

```
1  #include <stdio.h>
2
3  #define MAX_STRING_LENGTH 512
4
5  int main(void)
6  {
7      //function prototype
8      void MyStrcpy(char[], 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 5 strings (5 rows) and
20     // each of these 5 strings can have only upto 10 characters maximum (10
21     // columns)
22     char strArray[5][10]; // 5 ROWS (0, 1, 2, 3, 4) -> 5 STRINGS (EACH STRING CAN
23     // HAVE A MAXIMUM OF 10 CHARACTERS)
24     int char_size;
25     int strArray_size;
26     int strArray_num_elements, strArray_num_rows, strArray_num_columns;
27     int i;
28
29     //code
30     printf("\n\n");
31
32     char_size = sizeof(char);
33
34     strArray_size = sizeof(strArray);
35     printf("Size Of Two Dimensional ( 2D ) Character Array (String Array) Is = %d
36     \n\n", strArray_size);
37
38     strArray_num_rows = strArray_size / sizeof(strArray[0]);
39     printf("Number of Rows (Strings) In Two Dimensional ( 2D ) Character Array
40     (String Array) Is = %d\n\n", strArray_num_rows);
41
42     strArray_num_columns = sizeof(strArray[0]) / char_size;
43     printf("Number of Columns In Two Dimensional ( 2D ) Character Array (String
44     Array) Is = %d\n\n", strArray_num_columns);
45
46     strArray_num_elements = strArray_num_rows * strArray_num_columns;
47     printf("Maximum Number of Elements (Characters) In Two Dimensional ( 2D )
48     Character Array (String Array) Is = %d\n\n", strArray_num_elements);
49
50     // *** PIECE-MEAL ASSIGNMENT ***
51     MyStrcpy(strArray[0], "My");
52     MyStrcpy(strArray[1], "Name");
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44     MyStrcpy(strArray[2], "Is");
45     MyStrcpy(strArray[3], "Pradnya");
46     MyStrcpy(strArray[4], "Gokhale");
47
48     printf("\n\n");
49     printf("The Strings In the 2D Character Array Are : \n\n");
50
51     for (i = 0; i < strArray_num_rows; i++)
52         printf("%s ", strArray[i]);
53
54     printf("\n\n");
55
56     return(0);
57 }
58
59 void MyStrcpy(char str_destination[], char str_source[])
60 {
61     //function prototype
62     int MyStrlen(char[]);
63
64     //variable declarations
65     int iStringLength = 0;
66     int j;
67
68     //code
69     iStringLength = MyStrlen(str_source);
70     for (j = 0; j < iStringLength; j++)
71         str_destination[j] = str_source[j];
72
73     str_destination[j] = '\0';
74 }
75
76 int MyStrlen(char str[])
77 {
78     //variable declarations
79     int j;
80     int string_length = 0;
81
82     //code
83     // *** DETERMINING EXACT LENGTH OF THE STRING, BY DETECTING THE FIRST
84     OCCURENCE OF NULL-TERMINATING CHARACTER ( \0 ) ***
85     for (j = 0; j < MAX_STRING_LENGTH; j++)
86     {
87         if (str[j] == '\0')
88             break;
89         else
90             string_length++;
91     }
92     return(string_length);
93 }

```