***Title      Homework 3: 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 Passenger. Implement is with data variables to represent current floor, destination floor and name of the passenger
2. Update Floor to have threecollections of Passengers, one for those merely resident (just hanging out on the floor, not queued for leaving), one for those queued for up service, and one those queued for down service.
3. Modify the Elevator class to handle the actual passengers boarding and collaborate with the passenger collections of floor.
4. Modify existing methods in classes Floor and Elevator to support the collaborative implementation with class Passenger.
5. New method arrive() is created for Passenger class to change the status of the passenger when they arrive at their destination floor.
6. Crete toString overridden method to print the details of the Passengers.
7. Implement the main method to run the program.

**See Also**

<http://courses.dce.harvard.edu/~cscie160/hw3-05.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).*

**Risks**

NA

**Current 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.

**New procedure / Functionality**

1. Main method will initiate the all the required objects of Passengers and Elevator (Which will intern initiate Floors.)
2. All the passengers are placed on different floors in the building and they have certain destination floor to reach to.
3. The Register request method is called initially with will tell the elevator where all the passengers are waiting to be boarded.
4. After that move method will move the elevator up-down to collect all waiting passengers and drop them to their destined floors.
5. Status of Elevator and Floor and Passengers will be printed at each floor the elevator stops.

**How to run the assignment**

*Run the HW3.jar file from the command line.*