***Title      Homework 2: Elevator Simulation***

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***Overview***

**Purpose**

*Purpose of this project is to create an elevator system that simulates real world system to help an elevator company as a preliminary step toward developing the system that will actually control real elevator.*

**Brief description**

**The Real World System**A building, a certain number of stories tall, is equipped with an elevator system comprised of a certain number of elevators. Passengers arrive in the building at random times with a certain probability of an arrival per second. Passengers on the lowest floor may only request up service.

On entering an elevator a passenger selects a destination floor. The elevator then closes its doors and moves to that destination floor, possibly stopping on intermediate floors to deliver other passengers who may have selected intermediate floors. When an elevator arrives at a destination floor it stops, opens its doors, and discharges any passengers who have selected that floor.

**Goals**

1. Create class Floor. Implement is with data variables to represent a floor that an elevator will visit.
2. Create an Exception handling class to handle, instance where, elevator exceeds no of passengers over its capacity.
3. Enhance stop method which will also unload the passengers from elevator to the building’s floors.
4. Create unload method in class floor to unload the elevator passengers and put them as a roaming passengers on the floor.
5. New method registerRequest() is created for floors to register request to the elevator, indicating, it has passengers waiting to be boarded.
6. Crete toString overridden method to print the state of the Floor.
7. Implement the main method to run the program.

**See Also**

<http://courses.dce.harvard.edu/~cscie160/hw2-05.htm>

**Assumptions**

*1) Max capacity of Elevator is 10 passengers.*

*2) Total no of floors in the building are 7. No Underground floors (Floors range between 1 to 7 inclusive).*

*3) All the passengers waiting on the floors to be boarded have destination floor 1.*

**Risks**

**Current procedure/functionality**

*1) Executing the main method will board 7 passengers by calling boardPassengers method. Ex (2,2,3)*

*(1-a) - boardPassenger will create an array such that each index of the array will denote the floor of the building and value of that index will denote total no of passengers destined for that floor.*

*2) Next step, move method will be called. main functionality of elevator is handled by move method.*

*(2-a) - It will make the elevator move all the way to the top floor.*

*(2-b) - If any passengers for any currentFloor, Elevator will stop by calling stop method.*

*(2-c) - Stop method will stop the elevator at the current floor and drop the passengers destined for that floor. It will also adjust total no of passengers on board.*

*(2-d) - There will be also toString method call at each floor to print the current status of the elevator.*

**New procedure / Functionality**

1. Main method will first initiate the floor objects as an array of the class elevator.
2. Initially the main method will board only 3 passengers at the first floor.
3. There are 4, 3 and 4 no of passengers waiting on the floors, 3, 5 and 6 respectively.
4. Move method will make the elevator travel from bottom to top floor and vice-versa until all the passengers waiting at the floor are reached at their destination floor.
5. At any floor during its travel, if elevator reaches its full capacity, it will not allow any additional passengers to board and will receive those passenger(s) in the next round.
6. New setter and getter methods are implemented to access and modify the private variables of classes Floor and Elevator.

**How to run the assignment**

*Run the HW2.jar file from the command line.*