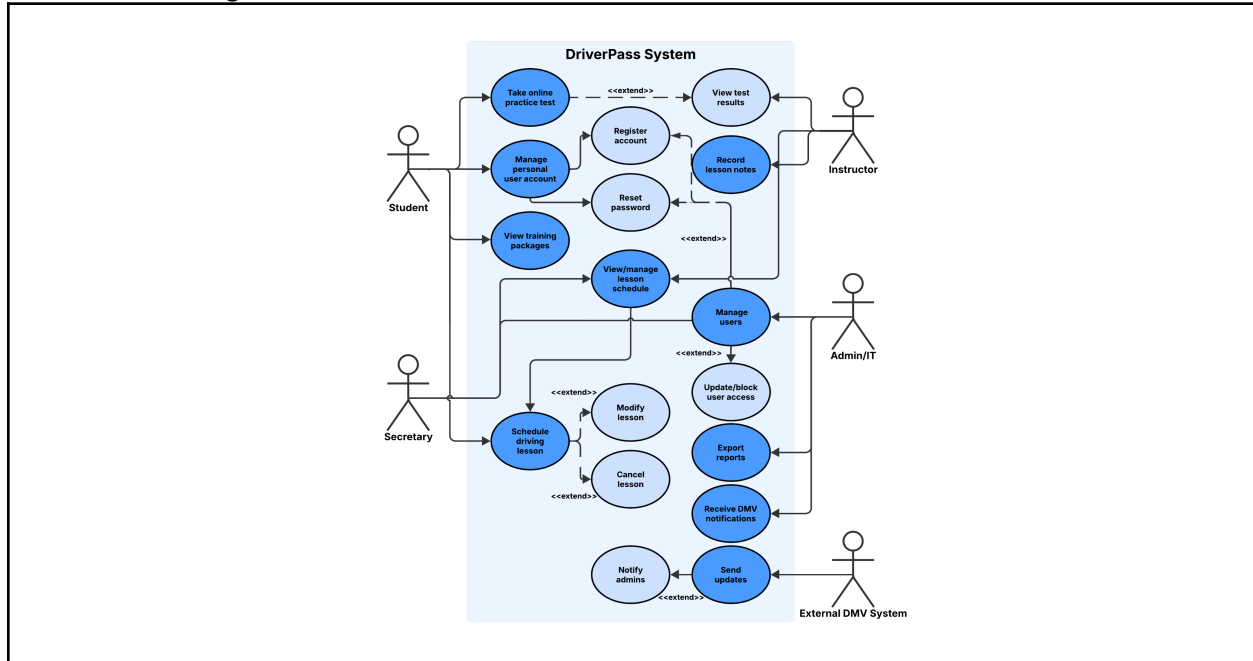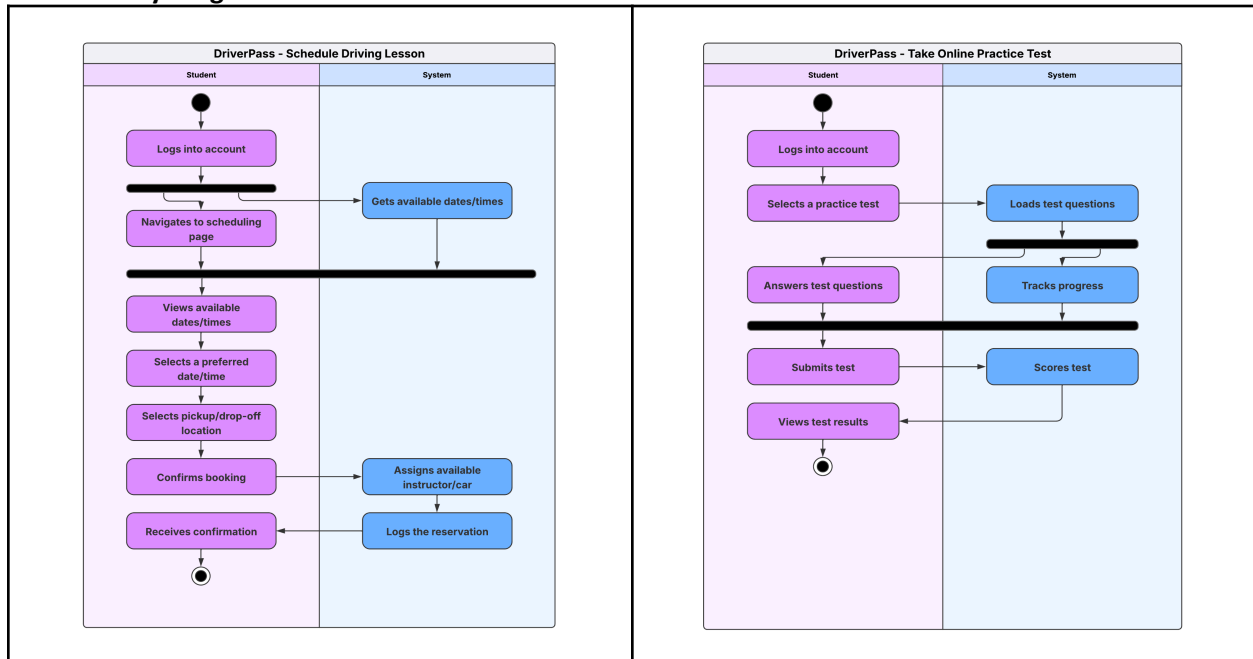# CS 255 System Design Document

UML Diagrams

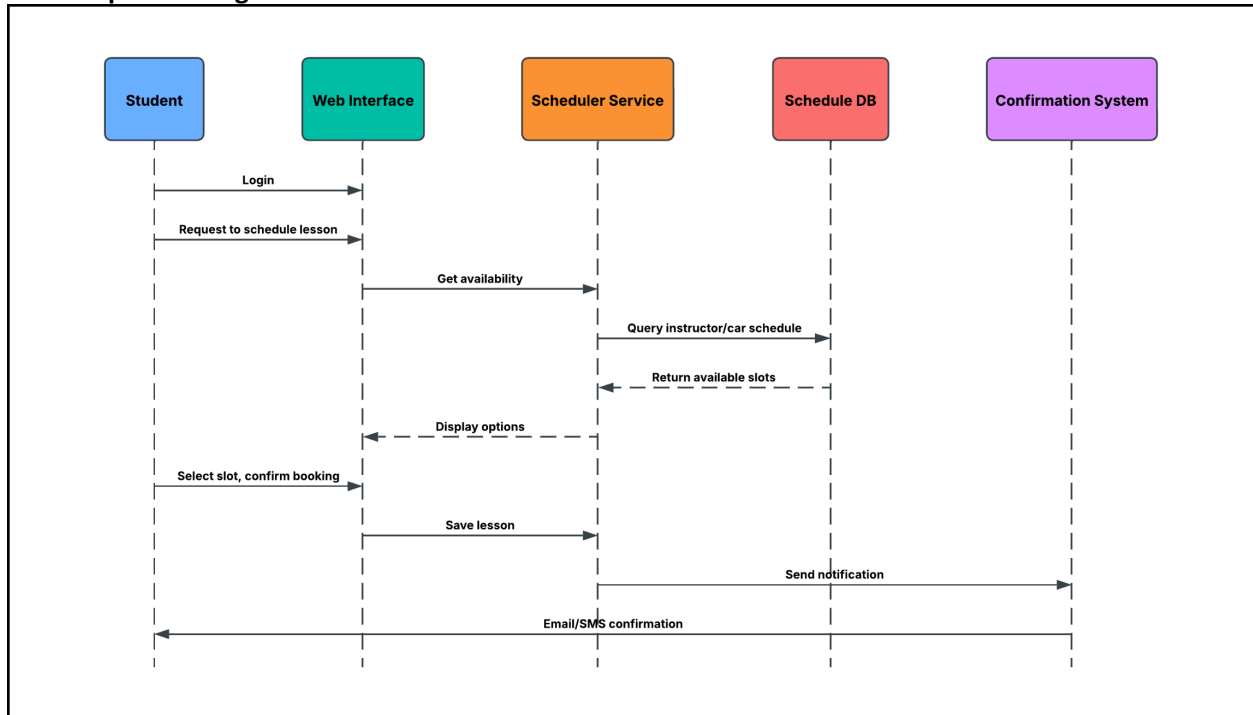### UML Use Case Diagram

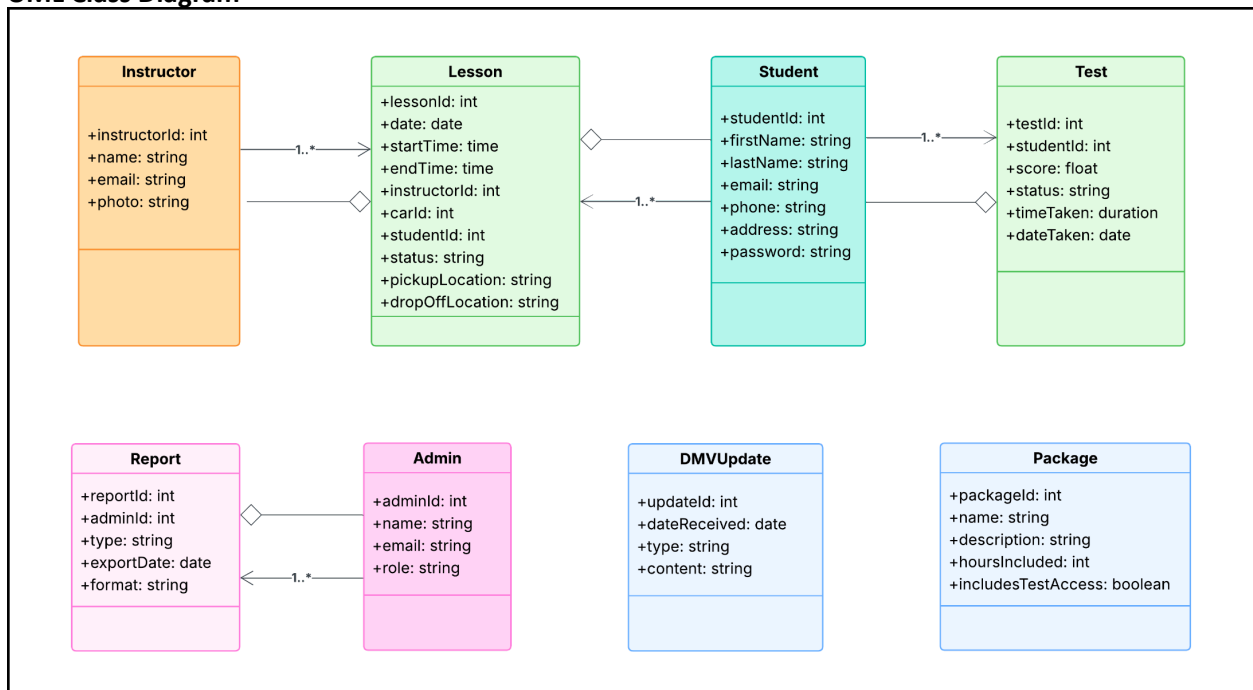

UML Activity Diagrams

UML Sequence Diagram

Student | **Web Interface** | **Scheduler Service** | **Schedule DB** | **Confirmation System**

- Login
- Request to schedule lesson
- Get availability
- Query instructor/car schedule
- Return available slots
- Display options
- Select slot, confirm booking
- Save lesson
- Send notification
- Email/SMS confirmation

UML Class Diagram

Instructor

+instructorId: int
+name: string
+email: string
+photo: string

Lesson

+lessonId: int
+date: date
+startTime: time
+endTime: time
+instructorId: int
+carId: int
+studentId: int
+status: string
+pickupLocation: string
+dropOffLocation: string

Student

+studentId: int
+firstName: string
+lastName: string
+email: string
+phone: string
+address: string
+password: string

Test

+testId: int
+studentId: int
+score: float
+status: string
+timeTaken: duration
+dateTaken: date

1..* (Instructor–Lesson)
1..* (Lesson–Student)
1..* (Student–Test)

Report

+reportId: int
+adminId: int
+type: string
+exportDate: date
+format: string

Admin

+adminId: int
+name: string
+email: string
+role: string

1..* (Admin–Report)

DMVUpdate

+updateId: int
+dateReceived: date
+type: string
+content: string

Package

+packageId: int
+name: string
+description: string
+hoursIncluded: int
+includesTestAccess: boolean

Technical Requirements

Hardware:
- Cloud-based hosting to ensure minimal server maintenance
- Secure back-end database for storing user information, test results, lesson schedules, and system logs

Software:
- Web server software to handle business logic and data processing
- Front-end framework that supports most common browsers
- Integrated feed to receive updates from the DMV

Tools:
- Visual Studio for developing software
- GitHub for version control and collaboration
- MySQL Workbench for managing the database
- CSV export tools for generating reports

Security:
- Role-based access control to restrict permissions based on user (Student, Instructor, Secretary, Admin)
- Encryption protocols for secure data transfer
- Password/account recovery system
- System activity logging and auditing