ASSIGNMENT FOUR

PROCESSING STRINGS, ARRAYS, POINTERS, HEAP MEMORY

CS2263, Fall 2021

LEARNING OUTCOMES

Develop and test a utility program, `htags` that analyses an HTML file and prints of the list of the HTML tag names together with the number of occurrences of each tag.

YOUR TASK

You will redo assignment three, except that all data structures must be defined using heap memory, and the html data will come from a file whose name is specified on the command line.

```
$ htags hello.html
html  1
head  1
meta  1
title 1
body  1
p     2
```

- Your program must consist of at least TWO functions, with at least one of them compiled and tested separately.
- The program is to be implemented using heap memory ONLY. That means that the char array (the "input" array), the list of tags (array of strings; not an index table) and the tag occurrence counts must all be held in memory allocated from the heap and not use pointers in the way that was used in Assignment Three.
- Assume the input file contains less than 100000 characters.
- Assume there are less than 100 different tag types in the HTML file.
- Your program will be marked against a different input file.

THE REPORT

- In a few sentences describe the design of your program. Focus on what each of the data structures holds and how each of the functions acts on them.
- Show the testing of one of the functions using a test program.
- Show the output from running your program on the included HelloWorld.html file.
- Show the output from running your program on the included Sample.html file.
- There are other html files to try as well

SUBMISSION FORMAT

- Before the due date for this assignment, students should submit a single zip or tar file (named *LastName_FirstName_A4.zip or LastName_FirstName_A4.tar*) online to the lms containing:
- Your report as a pdf file
- Your source code directory:
    - This should include all of your source files, including test programs and makefile.
    - This should not include object (.o) files and executables. Nobody needs to see those.