SYSC 3303B – Project Iteration #3

# Reflection

In iteration #2, the scheduler thread was responsible for receiving a request from the floorSubsystem class. The floorSubsystem class would call the synchronized function placeRequest() to send the request to the scheduler thread. The scheduler through the placeRequest() function would notify the elevator through notifyAll(). The scheduler would then change its state from noRequests to uncompletedRequests.

The elevator thread would then call the processRequest() function and receive a request from the scheduler. This function, which is also synchronized, would send the elevator a request. The elevator thread would then process the request, move the elevator from the floor where the request was made to the destination floor. The scheduler changes its state to completedRequest. The elevator thread would then call the completeRequest() function.

The scheduler would then check if the elevator has reached the destination floor. If there are no more requests, the scheduler would change its state to noRequests. However, if there are more requests in the scheduler, then the state would go back to uncompletedRequests, and the scheduler would notify the elevator of the requests it needs to process.

There was only one elevator, so the scheduler was solely responsible for making sure that the elevator was processing one request at a time. The synchronized functions helped play a role in this.

In iteration #3, the scheduler class must concurrently handle 4 elevators and assign a request to an elevator based on their current location.

The scheduler class receives a request from the floorSubsystem thread through the placeRequest() function. The scheduler would then check if any of the elevators it is keeping track of is close to the floor from which the request was made. The scheduler would determine which elevator is the best choice.

The scheduler would then add the floor from which the request was made and the destination floor to the chosen elevator’s queue. The elevator’s queue holds the various floors it will go to. The scheduler then moves the chosen elevator to the chosen floor. The scheduler’s state is then changed from noRequests to uncompletedRequests.

Each elevator keeps track of its own state. When the elevator calls the completeRequest() function, the function defined in the scheduler class checks if the elevator has reached the destination floor and removes that floor from the elevator’s queue. If there are more requests in that elevator’s queue, the next one is set to the elevator. The scheduler then changes its state from completedRequest to noRequests if there no requests left for the scheduler or uncompletedRequests if there are still requests to be made.

The scheduler must perform this for each elevator when it has a request. Thus, it has to concurrently handle 4 elevators in iteration #3.