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Laboratory 6: Hashing

In lab report

Did your implementation produce the correct results? Did you have to reformat your output?

My implementation produced correct results for every test file, even though the process is very slow. For bash scripting, I changed my last line to print integer value of milliseconds, so that I can access it with 'tail -1' in my bash shell scripting.

How much faster was your program with the -O2 flag?

When I ran my program with the –O2 flag, the process was much faster than when I ran it without it. For example, for 50x50.grid.txt file, when I ran it without –O2 flag, it took 139 seconds for the process to finish and print out the result. However, when I ran it with the flag, it just took 25 seconds.

What was the speed of your implementation? How fast did it run on the 250x250 grid using words.txt as the dictionary file? What about words2.txt and the 300x300 grid? -- If you ran it on a different machine other than the ones in Olsson 001, specify so.

The process was run with –O2 flag because it was too slow without it.

250x250 grid and words.txt: 26013 words, 877 seconds

300x300 grid and words2.txt: 2855 words, 66 seconds

I ran the program on my laptop (macbook air)

What is the big-Theta running speed of your program? We are really only interested in the word search part, not the part where you populate the hash table. Please do this in terms of *r* (rows), *c*(columns), and *w* (words). You can assume that the maximum word size is some small constant. Only consider the word-search component of the program, and not the file reading or hash table creation time.

I'm not sure, but I believe that it is r x c x w. However, since the maximum word size is some small constant, it is not big enough to produce significant changes in results, so maybe we can neglect it.

What problems did you encounter when implementing this lab?

1. The runtime for my implementation is really too slow, I will have to fix my code to get the optimal time
2. My wordpuzzle.cpp kept printing some values many times; for example, N(3, 2): text was printed out 20 times while other words were only printed once. I eventually fixed this problem, but I'm still not quite sure what caused it.

How did your shell scripting writing go? What do you think of shell scripts so far?

It wasn’t bad at all, except I’m still pretty confused about the parameters. It took me a long time to figure out how to get the output of the program (RUNNING_TIME5=`./a.out ${d} ${g}| tail -1`) without doing command line parameter, because I thought we aren’t allowed to use command line parameter at all. Also, reading the user input did not appear within 6 sections of wikibooks (I think?) so I looked up on the internet how to get the user input.