

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 a **Class Diagram** for an **Online Security Management System**, representing the structure and relationships of security personnel, their duties, leave management, and payroll processing.

PROCEDURE:

🔍 **Identify Key Classes:**

- **SecurityPerson:** Represents security personnel assigned to different duties.
- **Duty:** Stores duty details (Date, Start Time, End Time, Place).
- **Place:** Represents different locations within the campus.
- **Leave:** Manages leave records of security personnel.
- **Payroll:** Calculates salary based on attended duties and leaves.
- **SecurityManager:** Manages the system and assigns duties.

🔍 **Define Attributes & Methods:**

- **SecurityPerson:** ID, Name, Contact, AssignDuty(), ApplyLeave().
- **Duty:** ID, Date, StartTime, EndTime, PlaceID, AssignSecurity().
- **Place:** ID, Name, Location.
- **Leave:** ID, SecurityPersonID, Date, Reason.
- **Payroll:** ID, SecurityPersonID, TotalDuties, TotalLeaves, CalculateSalary().
- **SecurityManager:** ID, Name, AssignDuties(), ApproveLeaves(), ProcessPayroll().

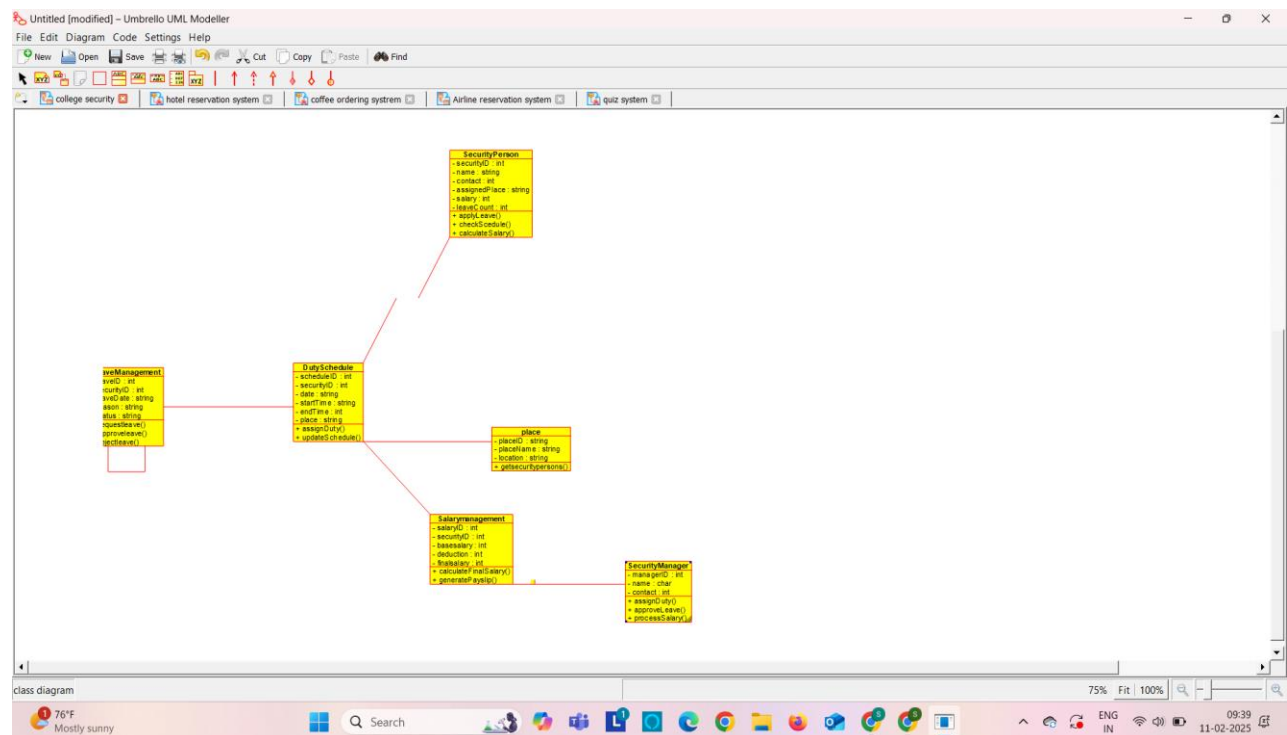
🔍 **Establish Relationships:**

- **SecurityPerson** is assigned to **Duty** (M:1).

- Each **Place** has at least one **SecurityPerson** (M:1).
- **Leave** is associated with **SecurityPerson** (1:M).
- **Payroll** calculates payment for each **SecurityPerson** (1:1).
- **SecurityManager** oversees the entire system.

OUTPUT:

class diagram



RESULT:

A **Class Diagram** for the **Online Security Management System** was successfully created, showcasing security personnel assignments, duty schedules, leave tracking, and payroll management.