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Ntn4jg
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inlab6.pdf

My implementation produced the correct results just in a different order than the provided results. I also outputted the number of words and time taken differently than the provided output so I had to make adjustments to that.

When I complied the program using no flags it found all the words in the 50x50 word search in 42.25 seconds. However, when I compiled the program using the –O2 flag it was able to find all the words in 31.36 seconds. Using the –O2 flag increased the speed by roughly 25%.

I used my personal machine, MacBook Pro Retina using virtual box, to execute the program. It took my program 1036 seconds to be able to find all the words in the 250x250 word search puzzle. It took it 109 seconds to find all the words in the 300x300 word search puzzle using words2.txt.

The big theta running speed of my program can be calculated by multiplying the number of rows, the number of columns, and the time it takes to search the hashtable. Therefore, big theta of my program equals rows*cols*log(words).

While implementing this lab I encountered a lot of problems. At first I was receiving a lot of seg faults. After hours of debugging I discovered that my hash function was overflowing the max int value and wrapping around, becoming negative. So when it went to store the word in that spot it would throw a seg fault since it was not in the bounds of the array. After I fixed that I was able to find words; however, it would either find duplicates of words or it wouldn't find all the words. Eventually I was able to fine tune my program and got it working correctly,

although, very inefficiently. My hash function is extremely slow and I will need to make a lot of changes to get it working fast.

Shell scripts seem pretty straightforward and simple. I could see how they could be very beneficial for various tasks. I will definitely make use of them for future projects.