Elevator

Develop an elevator

1. Basic Requirements
   a. an elevator that can go up and down and tracks the current floor
      - edge cases
        - go below ground floor
        - go above top floor
   b. an elevator that has people **inside** selecting floors and plans the steps accordingly **without** moving
      - e.g. elevator at floor 0, 1 person inside select to stop on 3, steps should be [UP_1, UP_1, UP_1, OPEN_DOOR, CLOSE_DOOR]
      - edge cases
        - multiple people select floors in same direction out of sequence
        - multiple people select floors in opposite direction
        - multiple people select floors in same direction individually (optional)
        - select same floor (optional)
2. Calling Elevator (optional)
   a. an elevator that can accept calls from **outside** and plans the steps accordingly **without** moving
      - e.g. elevator at floor 0, 1 person outside call from 3 to go down, steps should be [UP_1, UP_1, UP_1, OPEN_DOOR, CLOSE_DOOR]
      - edge cases
        - multiple people on different floors calling to go same direction
        - multiple people both calling outside and selecting stop inside to go same direction
        - multiple people on different floors calling to go opposite direction (optional)
3. Moving Elevator
   a. an elevator controller that can issue Call and Select Floor at specific time
   b. an elevator monitor that can visualize elevator states - floor, door open/close, direction etc
   c. an elevator that can move by consuming its planned route as time ticks by
4. More advanced features to explore
   a. Multiple Elevators - an elevator controller that choose the best elevator to serve a call