#**include** **<stdio.h>**

#**define** IN 1

#**define** OUT 0

#**define** MAX\_WORD\_LENGTH 20

**void** pause();

**int** main(**int**)

{

**int** state, character, currentLength, wordCount, lineCount, characterCount;

**int** words[MAX\_WORD\_LENGTH + 1];

**for** (**int** i = 0; i < (MAX\_WORD\_LENGTH + 1); ++i) *//sets all the array to 0*

{

words[i] = 0;

}

state = OUT;

currentLength = wordCount = lineCount = characterCount = 0;

**while** ((character = getchar()) != EOF)

{

++characterCount;

**if** (character == **'\n'**) *//if there is a newline increment the lineCount*

{

++lineCount;

}

**if** (character == **' '** || character == **'\n'** || character == **'\t'**)

{

**if** (currentLength <= MAX\_WORD\_LENGTH && currentLength > 0)

{

++words[currentLength - 1]; *//the -1 is needed as the indexes of the array start at 0 but the word lengths start at 1*

} **else** **if** (currentLength > MAX\_WORD\_LENGTH)

{

++words[MAX\_WORD\_LENGTH]; *// adds it to the extra long words section*

}

state = OUT;

} **else** **if** (state == OUT) { *//if there is not a break in the text and the previous character was not in a word set the state to inside a word and increment the wordCount*

state = IN;

++wordCount;

}

**if** (state == IN)

{

++currentLength;

} **else** **if** (state == OUT){ *//if the character is not in a word it resets the length*

currentLength = 0;

}

}

putchar(**'\n'**);

*//prints stats*

printf(**"\tSTATS\n"**);

printf(**"words\t\t= %d\n"**, wordCount);

printf(**"lines\t\t= %d\n"**, lineCount);

printf(**"characters\t= %d\n"**, characterCount);

putchar(**'\n'**);

*//prints histogram*

printf(**"\tFREQUENCY of EACH WORD LENGTH\n"**);

**for** (**int** i = 0; i < MAX\_WORD\_LENGTH; ++i) *//cycle through the word lengths*

{

printf(**"%d\t%d\t"**, i + 1, words[i]); *//print the length of the word*

**for** (**int** j = 0; j < words[i]; ++j) *//print the bars of the histogram*

{

printf(**"="**);

}

printf(**"\n"**);

}

printf(**"+\t%d\t"**, words[MAX\_WORD\_LENGTH]); *//print number of extra long words*

**for** (**int** i = 0; i < words[MAX\_WORD\_LENGTH]; ++i) *//print the bar*

{

printf(**"="**);

}

printf(**"\n\n"**);

pause();

**return** 0;

}

**void** pause() *//pause until the user enters a newline*

{

printf(**"Press enter to continue. . ."**);

getchar();

}

**Hello my name is bob and I like to eat cheese. My favourite type of cheese is Swiss cheese.**

**Thisisareallylongwordlongerthan20characters. 0123456789**

**^Z**

STATS

words = 21

lines = 2

characters = 148

FREQUENCY of EACH WORD LENGTH

1 1 =

2 6 ======

3 3 ===

4 3 ===

5 2 ==

6 1 =

7 2 ==

8 0

9 1 =

10 1 =

11 0

12 0

13 0

14 0

15 0

16 0

17 0

18 0

19 0

20 0

+ 1 =

Press enter to continue. . .