IT Systems Analysis and Design

Homework 1

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Class Variables

```
public class Elevator {
    String name; // Name for elevator
    int currentFloor;
    int headingFloor;
    boolean isGoingUp; // if it's going up it is true, otherwise false
    boolean isDoorsOpen; // if doors are open it is true, otherwise false
```

Constructor

```
public Elevator(String name){ // elevator object
     this.currentFloor = 0;
     this.name = name;
}
```

Methods

```
public void openDoors(){ // doors will be opened
    this.isDoorsOpen = true;
    System.out.println(this.name + ": doors opened. ");
}
public void closeDoors(){ // doors will be closed
    this.isDoorsOpen = false;
    System.out.println(this.name + ": doors closed. ");
}
public void goingUp(){ // elevator goes up
    this.isGoingUp = true;
    System.out.println(this.name + ": going up. ");
}
public void goingDown(){ // elevator goes down
    this.isGoingUp = false;
    System.out.println(this.name + ": going down. ");
}
```

```
public void goToFloor(int headingTo){
    if (this.currentFloor - headingTo < 0){ // Check going up or down by using difference between floor numbers
        goingUp();
    }else{
        goingDown();
    }
    System.out.println(this.name + " is heading to: " + headingTo + ". ");
    this.currentFloor = headingTo;
}
```

Main

```
public class ElevatorProgram {

    public static void main(String[] args) {
        Elevator e1 = new Elevator("1st Elevator");
        Elevator e2 = new Elevator("2nd Elevator");

        e1.openDoors();
        e1.goToFloor(25);
        e1.closeDoors();
        e1.goingUp();
        System.out.println("------------------");

        e2.openDoors();
        e2.goToFloor(3);
        e2.closeDoors();
        e2.goingUp();
        System.out.println("------------------");

        e1.openDoors();
        e1.goToFloor(7);
        e1.closeDoors();
        e1.goingDown();
        System.out.println("------------------");

        e2.openDoors();
        e2.goToFloor(17);
        e2.closeDoors();
        e2.goingUp();
        System.out.println("------------------");

        e1.openDoors();
        e1.goToFloor(15);
        e1.closeDoors();
        e2.goingUp();
        System.out.println("------------------");

        e2.openDoors();
        e2.goToFloor(6);
        e2.closeDoors();
        e1.goingDown();
        System.out.println("------------------");

    }

}
```

Output

```
1st Elevator: doors opened.
1st Elevator is heading to: 25.
1st Elevator: doors closed.
1st Elevator: going up.
------------------
2nd Elevator: doors opened.
2nd Elevator is heading to: 3.
2nd Elevator: doors closed.
2nd Elevator: going up.
------------------
1st Elevator: doors opened.
1st Elevator is heading to: 7.
1st Elevator: doors closed.
1st Elevator: going down.
------------------
2nd Elevator: doors opened.
2nd Elevator is heading to: 17.
2nd Elevator: doors closed.
2nd Elevator: going up.
------------------
1st Elevator: doors opened.
1st Elevator is heading to: 15.
1st Elevator: doors closed.
2nd Elevator: going up.
------------------
2nd Elevator: doors opened.
2nd Elevator is heading to: 6.
2nd Elevator: doors closed.
1st Elevator: going down.
------------------
```