Elevator System Overview

Elevator.Class

This class is the class for the Elevator Object.

Private variables.

- **Int amountOfFloorsGroundAndAbove.** The amount of floors ground floor and up in the building.
- **Int amountOfFloorsBelowGround.** The amount of floors below the ground floor in the building.
- **Int currentFloor.** The current floor the elevator is on.
- **Boolean underMaintenance.** Whether the elevator is currently under maintenance.
- **Boolean isDoorOpen**. Checks whether the elevator doors are open or close

Constructors

- **Elevator().** Default constructor with 5 floors ground floor and up and one basement. Elevator starts on the ground floor 1. It is not under maintenance and doors are closed.
- **Elevator(int floorsAboveGround, int floorsBelowGround.).** This allows you to change how many floors are in the building. Everything else is the same.

Public Methods

- **int getAmountOfFloorsGroundAndAbove().** Get the amount of floors ground floor and above.
- **int getAmountOfFloorsBelowGround().** Get the amount of floors below ground.
- **int getCurrentFloor().** Get the current floor the elevator is on.
- **void setCurrentFloor(int floor).** Change the current floor.
- **boolean isUnderMaintenance().** Check if Elevator is under maintenance.
- **void setMaintenanceMode(boolean needsMaintenance)**. Change whether or not the elevator is under maintenance.
- **boolean getIsDoorOpen()**. Check if the door is open.
- **void setIsDoorOpen(boolean isOpen)**. Change if the door is open and or closed.

Buttons

ElevatorInsideButtons.enum

These are the buttons that should always be inside of the elevator.
- **DOOROPEN**,Opens the Elevator door.
- **DOORCLOSE**, Closes the Elevator door
- **CALLHELP**, calls help and sets isUnderMaintenace to true.

ElevatorOutSideButtons.enum

UP and down are the outside buttons that call the elevator
- **UP** ,Tells the elevator that it needs to go up first.
- **DOWN**, Tells the elevator that it needs to go down first.
- **NONE**, says that the elevator is not in use.

ElevatorError.class

Returns an elevator error message.

- Returns a message when floor does not exist.
- Returns a message when elevator is trying to be used when it is currently under maintenance
- Returns a message when the call help button is pushed.

SortByNextLevel.Class

Sorts the floor buttons that were pressed depending if it is going up or down.
- **static ArrayList<Integer> sortGoingUpFirst(ArrayList<Integer> elevatorButtons, int currentFloor).** Sorts the floors in order of going up then down
- **static ArrayList<Integer> sortGoingDownFirst(ArrayList<Integer> elevatorButtons, int currentFloor).** Sorts the floors in order of going down then up

ElevatorService.Class

This class allows the user to utilize all the functions of the Elevator.

Private variables.
- **Elevator elevator.** Elevator Object
- **ElevatorOutsideButtons goingUpOrDown.** Enum telling the User if it is going up or down.

Constructors
- **ElevatorService()** Default elevator and not going up or down
- **ElevatorService(Elevator elevator)** custom elevator and not going up or down.

Public Methods
- **String selectOutsideButton(ElevatorOutsideButtons upDown, int floor)** Takes in the enum telling the elevator if the user is going up or down. And takes the current floor the user is on. Catches error of non-existent floor.
- **String selectInsideButton(int floor)** Once the user is in the elevator the user can select a floor to go to. Catches error of non-existent floor.
- **String selectInsideButton(ElevatorInsideButtons button)** user can select one of the misc buttons CALLHELP, OPENDOOR, CLOSEDOOR. Throws ElevatorError if CALLHELP is pressed.
- **String selectInsideButtons(ArrayList<Integer> buttons)** User can select many floors. Floors will sort depending if going up or down.
- **String setMaintenance(boolean underMaintenance)** This allows the user to change maintenance mode.
- **static boolean floorDoesNotExist(Elevator elevator, int floor)** checks to see if the floor exists.

Private Methods
- **void moveElevator(int floor)** Moves the elevator one floor at a time.
- **void checkIfDoorIsOpen()** checks if the door is open then closes it if the elevator moves.
- **String SelectedOutsideButtonLogic(ElevatorOutsideButtons upDown, int floor)** This will move the elevator to the current floor the user is on. Opens the doors for the user. And set whether the user wants to go up or down. Throws an ElevatorError if floor does not exist.

- **SelectedInsideButtonLogic(int floor)** This moves the elevator to the floor that the user wants to go to. Throws an ElevatorError if floor does not exist.
- **ArrayList<Integer> sortElevatorButtons(ArrayList<Integer> buttons)** Sorts Elevator buttons that are pressed in the order that they need to be in depending whether the user(s) are going up or down.

ElevatorSimulation.Class

This class allows you to simulate the elevator.