

# CS2263 Assignment 3

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## Question 1

For my **htags2** program, the logic of finding an opening tag, and continuing to do a certain operation until a closing tag was met; was the same as **htags1**.

The big difference here is that -- instead of printing characters one-by-one until a closing '>' tag was met, I instead stored each character into a **char array**.

This char array had an index to keep track of how many characters were being stored. It started counting once an opening tag (*and the character after that is not '!'*) was met, and finished counting once a closing tag was met. I then incremented the index once more to store the null-terminating '\0' character. The index would then be reset to 0 to continue reading new words with each iteration of a tag.

The char array to store words would continuously be compared with an array of strings (*a 2D array*) to see if the word currently stored from the char array already exists in this 2D array. If not, it would add this word accordingly, with an index of its own. If it already existed -- it simply would not add the word.

## Question 2

```
#include <stdio.h>
#include <stdlib.h>
#include <stdbool.h>
#include <string.h>
#include <ctype.h>
#define MAX 100

void readFile(char *filename)
{
    FILE *file = fopen(filename, "r");

    if (file == NULL)
    {
        printf("ERROR: Could not open file\n");
        return;
    }

    // *** attempting to read inbetween htags ***
    bool inTag = false, inComment = false;
    int index = 0, unique_words_count = 0, opener = '<', closer = '>', c;
    char word[MAX * 10] = "", unique_words[MAX][MAX] = {" "};

    while ((c = fgetc(file)) != EOF)
    {
        // inside opening tag
        if (c == '<')
        {
            c = fgetc(file);

            // check if next character is in comment or not
            if (c == '!')
            {
                inComment = true;
                continue;
            }
            else
            {
                inTag = true;
                word[index++] = opener;
                word[index++] = c;
                continue;
            }
        }

        else if (c == '>')
        {
            if (inComment)
            {
                inComment = false;
            }
        }
    }
}
```

```
        continue;
    }
    else
    {
        inTag = false;
        word[index++] = closer;
        word[index] = '\\0';

        // check if the word is unique
        bool found = false;
        for (int i = 0; i < unique_words_count; i++)
        {
            if (strcmp(word, unique_words[i]) == 0)
            {
                found = true;
                break;
            }
        }
        // store unique word in array of strings (2D)
        if (!found)
        {
            strcpy(unique_words[unique_words_count++], word);
        }

        // reset word index to store next word inbetween tags
        index = 0;
    }
}

// still in word -- continue storing characters
if (inTag && !inComment)
{
    word[index++] = c;
}

}

// print unique words
printf("Unique words between HTML tags:\\n");
for (int i = 0; i < unique_words_count; i++)
{
    printf("%s\\n", unique_words[i]);
}
}

int main(int argc, char **argv)
{
    if (argc != 2)
    {
        printf("ERROR: Provide a file to read.\\n");
        return EXIT_FAILURE;
    }

    readFile(argv[1]);
}
```

```
    return EXIT_SUCCESS;  
}
```

## Question 3

```
rinor@rinors-mac Assgn3 % ./readInTest test.html
Unique words between HTML tags:
<html>
<b>
</b>
</html>
rinor@rinors-mac Assgn3 %
```

## Question 4

```
rinor@rinors-mac Assgn3 % ./readInTest A3W2024.html
Unique words between HTML tags:
<html>
<head>
<meta http-equiv=Content-Type content="text/html; charset=windows-1252">
<meta name=Generator content="Microsoft Word 15 (filtered)">
<style>
</style>
</head>
<body lang=EN-CA link=blue vlink="#954F72" style='word-wrap:break-word'>
<div class=WordSection1>
<p class=MsoNormal>
<b>
<span lang=EN-US style='font-size:14.0pt;font-family:
"Times New Roman",serif'>
</span>
</b>
</p>
<p class=MsoNormal style='text-align:justify'>
<span lang=EN-US
style='font-family:"Times New Roman",serif'>
<u>
<span lang=EN-US style='font-family:"Times New Roman",serif'>
</u>
<a href="https://www.educba.com/types-of-tags-in-html/">
<span style='text-decoration:
none'>
</a>
<span style='font-family:"Times New Roman",serif'>
<p class=MsoBodyTextIndent style='margin-top:6.0pt;margin-
right:0cm;margin-bottom:
0cm;margin-left:<i>
<i>
<span
style='font-family:"Times New Roman",serif'>
</i>
<p class=MsoBodyTextIndent style='margin-top:6.0pt;margin-
right:0cm;margin-bottom:
0cm;margin-left:<span
lang=EN-US style='font-family:"Times New Roman",serif'>
<span
lang=EN-US style='font-family:"Times New Roman",serif'>
<span lang=EN-US style='font-family:"Courier New"'>
<span lang=EN-US
style='font-family:"Courier New"'>
<span
lang=EN-US style='font-family:"Courier New"'>
<p class=MsoBodyTextIndent style='margin-top:6.0pt;margin-
right:0cm;margin-bottom:
```



```

0cm;margin-left:<span
lang=EN-US style='font-size:14.0pt;font-family:"Times New Roman",serif'>
<span
lang=EN-US style='font-size:14.0pt;font-family:"Times New Roman",serif'>
<span lang=EN-US style='font-size:14.0pt;
font-family:"Times New Roman",serif'>
<p class=MsoBodyTextIndent style='margin-top:6.0pt;margin-
right:0cm;margin-bottom:
0cm;margin-left:<p class=MsoBodyTextIndent style='margin-top:6.0pt;margin-
right:0cm;margin-bottom:
0cm;margin-left:<span
lang=EN-US style='font-size:7.0pt;font-family:"Times New Roman",serif'>
<p class=MsoBodyTextIndent style='margin-top:6.0pt;margin-
right:0cm;margin-bottom:
0cm;margin-left:<span
lang=EN-US style='font-size:7.0pt;font-family:"Times New Roman",serif'>
<span lang=EN-US style='font-family:
"Courier New"'>
<p class=MsoBodyTextIndent style='margin-top:6.0pt;margin-
right:0cm;margin-bottom:
0cm;margin-left:<p class=MsoBodyTextIndent style='margin-top:6.0pt;margin-
right:0cm;margin-bottom:
12.0pt;margin-le<br>
<p class=MsoBodyTextIndent style='margin-top:6.0pt;margin-
right:0cm;margin-bottom:
12.0pt;margin-le<br>
<br>
<p class=MsoBodyTextIndent style='margin-top:6.0pt;margin-
right:0cm;margin-bottom:
0cm;margin-left:<p class=MsoBodyTextIndent style='margin-top:6.0pt;text-
indent:0cm;line-height:
12.0pt'>
<p class=MsoBodyTextIndent style='margin-top:6.0pt;text-indent:0cm;line-
height:
12.0pt'>
<p class=MsoBodyTextIndent style='margin-top:6.0pt;margin-
right:0cm;margin-bottom:
0cm;margin-left:</div>
</div>
</body>
</html>
rinor@rinors-mac Assgn3 %

```

## Question 5

This is the output of the **htags2** program from the Assignment 2 example tags:

### Input

```
<body lang=EN-CA link=blue vlink="#954F72">
<div class=WordSection1>
<p class=MsoNormal>
<b>
<span lang=EN-US style='font-size:14.0pt;font-family: "Times New
Roman",serif'>
</span>
</b>
</p>
<p class=MsoNormal>
<b>
<span lang=EN-US style='font-size:14.0pt;font-family: "Times New
Roman",serif'>
</span>
</b>
</p>
```

### htags2 Output

```
Unique words between HTML tags:
<body lang=EN-CA link=blue vlink="#954F72">
<div class=WordSection1>
<p class=MsoNormal>
<b>
<span lang=EN-US style='font-size:14.0pt;font-family: "Times New
Roman",serif'>
</span>
</b>
</p>
rinor@rinors-mac Assgn3 %
```