

```
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 declarations
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
```