**Problem Statement**

8. Virtual Classroom Manager Programming Exercise

**Problem Statement:**

Imagine you are developing the backend for an EdTech platform that aims to host virtual classrooms. Your task is to create a terminal-based

Virtual Classroom Manager that handles class scheduling, student attendance, and assignment submissions.

**User Input:**

1. Add Classroom: User types add\_classroom followed by the class name to create a new virtual classroom.

2. Add Student: User types add\_student followed by the student ID and the class name to enroll a student in a classroom.

3. Schedule Assignment: User types schedule\_assignment followed by class name and assignment details to add an assignment for a

class.

4. Submit Assignment: User types submit\_assignment followed by student ID, class name, and assignment details to mark an

assignment as submitted.

**Console Output:**

Classroom Addition: "Classroom [Name] has been created."

Student Addition: "Student [ID] has been enrolled in [Class Name]."

Assignment Scheduled: "Assignment for [Class Name] has been scheduled."

Assignment Submission: "Assignment submitted by Student [ID] in [Class Name]."

**Functional Requirements:**

1. Classroom Management: Ability to add, list, and remove virtual classrooms.

2. Student Management: Ability to enroll students into classrooms, and list students in each classroom.

3. Assignment Management: Schedule assignments for classrooms and allow students to submit them.

**Evaluation Criteria:**

1. Code Quality: Importance will be given to best practices, SOLID principles, and the use of appropriate design patterns.

2. Functionality: The terminal-based application should be fully functional and handle various classroom operations efficiently.

3. Global Convention: Adherence to coding standards for readability and maintainability.

4. Gold Standards: The code should include logging, exception handling, and transient error handling.

5. Code Walkthrough: Candidates should be able to fully walk us through their code and the decisions made during development.

The exercise has been designed to echo the real-world complexities that come with managing an educational platform... It's an engaging

problem that evaluates a candidate's ability to model relationships between entities like students and classrooms, and manage state, all

within the constraints of a terminal-based application.