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CSE310 Project 3 State

1. Explain all design decisions. Discuss your representation of the graph, and any optimizations you made in computations. Can you compute a worst-case bound on the time and/or space of your algorithms?

To begin, I first decided to create a 2d array of Vertex nodes that already have values such as Sx and x-bar. This helps create the graph much easier, since we already have those values at hand and do not have to re-compute them for every vertex. These vertex structures also have a Boolean landmass and a Boolean calculated, which help cut the run time, if a node is landmass, ignore it. If it has already been calculated into the graph, then ignore it too.

Worst case bound:

For creating the 2d array, it is a 3-level nested for loop, so it runs at O(n^3).

For creating the graph, it is a 5-level nested for loop, so it runs at O(n^5),

For every element, (i and j), compare with every other element(a and b)—that is already a 4-level for loop. But for every one of these comparisons, we have to calculate Sxy, which is another for loop over all weeks.

For creating the degree distribution, it is at worst O(n), we have to visit every node in the graph and calculate how many edges does it have.

For DFS + DFS\_visit, it is O(n), since even within the recursion, taken that we do not visit previously visited nodes, then we have to visit at most every node out of n nodes.

1. Describe any problems encountered in your implementation for this project milestone.

distributions run correctly, however I do not get the same results as other people in bb. I checked my code as much as I could and could not find the source of this, neither could I recreate those results.

1. Describe any known bugs in your project milestone.

No known problems or bugs with the code. FINAL\_EDIT:

Last time I could test the program, I could not run all three thresholds on the same run (seg fault of some sort) If this happens to you, and if you want to see the results for r = 0.95, and 0.925

Change the main function, so that the first call to SIC\_MAIN passes through a 0.95 or 0.925

1. While this project is to be completed individually, describe any significant interactions with anyone (peers or otherwise) that may have occurred.

No significant interactions other that bb discussions.

1. Cite any external code bases, books, and/or websites used or referenced

<http://stackoverflow.com/questions/7352099/stdstring-to-char>

used to see how to convert a string to char \* in order to do File operations on the files.

No other sources.