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ELEC-3150-03

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Lab03 Word Search

This program allows a user to find a word in a text file. There are three unique grids for the user to utilize, and multiple words for the program to find. The program searches each character in a systematic way, trying to match all the characters to the search word.

1) If the grid was expanded, everything could stay the same, it would just take longer.
2) This program seems to be efficient, but if it searched for pairs or clusters of letters together it may be faster. If the program could base its search off any possible letter from the word chosen, that may also make it more efficient.
3) This program goes through a grid of characters, trying to find matches to a word. A human genome would do something similar trying to find a match amongst a sea of other chemical signatures.
4) Starting multiple processors on separate sides of the grid and sectioning off where those processors search for their first letter would cut the work down. The first letter would be found faster, and then the subsequent search would still be fast anyways. If there were four processors, then each one could get a quadrant of the grid.

This program can print out when it finds a word, where it was found, and what direction the word was written in. When the word cannot be found in the given grid, it will print out that the word cannot be found. This meets the requirements set forth in the Lab document.

```
kearnsm2@turing:~/OOP_Fall$ ./a.out
Press 1 to search.
Press 0 to exit.
1
What word? DEBUG
Word found at 2,6 going down
Press 1 to search.
Press 0 to exit.
1
What word? RETURN
Not found!
Press 1 to search.
Press 0 to exit.
1
What word? CLASS
Word found at 4,4 going up
Word found at 9,9 going up
Press 1 to search.
Press 0 to exit.
```

```
3. turing.cs.wit.edu
kearnsm2@turing:~/OOP_Fall$ clear
kearnsm2@turing:~/OOP_Fall$ ./a.out
Press 1 to search.
Press 0 to exit.
1
What word? CONDITION
Word found at 5,0 going right
Press 1 to search.
Press 0 to exit.
1
What word? ARRAY
Word found at 9,8 going left
Press 1 to search.
Press 0 to exit.
1
What word? CODE
Word found at 7,9 going down
Press 1 to search.
Press 0 to exit.
1
What word? LOOP
Word found at 3,1 going up
Press 1 to search.
Press 0 to exit.
1
What word? YANKEES
Word found at 10,0 going right
Press 1 to search.
Press 0 to exit.
```

```
kearnsm2@turing:~/OOP_Fall$ g++ -g Lab03.cpp
kearnsm2@turing:~/OOP_Fall$ ./a.out
Press 1 to search.
Press 0 to exit.
1
What word? CODE
Word found at 5,1 going right
Press 1 to search.
Press 0 to exit.
1
What word? DEBUG
Word found at 9,0 going right
Press 1 to search.
Press 0 to exit.
1
What word? OBJECT
Word found at 5,2 going up
Press 1 to search.
Press 0 to exit.
```

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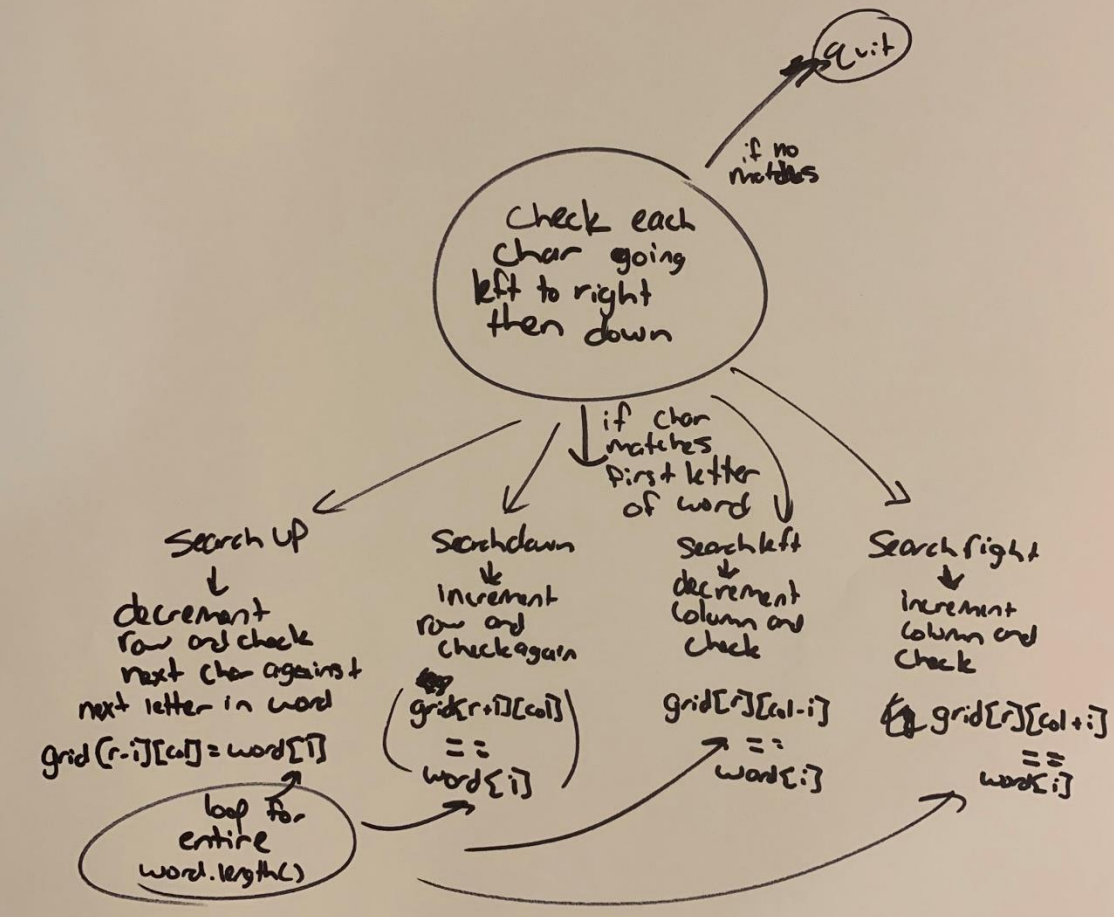
Variables to keep track of word found and in which direction

```
int up = 0;
int down = 0;
int right = 0;
int left = 0;
```

} if all are still 0, then nothing was found




```
for(int i=0; i<word.length(); i++) {
    check each char
}
```