9).A college has more than thousand security persons, who are instructed to give duties at different places within the campus. Additionally, they also maintain a routine, which contains all information, such as Date, Duty Start Time, Duty End Time, and Place. Most importantly, all the places are covered by at least one security person. If a security person takes leave, manual entry is done against that person. Finally, at the end of a month, the security persons get paid for their duties, while considering the number of leaves as well. You can see that the manual calculation/operation is a heavy task for the security manager. Therefore, the objective is to build an Online security management system using class diagram through which entire security system within the campus can be controlled in an efficient manner.

AIM

To design and create a **Class Diagram** for an **Online Security Management System** that efficiently manages security personnel's schedules, duties, leaves, and monthly payments in a college campus.

PROCEDURE

1. **Analyze the System Requirements**
   Understand the key components of the security management system, including duty schedules, leave management, and salary calculation.

2. **Identify Classes**
   Determine the main entities (classes) required for the system:

   o **SecurityPerson**: Represents each security person with personal details.

   o **DutySchedule**: Contains information on duty start time, end time, date, and place.

   o **LeaveRecord**: Tracks leave details for security personnel.

   o **Payment**: Handles salary calculation based on duties and leaves taken.

3. **Identify Attributes and Methods**
   Define attributes and methods for each class:

   o **SecurityPerson**: ID, name, contact, role, and methods for viewing duties and applying for leave.

   o **DutySchedule**: Date, start time, end time, place, and method to assign duties.

   o **LeaveRecord**: Leave date, type of leave, status, and method to update leave.

   o **Payment**: Basic salary, number of duties, number of leaves, and method to calculate salary.

4. **Establish Relationships**
   Define the relationships between classes:

   - ○ **SecurityPerson** is associated with **DutySchedule** (one-to-many).

   - ○ **SecurityPerson** is associated with **LeaveRecord** (one-to-many).

   - ○ **Payment** is linked to **SecurityPerson** (one-to-one).

5. **Draw the Class Diagram**
   Use UML notation to draw the class diagram. Each class is represented as a box with three sections (class name, attributes, methods). Add relationships using lines and labels to represent associations.
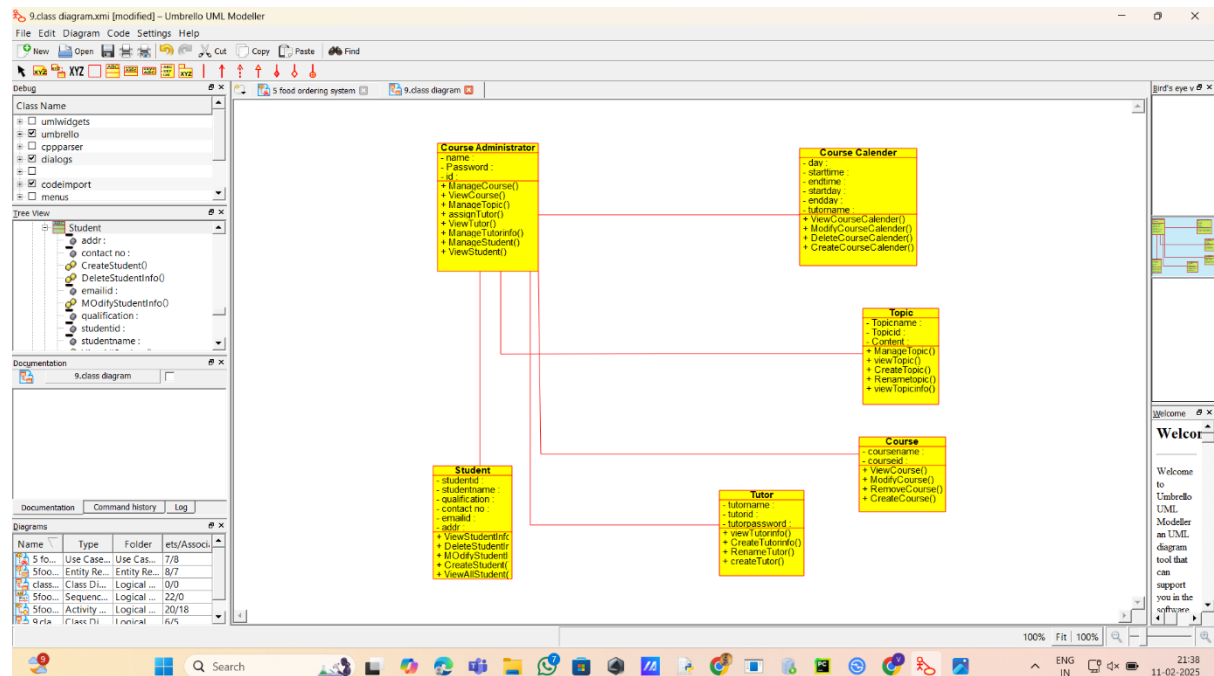
6. **Validate the Diagram**
   Ensure the diagram covers all system requirements, correctly represents class relationships, and includes all necessary attributes and methods.
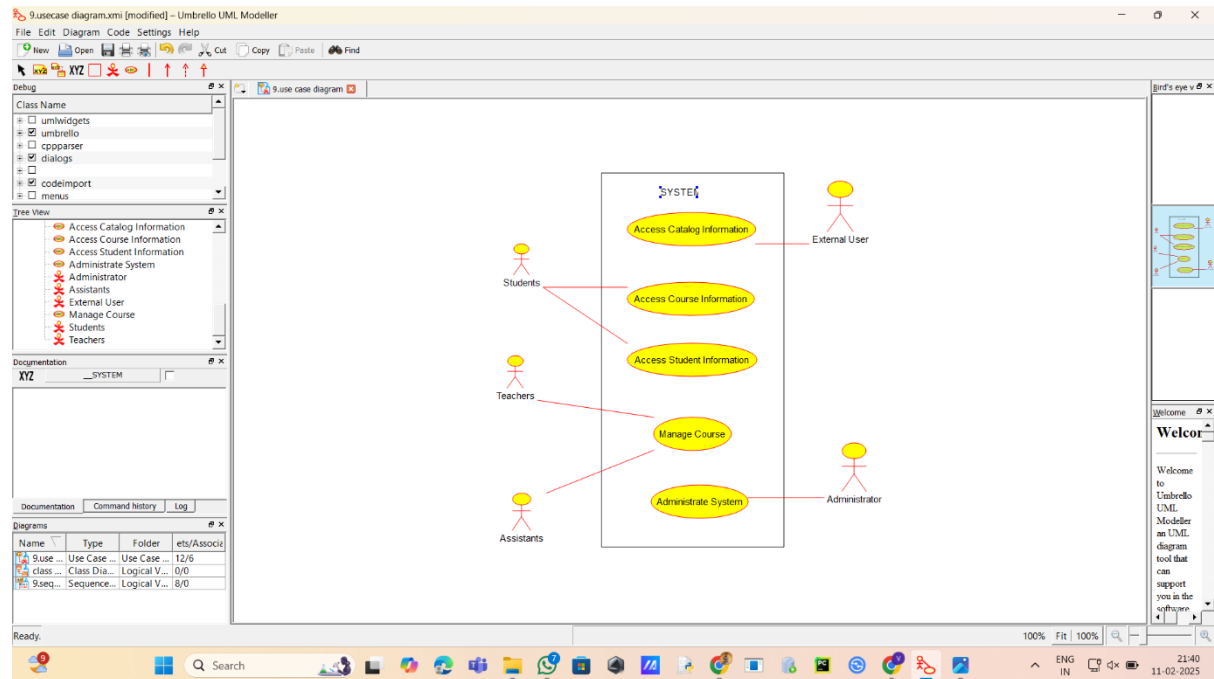
7. **Document the Diagram**
   Label all classes and relationships clearly. Ensure the diagram is well-structured and easy to understand for future implementation.

OBSERVATION:

CLASS DIAGRAM

USE CASE DIAGRAM

RESULT

The **Class Diagram for the Online Security Management System** is successfully designed, representing the various classes, their attributes, and the relationships between them. This diagram helps visualize the system's structure and facilitates its efficient implementation.