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inlab6.pdf

My implementation of the hashTable produced the correct results when compared with the 300x300.words2.out.txt file. While originally the “diff” Unix command revealed several differences between the two, after sorting the files, using the -w flag, and running again, no differences were found. Additionally, while my time for finding words without using the -O2 flag was 8.032 seconds, my search time with the -O2 flag was 7.99 seconds. Thus, the search time with the -O2 flag is about 0.5% faster.

My implementation completed the 250x250 word search in 20.75 seconds with words.txt. It also completed the 300x300 word search in 7.873 seconds with words2.txt as the dictionary file. I ran both of these on my macbook air using the image Prof. Bloomfield provided us on Virtual Box. The big-Theta running speed of my program is r*c*w when r is rows, c is columns and w is words.

The biggest problem I encountered while implementing this lab was understanding the hash table and separate chaining concepts. While Bloomfield covered it thoroughly in lecture, it is always different when you are trying to implement it. I spent a lot of time diagramming the various structures out. Once I finally decided on using a vector of lists of strings to go with separate chaining, it was a lot easier to continue the lab. Another problem I faced was that after I had my hash table working, it wasn't accounting for all of the words in a table. In a lot of the bigger grids, my function would be short by 100 or so words. I used a series of quad nested for loops to run through the grid and hadn't thought to consider words that were shortened versions of longer words near the edges of the grid. Once I realized this, I put in an if statement inside the quad nested for loops to take this into account. Another problem I am currently facing is that my hash function is extremely slow. The Post-lab should be fun! What makes this lab difficult is accounting for all of the little things that are necessary to make it run smoothly.

While it was slightly tedious to read through a wikipedia page to learn a coding practice, I am glad I know more about shell scripting now. I didn't have any major difficulties with understanding shell scripting syntax. I can see how they are useful within bash and using the shell and appreciate that. However, it is kind of strange to me that it can only perform arithmetic operations on 2 variables at a time. Other than that, I really enjoyed shell script writing.