CS 4773
Homework Assignment 4: An elevator simulator
Due: In the instructor's office, 5:00pm, Tuesday, December 6

You may work with one partner on this assignment

You may submit as many times as you wish up to the deadline. Only the last submission by the deadline will be graded. However, all Blackboard submissions for your team must be from the same team member.

DESCRIPTION
In this assignment, you will implement an Elevator. The elevator can travel to floors 1, 2, or 3. Inside the elevator, there are 3 buttons: 1, 2, and 3.

Pressing 1 when on floor 1 outputs "Nothing happens". Pressing 2 or 3 when on floor 1 moves the elevator to that floor.

Pressing 2 when on floor 2 outputs "Nothing happens". Pressing 1 or 3 when on floor 2 moves the elevator to that floor.

Pressing 3 when on floor 3 outputs "Nothing happens". Pressing 1 or 2 when on floor 3 moves the elevator to that floor.

When an elevator arrives at its destination floor, the doors open. Pressing buttons 1, 2, or 3 close the doors.

The elevator will start on floor 1 with the doors open when your program launches. Have your program output messages whenever a button is pushed, the elevator starts to move up or down, the doors open or close, and the elevator arrives at a new floor. Also output a "Nothing happens" message when pressing a button does not move the elevator.

You must use the State pattern in this assignment. You must submit a UML state diagram of your implementation of the State pattern, and a UML class diagram of your implementation of the State patterns clearly indicating the State pattern's components.

Use our clean-coding standards. Keep your class sizes $\leq$ 200 LOC and functions $\leq$ 20 LOC.

Input
Your program will read input from a file whose name is passed to it at the command line. The file will contain a series of integers each between 1 and 3 indicating the button that is pressed inside the elevator.

Example
If the input file has the following content:

```
2 1 3 3 1
```

Then your program should produce console output similar to this:

```
2 pressed
Doors are closed
Going up...
*ding* The elevator arrives at Floor 2
Doors are open
1 pressed
```

```
Doors are closed
Going down...
*ding* The elevator arrives at Floor 1
Doors are open
3 pressed
Doors are closed
Going up...
*ding* The elevator arrives at Floor 3
Doors are open
3 pressed
Doors are closed
Nothing happens
1 pressed
Going down...
*ding* The elevator arrives at Floor 1
Doors are open
```

DELIVERABLES

Name your Maven project cs4773-hw5

A zip file named hw5.zip. Do not submit non-zip files. This zip file should contain a directory containing your source code, pom file and state and class diagrams (as PNG or JPG files) named assignment5UMLstate and assignment5UMLclass

If you worked on a team, be sure to include the team member names in the comments area of Blackboard when you submit

A printed listing of your source code. The first class in your listing must be your program's entry point.

RUBRIC

-10 points: Not handing in a listing created by the DirToPDF tool
-20 points: Submitting a non-standard zip file.
20 points: All functionality implemented correctly
20 points: All patterns implemented correctly
20 points: Classes and responsibilities are well designed
20 points: Code is readable. No Javadoc is required
20 points: UML class and state diagrams