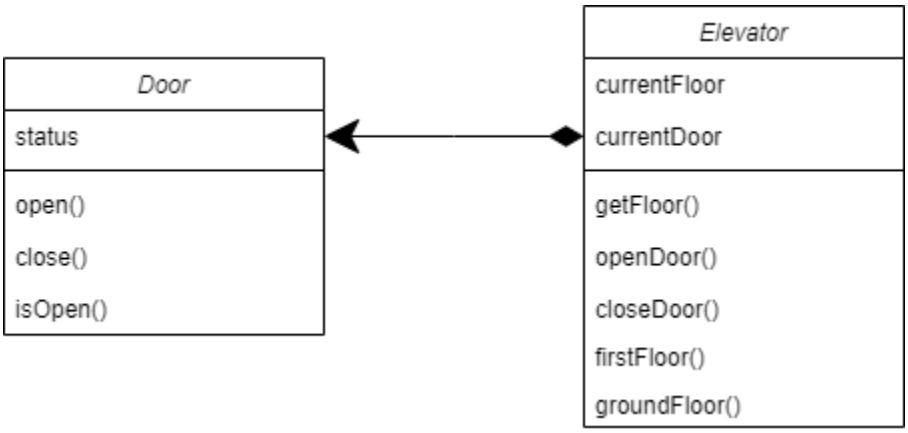
Exercise 5 : Elevator

The figure below illustrates a class diagram for an elevator application which must model the various operations of an elevator and how those operations change based on the floor the elevator is on and the status of the door.



The modules provide the following behaviors based on the door status and current floor.

Floor

	Ground Floor	First Floor
First Floor	Close door, go to first floor, open door	Nothing
Ground Floor	Nothing	Close door, go to the ground floor, open door

Door

	Door Closed	Door Opened
Open Door	Opens the door	Nothing
Close Door	Nothing	Closes the door

The codebase for these modules is given in the link provided. Question Source Code

1. From your inspection of the code base describe 1 major issue with the implementation with reference to the SOLID principles.
2. Identify a design pattern that addresses the identified issues.
3. Provide a redesigned UML diagram of the system which applies your proposed design pattern.
4. Refactor the codebase to implement your new design without changing any code in main.java you may add or remove other classes.