

```
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  #define MAX_STRING_LENGTH 512
5
6  int main(void)
7  {
8      //function prototype
9      void MyStrcpy(char *, char *);
10     int MyStrlen(char *);
11
12     //variable declarations
13     char *chArray_Original = NULL, *chArray_Copy = NULL; // A Character Array ↗
14     // Is A String
15     int original_string_length;
16
17     //code
18
19     // *** STRING INPUT ***
20     printf("\n\n");
21     chArray_Original = (char *)malloc(MAX_STRING_LENGTH * sizeof(char));
22     if (chArray_Original == NULL)
23     {
24         printf("MEMORY ALLOCATION FOR ORIGINAL STRING FAILED !!! EXITTING ↗
25         NOW...\n\n");
26         exit(0);
27     }
28
29     printf("Enter A String : \n\n");
30     gets_s(chArray_Original, MAX_STRING_LENGTH);
31
32     original_string_length = MyStrlen(chArray_Original);
33     chArray_Copy = (char *)malloc(original_string_length * sizeof(char));
34     if (chArray_Copy == NULL)
35     {
36         printf("MEMORY ALLOCATION FOR COPIED STRING FAILED !!! EXITTING NOW... ↗
37         \n\n");
38         exit(0);
39     }
40
41     // *** STRING COPY ***
42     MyStrcpy(chArray_Copy, chArray_Original);
43
44     // *** STRING OUTPUT ***
45     printf("\n\n");
46     printf("The Original String Entered By You (i.e : 'chArray_Original') Is : ↗
47     \n\n");
48     printf("%s\n", chArray_Original);
49
50     printf("\n\n");
51     printf("The Copied String (i.e : 'chArray_Copy') Is : \n\n");
52     printf("%s\n", chArray_Copy);
53
54     if (chArray_Copy)
55     {
56         free(chArray_Copy);
57     }
```

```
53     chArray_Copy = NULL;
54     printf("\n\n");
55     printf("MEMORY ALLOCATED FOR COPIED STRING HAS BEEN SUCCESSFULLY FREED !!!\n\n");
56 }
57
58 if (chArray_Original)
59 {
60     free(chArray_Original);
61     chArray_Original = NULL;
62     printf("\n\n");
63     printf("MEMORY ALLOCATED FOR ORIGINAL STRING HAS BEEN SUCCESSFULLY FREED !!!\n\n");
64 }
65
66 return(0);
67 }
68
69 void MyStrcpy(char *str_destination, char *str_source)
70 {
71     //function prototype
72     int MyStrlen(char *);
73
74     //variable declarations
75     int iStringLength = 0;
76     int j;
77
78     //code
79     iStringLength = MyStrlen(str_source);
80     for (j = 0; j < iStringLength; j++)
81         *(str_destination + j) = *(str_source + j);
82
83     *(str_destination + j) = '\0';
84 }
85
86 int MyStrlen(char *str)
87 {
88     //variable declarations
89     int j;
90     int string_length = 0;
91
92     //code
93     // *** DETERMINING EXACT LENGTH OF THE STRING, BY DETECTING THE FIRST OCCURENCE OF NULL-TERMINATING CHARACTER ( \0 ) ***
94     for (j = 0; j < MAX_STRING_LENGTH; j++)
95     {
96         if (str[j] == '\0')
97             break;
98         else
99             string_length++;
100     }
101     return(string_length);
102 }
103
```