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Cph5wr

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Lab 103

After appropriately sorting and piping my output file and sorting the given output file, using diff -w indicated that my implementation did produce the correct results and the only difference in the files was the time it took to solve each word search.

In lab, I ran ./a.out words.txt 140x70.grid.txt with and without the -O2 flag. Without the -O2 flag, the word search was solved in approximately 1.81 seconds. With the -O2 flag, the word search was solved in approximately 1.21 seconds. Other grid and dictionary combinations also had a superior speed when the -O2 flag was used.

Running on my personal laptop (with -O2 flag): ./a.out words.txt 250x250.grid.txt takes approximately 22.06 seconds.

Running on my personal laptop (with -O2 flag): ./a.out words2.txt 300x300.grid.txt takes approximately 27.99 seconds.

Assuming we are only concerned with words with length greater than 2 and less than 23, we have 20 possible word lengths. We also have 8 possible directions in which to search. So our complexity is 160*r*c*w as we must loop through the number of rows, the number of columns, and for each word, we must cout the word.

The main problems I found while running into the lab were minor bugs in my code. The general idea of making a vector of lists of strings is quite easy, but working with the standard library vector and list can be confusing without much familiarity. I also found the suggestion to attempt to solve the word search (with a standard library hash table) before creating my own hash table, to be a bad suggestion. It wasn't that bad, but it wasn't fun.

The shell scripting writing went well and it seems like it could be very useful. I felt like the in-lab could've been more clear about syntax. I didn't find the reading to be very useful.

I just listed out answers to the questions asked for the in-lab report, but overall, I found the lab to be the most difficult lab thus far, but still manageable.