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CS2150: Lab 6

1. Did you Implementation produce the correct results? Did you have to reformat your output?
    a. No, the number of words was a little bit off for the bigger grid .txt files. The smaller 3x3 and 3x7 still yielded the same results. I think this was due to something in my quad nested for loop that I looked into. The only reformat that I did for output was the spacing of the cout statement, which was fixed with the −w and sort method when doing the diff command. I have also now fixed it in the wordPuzzle.cpp file to make it look like the sample output that was given to us for the words.txt and 4x7.grid.txt file.
2. How much faster was your program with the −O2 flag?
    a. Words2.txt with 50x50.grid.txt = 5.685781
    b. After –O2 = 2.405688seconds
    c. After compiling the files with the optimization command –O2, for the files Words2.txt with 50x50.grid.txt the run time went from 5.68 seconds to 2.41seconds which is greater than a 50% decrease in speed. From now on it looks like I will always be using this technique.
3. What was the speed of your implementation? How fast did it run on the 250x250 grid using words.txt?
    a. The computer that I used was a 2017 Macbook Pro 2.3GHz i5 8GB Memory. My computer when running the 250x250 using word.txt took 5378.299417 seconds and when running the 300x300 using words2.txt took 190.232805 seconds. I believe my computer has enough power that this isn't just my computer being slow. Therefore, I decided to look into my implementation of the hash table since it shouldn't be taking this long and have been looking at how to make my implementation better.
4. What is the big-Theta running speed of your program?
    a. The big-theta running speed of my program is r * w * c (rows * words * columns). The length of the individual words are not taken into place.
5. What problems did you encounter when implementing this lab?
    a. Some of the problems I encountered during class was actually checking whether the insert and find method were working for the hash table that was created. I had to create another test file to check if my methods were working before implementing it to the wordPuzzle.cpp file. Another major problem that I faced during the implementation of this lab was the time. It seems like the implementation can be significantly improved since the run time for my program was absolutely absurd. It took so long to check the 300x300.grid.txt file with the words.txt file. This was a problem because I couldn't
6. How did your shell scripting writing go? What do you think of shell scripts so far?
    a. It seems like shell scripting is a weird process. It seemed like an uncomfortable way to use a language. It may be because I am unfamiliar with the shell, but I found the expr command very irritating because normally I could just do something + something instead of worry about all the other stuff. However, a

good aspect of it was that I could use it very easily and it was easy to learn. It seems very simple and it was interesting how I could use it in the bash shell.