.



5. AI API

- Tested the request and response cycles for all the AI API.

Challenges:

- Integration issues, environment setup, user feedback incorporation.

Resolutions:

- Implemented robust testing strategies using pytest streamlined feedback loops, and continuous iteration.





Team 21

THANK YOU!

SAYAN HRIK

UROOSHA RAHAT

AVIJEET PALIT

AYUSH SIGH RANA

PREETAM MUKHERJEE

SACHIN KUMAR

BODHISATWA BHATTACHARYA

RAMESH KUMAR CHANDRAN