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**Lab 3 – Single Elevator – Use Cases**

1. Elevator is idle

Entry Condition:

* There are no floor requests
* Elevator has reached its previous destination and has no passengers

Exit Condition: There is a floor request at any floor.

Flow of Events:

* Doors stay closed
* Do not change floors

1. Floor request is placed

Entry Condition:

* A passenger standing at a floor makes a request to be picked up

Exit Condition:

* Passenger is picked up
* Passenger has selected a floor

Flow of Events:

* Elevator is idle
  + If the request is above where the elevator is
    - Travel upwards
  + If request is below the elevator
    - Travel downwards
* Elevator is in motion
  + Make note of request

1. Traveling Upwards

Entry Condition:

* A passenger above the elevator has requested
* Elevator is not already traveling down

Exit Condition:

Flow of Events:

* Check at every floor
  + If we have reached the Current passenger’s destination
    - No, continue up
    - Yes, open doors
  + If someone else pressed the “up” button on floor
    - Open doors
  + Are there still passengers above us to be picked up
    - If no pick up passenger at floor and travel down

1. Traveling Downwards

Entry Condition:

* A passenger below the elevator has requested
* Elevator is not already traveling up

Exit Condition:

Flow of Events:

* Check at every floor
  + If we have reached the Current passenger’s destination
    - Open doors
  + If someone else pressed the “down” button on floor
    - Open doors
  + Are there still passengers below us to be picked up
    - If no pick up passenger at floor and travel up

1. Open/Close Door

Entry Condition:

* Elevator has checked a floor and
  + Reached a passenger’s destination or
  + There is a request for the same direction of the elevator’s current traveling direction

Exit Condition: Doors have been open for 2 counts

Flow of Events:

* Doors already closed
* Doors open and stay open 2 counts
* Doors close