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HOMEWORK 4

Problem 2:

The error occurs when we call the insert function with one parameter which compares things in the Coord class. However, we did not write a function – overloaded “>” function to compare items in Coord, so the insert function is failed to work.

Problem 4b:

If we only have a function with one parameter, we could not go through the whole path. Besides, the recursive function is only able to access the items through files() function; it cannot access the data in the Files directly.

Problem 5:

1. The answer is O(N^3). We transverse through the 2D array of N steps with 3 for loops. These 3 for loops are nested inside one another. Therefore, we have N\*N\*N which is N^3 steps.
2. The answer is O(N^3). Out of three for loop, there are two for loop (the outer one and the one nested inside) has the order of N steps. One for loop has I steps, this will become N steps. The algorithm will take N\*N\*N which is N^3.

Problem 6:

1. The answer is O(N^2). Each for loop runs through the entire the sequence which has N elements. Since n1 = n2 = N elements, so the program doesn’t get into the second for loop. The get() is called N times that gives O(N) while insertbefore is O(1). So the algorithm takes O(N\*N) which is O(N^2).
2. The answer is O(N). There are two for loops, each one runs entire the sequence and stops when it is m\_head. Each one runs through N times. This one is less efficient than the previous one.