Green University of Bangladesh

Department of Computer Science and Engineering (CSE)
Semester: (Fall, Year: 2024), B.Sc. in CSE (Day)

Course Title: Integrated Design Project I
Course Code: CSE 324
Section: 221 D1

Lab Experiment: Draw the UML Sequence Diagram of School Management System.
Students Details

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Lab Project Status	
Marks: **Comments:**	**Signature:** **Date:**

1. Draw the UML of School Management System.

Draw a Sequence diagram for the School Management System (SMS).

2. OBJECTIVES/AIM

The objective of this lab is to design and implement a UML Sequence Diagram for a School Management System. The sequence diagram will represent the interactions between various system users (Admin, Student, Teacher) and the system. This includes processes such as managing students, teachers, classes, exams, and generating results.
The aim is to understand and demonstrate:

- The flow of messages between users and the system.
- The sequence of operations performed by different actors in the system.
- How to represent the system's behavior using a sequence diagram.

3. PROCEDURE/ANALYSIS/DESIGN

0.1 Procedure

Here is the step-by-step procedure on how we design the UML sequence diagram using Lucidchart:

1. Identify the actors in the system. In this case, the actors are Admin, Student, and Teacher.
2. Define the use cases or actions performed by each actor. These include actions like adding/removing students, assigning teachers, providing exams, and submitting results.
3. Create a sequence diagram that shows the interactions between these actors and the system. Use UML symbols such as lifelines, messages, and return messages to represent the flow of actions.
4. Arrange the sequence of actions logically to demonstrate how the system works step-by-step.

0.2 Design

The sequence diagram design is based on the flow of actions within the School Management System:

1. Admin can add/remove students and teachers, and assign classes.
2. Teachers interact with the system to provide exams and prepare result cards.
3. Students interact with the system to submit exams and check attendance.

These interactions are represented as sequential actions from one actor to another, with the system responding to each action. The diagram provides clarity on which actor performs what action at each step.

4. IMPLEMENTATION

The sequence diagram was created using text-based symbols to demonstrate the system interactions. Below is the UML sequence diagram in Lucidchart:

The sequence diagram visually represents the following processes:

- Admin manages students, teachers, and classes.
- Teachers provide exams and prepare result cards.
- Students submit exams.

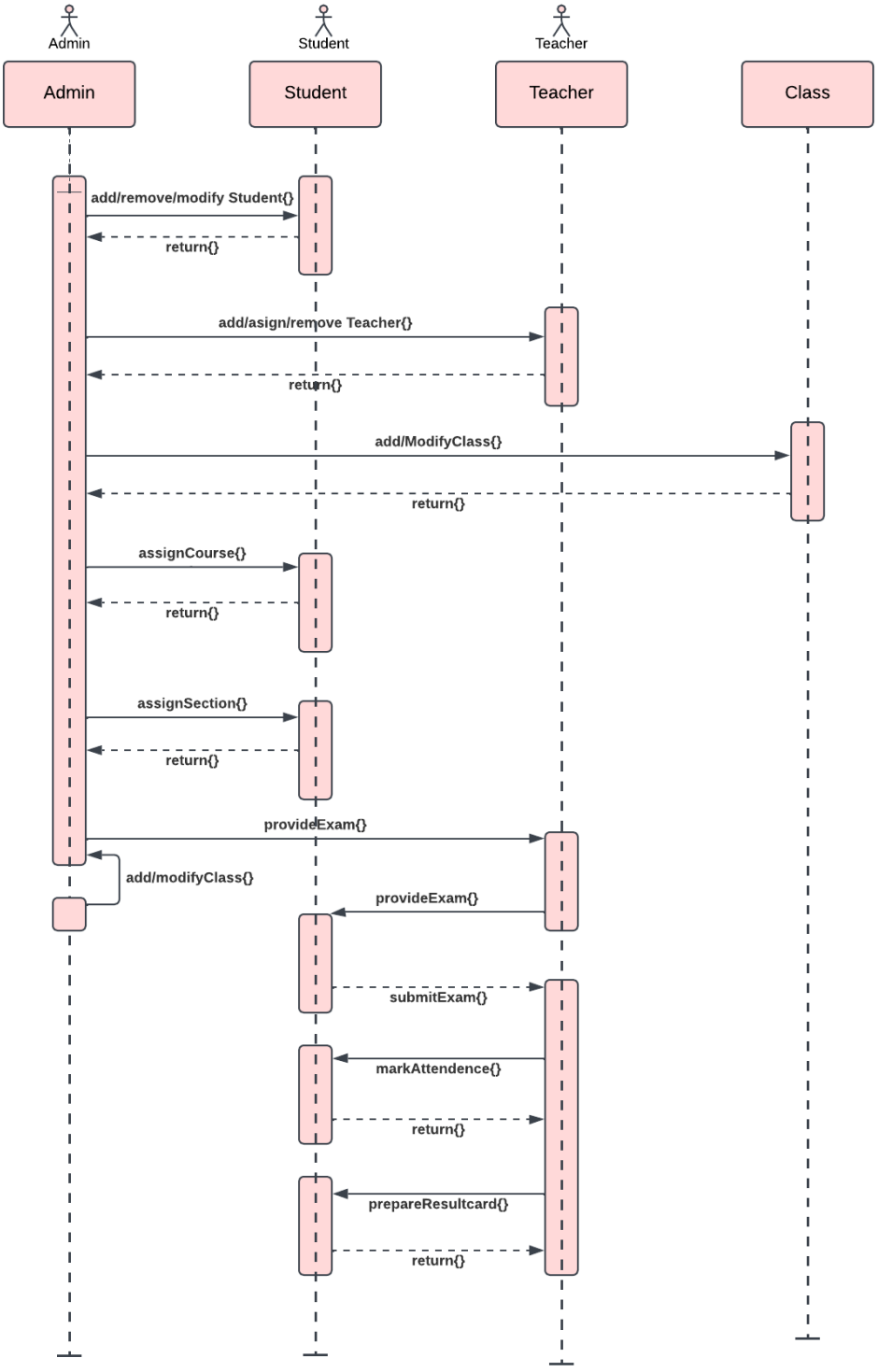

Figure 1: UML Sequence Diagram

5. ANALYSIS AND DISCUSSION

The sequence diagram offers several insights into the **School Management System**:

- **Actor Responsibilities:**
  - The **Admin** is responsible for handling all data-related operations, such as adding and removing students and teachers.

  - The **Teacher** is responsible for creating exams and managing attendance.
  - The **Student** submits exams and views attendance or result data.

- **Flow of Communication:** The diagram shows a clear communication flow where each actor sends messages to the system, and the system responds accordingly.
  - For instance, when the **Admin** adds a student, the system processes the request and returns a confirmation.

- **Return Messages:** Each action is followed by a **return message**, indicating that the system successfully processed the request. For example, after **providing an exam**, the **Teacher** receives a return message indicating the action is completed.

This type of diagram helps in understanding the sequential flow of operations within a system and ensures that all interactions are accounted for in the process.

6. CONCLUSION

The UML Sequence Diagram for the School Management System successfully demonstrates how various actors (Admin, Student, Teacher) interact with the system. By modeling the sequential flow of actions, we can ensure that the system's behavior is logical and correctly implemented. The diagram provides a detailed view of the entire workflow, making it easier to understand how tasks such as adding students, providing exams, and preparing results are handled within the system. This will be essential for the development and testing phases of the system, ensuring all requirements are met and workflows are optimized for efficient system performance.