# ELEVATOR SYSTEM DOCUMENTATION

INTRODUCTION

This document provides an overview of the Elevator System, a console application designed to simulate the movement of elevators across multiple floors. The primary goal is to transport people efficiently based on their requests.

SYSTEM OVERVIEW*

The Elevator System is designed with the following features:

- Display the status of all elevators, including their current floor, movement direction, and occupancy.

- Allow users to call an elevator to a specific floor and specify the number of people waiting.

- Efficiently determine and send the nearest available elevator to the user's floor.

- Support for multiple floors and multiple elevators.

- Impose a weight limit on elevators based on the number of occupants.

SEQUENCE OF OPERATIONS
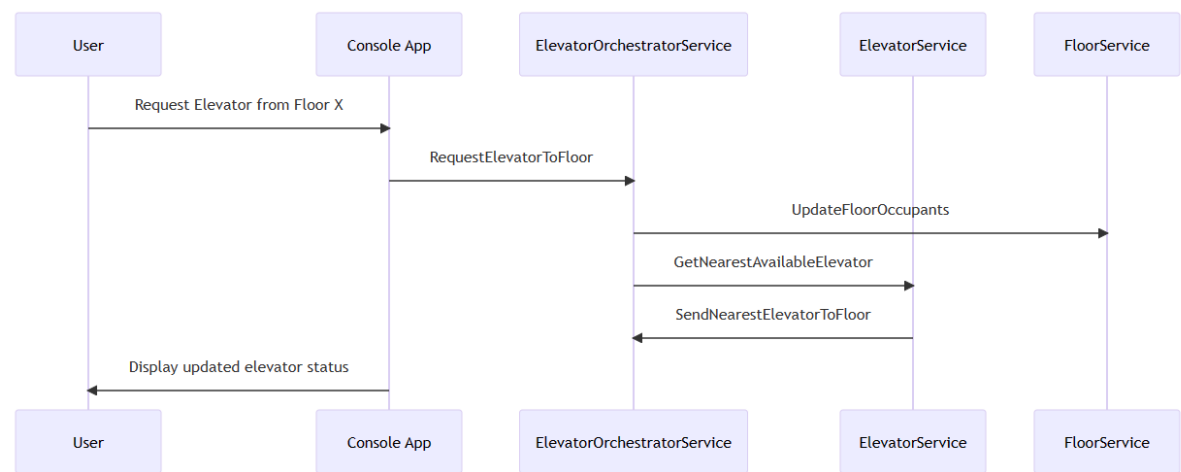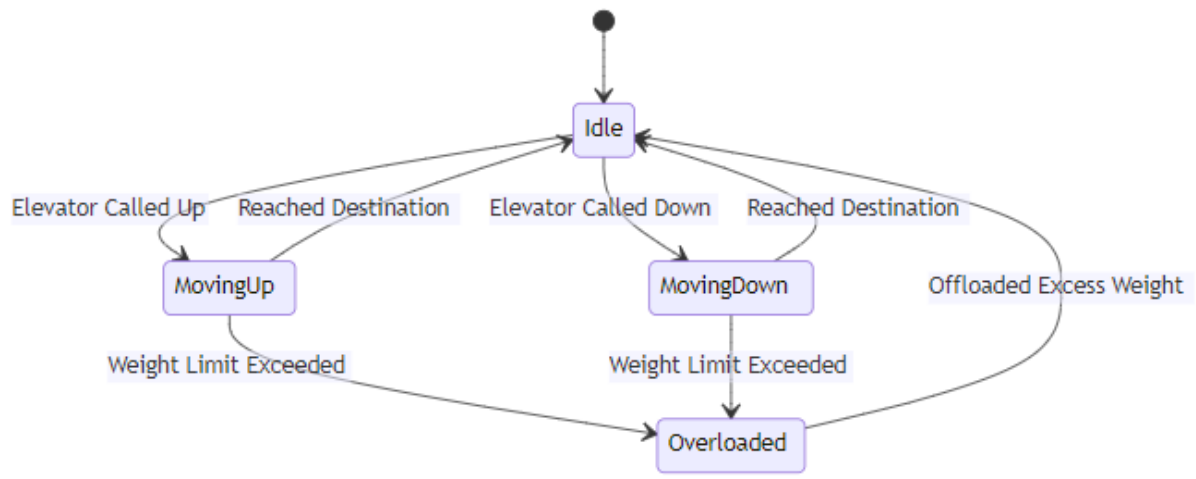
 1. User Interaction

Users interact with the console application to request elevator services. They can view the status of all elevators, call an elevator to their floor, and specify the number of waiting occupants.

2. SIMULATION MANAGER

The `SimulationManager` handles user requests. It fetches elevator statuses and processes user inputs to call an elevator to a specific floor.

3. ELEVATOR ORCHESTRATOR SERVICE

Upon receiving a user's elevator request, the `ElevatorOrchestratorService` updates the floor's occupants and determines the nearest available elevator. It then sends the identified elevator to the user's floor.

4. ELEVATOR AND FLOOR SERVICES

The `ElevatorService` manages elevator-related operations, while the `FloorService` handles floor-specific operations. Both services interact with their respective repositories to fetch or update data.

5. REPOSITORIES AND DATABASE

The `ElevatorRepository` and `FloorRepository` interact with the database to retrieve or store information. They ensure data consistency and integrity.

ERROR HANDLING

The system is designed to handle various exceptions, such as invalid inputs or system errors. Appropriate error messages are displayed to guide the user.

Conclusion

The Elevator System offers an efficient and user-friendly way to simulate elevator movements across multiple floors. Its modular design ensures scalability and ease of maintenance.

This documentation provides a High-level overview of the Elevator System, its components, and the sequence of operations. It can serve as a reference for developers, stakeholders, and end-users.