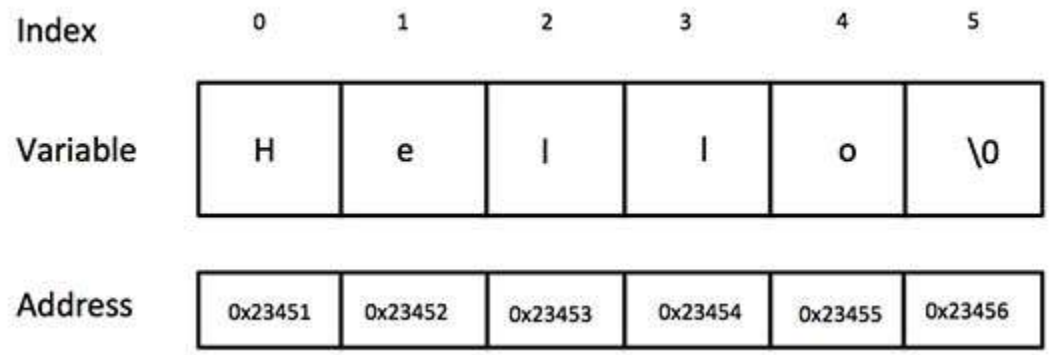
Strings are actually one-dimensional array of characters terminated by a **null** character '\0'.
Thus a null-terminated string contains the characters that comprise the string followed by a **null**.

```
char greeting[6] = {'H', 'e', 'l', 'l', 'o', '\0'};
```

If you follow the rule of array initialization then you can write the above statement as follows −

```
char greeting[] = "Hello";
```

Following is the memory presentation of the above defined string in C/C++ −




```c
#include <stdio.h>
int main()
{
    char name[20];
    printf("Enter name: ");
    scanf("%s", name);
    printf("Your name is %s.", name);
    return 0;
}
```

How to read a line of text?

Example 2: fgets() and puts()

```c
#include <stdio.h>
int main()
{
    char name[30];
    printf("Enter name: ");
    fgets(name, sizeof(name), stdin);  // read string
    printf("Name: ");
    puts(name);    // display string
```

```
    return 0;
}
```

C supports a wide range of functions that manipulate null-terminated strings −

Sr.No.	Function & Purpose
1	**strcpy(s1, s2);** Copies string s2 into string s1.
2	**strcat(s1, s2);** Concatenates string s2 onto the end of string s1.
3	**strlen(s1);** Returns the length of string s1.
4	**strcmp(s1, s2);** Returns 0 if s1 and s2 are the same; less than 0 if s1<s2; greater than 0 if s1>s2.
5	**strchr(s1, ch);** Returns a pointer to the first occurrence of character ch in string s1.
6	**strstr(s1, s2);** Returns a pointer to the first occurrence of string s2 in string s1.

The following example uses some of the above-mentioned functions −

Live Demo

```
#include <stdio.h>
#include <string.h>

int main () {

   char str1[12] = "Hello";
   char str2[12] = "World";
   char str3[12];
```

```
   int  len ;

   /* copy str1 into str3 */
   strcpy(str3, str1);
   printf("strcpy( str3, str1) :  %s\n", str3 );

   /* concatenates str1 and str2 */
   strcat( str1, str2);
   printf("strcat( str1, str2):   %s\n", str1 );

   /* total lenghth of str1 after concatenation */
   len = strlen(str1);
   printf("strlen(str1) :  %d\n", len );

   return 0;
}
```

Example: C strcat() function

```
#include <stdio.h>
#include <string.h>
int main() {
   char str1[100] = "This is ", str2[] = "programiz.com";

   // concatenates str1 and str2
   // the resultant string is stored in str1.
   strcat(str1, str2);

   puts(str1);
   puts(str2);

   return 0;
}
```

Example: C strcmp() function

```
#include <stdio.h>
#include <string.h>

int main()
{
    char str1[] = "abcd", str2[] = "abCd", str3[] = "abcd";
```

```
    int result;

    // comparing strings str1 and str2
    result = strcmp(str1, str2);
    printf("strcmp(str1, str2) = %d\n", result);

    // comparing strings str1 and str3
    result = strcmp(str1, str3);
    printf("strcmp(str1, str3) = %d\n", result);

    return 0;
}
```

Example: C strlen() function

```
#include <stdio.h>
#include <string.h>
int main()
{
    char a[20]="Program";
    char b[20]={'P','r','o','g','r','a','m','\0'};

    // using the %zu format specifier to print size_t
    printf("Length of string a = %zu \n",strlen(a));
    printf("Length of string b = %zu \n",strlen(b));

    return 0;
}
```