Elevator Project Draft Plan

In the Elevator Project, I decide to simulates three elevators available to take passengers up and down the floors of a 28 floor building. Using JavaScript to design interface of elevator.

Simulation mechanics:

For elevators: There are 3 elevators (three elevator threads) available to take passengers (might have passenger threads) up and down the floors of a 28 floor building. Each elevator can be stopped, stopping, moving up, or moving down. It takes an elevator 2 seconds of stopping to be stopped. It takes each elevator 10 seconds of moving to move between each floor. The elevator data file determines when passengers ask for an elevator, their starting floor, and their destination floor. Only one elevator can pick up a passenger. When an elevator arrives at a floor, it picks up all of the passengers waiting at the floor, up to the maximum capacity of 5, and then starts moving to the end floor. If stopped and current time is equal to or greater than the next start time, the elevator either begins moving up or moving down depending on the direction needed to pick up the passenger. If moving up or moving down and there are one or more passengers waiting at a floor along the way, or if there are current passengers with end floor being the current floor, it begins stopping. When stopped at a floor, if there are any passengers in the elevator with that end Floor as a destination, it discharges the passengers. Then, if there are any passengers with that floor as their start floor it picks up passengers up to the capacity of the elevator.

For passengers: Each elevator can take at most 5 passengers, and each passenger decides which floor to go at the start floor. A passenger arrives at the start floor at the start time, waits for the elevator to arrive and stays on the elevator until arriving at the end floor.

The simulation implements an elevator solution then visualize the elevator. We can determine the average wait time and the average travel time it takes for passengers. For example, the first run take 5 second to move between each floor, and second run take second to move. Then we can get the elevator’s performance.