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CS 32

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2/19/23

Homework 4

Problem 1.e.

During test 3 the iterator stays pointed to the original vector when a new vector is created to add new memory.

Problem 3.

The issue is that there is no way built-in to compare two separate coordinates, so the Set class doesn’t know what to do when to check what a coordinates value should be in the insert function.

Problem 4.b:

You couldn’t solve with only one parameter as you would not be able to continually add to the path with each recursive call, you need to continue to update the path and print it out.

Problem 5.a:

The time complexity is O(n^3), as you loop through three nested for loops throughout the process.

Problem 5.b:

The time complexity is still O(n^3) but with a lower constant of proportionality as changing the limit from N to i will only help much while i is small.

Problem 6.a:

The time complexity is O(n^2) as you are looping n times and get has time complexity of n just with a smaller constant of proportionality as the set is split in half.

Problem 6.b:

The time complexity is O(nlog(n)) as the sort algorithm has the largest time complexity and despite the number of operations they’d all just be added together and thus they are removed from the final big O as they are less than nlog(n).

Problem 6.c:

The time complexity is O(n) as the while and for loops are separate and there is no nested loop or function that calls a nested loop inside of them.