Project report

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Project 2 C

Big-O of the program doesn’t go above nlog(n) since the worst algorithm in the program was the merge sort all the others were just comparisons which at most n. I tried to speed up the process of merge sort by adding parallelism to it. This allowed me to use 4 threads to divide up the sort so that way it could do the comparisons in parallel. I also added parallelism to finding the best elevator for the request given. This allowed for a quick search for which elevator the request should be assigned to. The moveUp and moveDown functions are both O(1) since they just increment or decrement the elevator position. The function called bestElevator is a linear sort function that finds the best elevator for the request, this algorithm has a big O of n since it has to go through the entire vector. moveElevator has a big O of 1 since it just does 3 comparisons. This works in conjunction with the moveUp and moveDown functions. The function check requests has a big O of n since it has to go through the whole request vector. This algorithm removes the requests on that floor and adds a button press because it’s supposed to simulate someone getting on the elevator.