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CS163

Program#1

Design Write-up

**1) How well did the data structure selected perform for the assigned application?**

The date structure used was arrays of linked lists. Considering that we know the number of rows and seats and that we had to search for the appropriate position to add a new order I think this data structure worked nicely. From the memory perspective, it didn’t require memory we did not have to use. We allocated memory once we needed it. For example, if we used a two dimensional array we would have to allocate memory for the entire room which would be a waste of memory. From the run time perspective, we had to traverse and check each node to find the appropriate position for adding a new reservation and we had to traverse and check all the nodes for cancelation. Whatever data structure we use would have to do similar checking to add and remove however they may need to go through every seat whether it was reserved or not. Using arrays of linked list we had to go throw the reserved seats only which is another advantage to using this data structure in this situation.

**2) Would a different data structure work better? If so, which one and why...**

I can’t think of another data structure that would have worked better in this situation. Linked lists of linked list would have a similar performance; it would save more memory but would have to traverse more.

**3) What was efficient about your design and use of the data structure?**

Not having to check empty seats was one of the major efficient elements of the design.

**4) What was not efficient?**

I think the insert function wasn’t as efficient as I wanted to be. It took three functions to do an insertion.

**5) What would you do differently if you had more time to solve the problem?**

I would rethink and recode the insertion function along with the checking process.