

```
1  #include <stdio.h>
2
3  #define MAX_STRING_LENGTH 512
4
5  int main(void)
6  {
7      //function prototype
8      int MyStrlen(char[]);
9
10     //variable declaraions
11
12     // *** A 'STRING' IS AN ARRAY OF CHARACTERS ... so char[] IS A char ARRAY AND
13     // HENCE, char[] IS A 'STRING' ***
14     // *** AN ARRAY OF char ARRAYS IS AN ARRAY OF STRINGS !!! ***
15     // *** HENCE, char[] IS ONE char ARRAY AND HENCE, IS ONE STRING ***
16     // *** HENCE, char[][] IS AN ARRAY OF char ARRAYS AND HENCE, IS AN ARRAY OF
17     // STRINGS ***
18
19     //Here, the string array can allow a maximum number of 10 strings (10 rows)
20     //and each of these 10 strings can have only upto 15 characters maximum (15
21     //columns)
22     char strArray[10][15] = { "Hello!", "Welcome", "To", "Real", "Time",
23     "Rendering", "Batch", "(2020-21)", "Of", "ASTROMEDICOMP." }; //IN-LINE
24     INITIALIZATION
25     int char_size;
26     int strArray_size;
27     int strArray_num_elements, strArray_num_rows, strArray_num_columns;
28     int strActual_num_chars = 0;
29     int i;
30
31     //code
32     printf("\n\n");
33
34     char_size = sizeof(char);
35
36     strArray_size = sizeof(strArray);
37     printf("Size Of Two Dimensional ( 2D ) Character Array (String Array) Is = %d
38     \n\n", strArray_size);
39
40     strArray_num_rows = strArray_size / sizeof(strArray[0]);
41     printf("Number of Rows (Strings) In Two Dimensional ( 2D ) Character Array
42     (String Array) Is = %d\n\n", strArray_num_rows);
43
44     strArray_num_columns = sizeof(strArray[0]) / char_size;
45     printf("Number of Columns In Two Dimensional ( 2D ) Character Array (String
46     Array) Is = %d\n\n", strArray_num_columns);
47
48     strArray_num_elements = strArray_num_rows * strArray_num_columns;
49     printf("Maximum Number of Elements (Characters) In Two Dimensional ( 2D )
50     Character Array (String Array) Is = %d\n\n", strArray_num_elements);
51
52     for (i = 0; i < strArray_num_rows; i++)
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```
43     {
44         strActual_num_chars = strActual_num_chars + MyStrlen(strArray[i]);
45     }
46     printf("Actual Number of Elements (Characters) In Two Dimensional ( 2D )
         Character Array (String Array) Is = %d\n\n", strActual_num_chars);
47
48     printf("\n\n");
49     printf("Strings In The 2D Array : \n\n");
50
51     //Since, char[][] is an array of strings, referencing only by the row number
         (first []) will give the row or the string
52     //The Column Number (second []) is the particular character in that string /
         row
53     printf("%s ", strArray[0]);
54     printf("%s ", strArray[1]);
55     printf("%s ", strArray[2]);
56     printf("%s ", strArray[3]);
57     printf("%s ", strArray[4]);
58     printf("%s ", strArray[5]);
59     printf("%s ", strArray[6]);
60     printf("%s ", strArray[7]);
61     printf("%s ", strArray[8]);
62     printf("%s\n\n", strArray[9]);
63
64     return(0);
65 }
66
67 int MyStrlen(char str[])
68 {
69     //variable declarations
70     int j;
71     int string_length = 0;
72
73     //code
74     // *** DETERMINING EXACT LENGTH OF THE STRING, BY DETECTING THE FIRST
         OCCURENCE OF NULL-TERMINATING CHARACTER ( \0 ) ***
75     for (j = 0; j < MAX_STRING_LENGTH; j++)
76     {
77         if (str[j] == '\0')
78             break;
79         else
80             string_length++;
81     }
82     return(string_length);
83 }
84
```