String

Strings are often needed to be manipulated by programmer according to the need of a problem. All string manipulation can be done manually by the programmer but, this makes programming complex and large. To solve this, the C supports a large number of string handling functions.

There are numerous functions defined in "string.h" header file. Few commonly used string handling functions are discussed below:

Strings handling functions are defined under "string.h" header file, i.e, you have to include the code below to run string handling functions.

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

gets() and puts()

Functions gets() and puts() are two string functions to take string input from user and display string respectively as mentioned in previous chapter.

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
    char name[30];
    printf("Enter name: ");
    gets(name);     //Function to read string from user.
    printf("Name: ");
    puts(name);    //Function to display string.
    getch();
}
```

Though, gets() and puts() function handle string, both these functions are defined in "stdio.h" header file.

Strlen( )

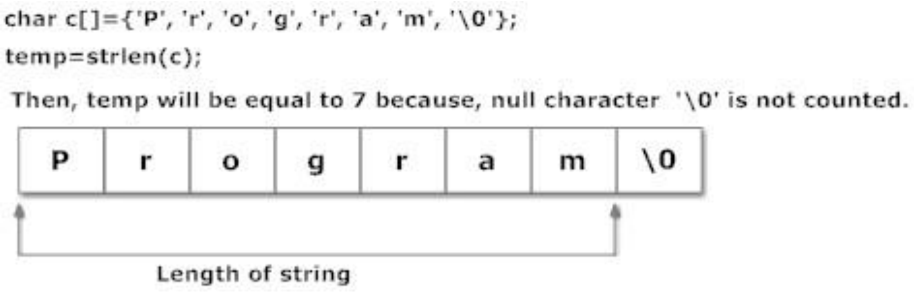
In C, strlen() function calculates the length of string. It is defined under "string.h" header file.

It takes only one argument, i.e, string name.

Syntax of strlen()

temp_variable = strlen(string_name);

Function strlen() returns the value of type integer.



```
char c[]={'P', 'r', 'o', 'g', 'r', 'a', 'm', '\0'};
temp=strlen(c);
```

Then, temp will be equal to 7 because, null character '\0' is not counted.

P	r	o	g	r	a	m	\0

Example of strlen()

```
#include <stdio.h>
#include <string.h>
int main()
{
    char a[20]="Program";
    char b[20]={'P','r','o','g','r','a','m','\0'};
    char c[20];
    printf("Enter string: ");
    gets(c);
    printf("Length of string a=%d \n",strlen(a));
    //calculates the length of string before null charcter.
    printf("Length of string b=%d \n",strlen(b));
    printf("Length of string c=%d \n",strlen(c));
    return 0;
}
```

Output

```
Enter string: String
Length of string a=7
Length of string b=7
Length of string c=6
```

Strcpy ( )

Function strcpy() copies the content of one string to the content of another string. It is defined under "string.h" header file.

It takes two arguments.

Syntax of strcpy()

```
strcpy(destination,source);
```

Here, source and destination are both the name of the string. This statement, copies the content of string source to the content of string destination.

Example of strcpy()

```
#include <stdio.h>
#include <string.h>
int main()
{
    char a[10],b[10];
    printf("Enter string: ");
    gets(a);
    strcpy(b,a);   //Content of string a is copied to string b.
    printf("Copied string: ");
    puts(b);
    return 0;
}
```

Output

```
Enter string: Programming Tutorial

Copied string: Programming Tutorial
```

Strcat ( )

In C programming, strcat() concatenates(joins) two strings.

It takes two arguments, i.e, two strings and resultant string is stored in the first string specified in the argument.

Function strcat() is defined under "string.h" header file.

Syntax of strcat()

strcat(first_string,second_string);

Example of strcat()

```
#include <stdio.h>
#include <string.h>
int main(){
    char str1[]="This is ", str2[]="programiz.com";
    strcat(str1,str2);
 //concatenates str1 and str2 and resultant string is stored in str1.
    puts(str1);
    puts(str2);
    return 0;
}
```

Output

```
This is programiz.com

programiz.com
```

strcmp ( )

In C, strcmp() compares two string and returns value 0, if the two strings are equal. It is defined under "string.h" header file.

Function strcmp() takes two arguments, i.e, name of two string to compare.

Syntax of strcmp()

```
temp_varaible=strcmp(string1,string2);
```

Example of strcmp()

```c
#include <stdio.h>
#include <string.h>
int main()
{
  char str1[30],str2[30];
  printf("Enter first string: ");
  gets(str1);
  printf("Enter second string: ");
  gets(str2);
  if(strcmp(str1,str2)==0)
      printf("Both strings are equal");
  else
      printf("Strings are unequal");
  return 0;
}
```

Output

```
Enter first string: Apple

Enter second string: Apple

Both strings are equal.
```

If two strings are not equal, strcmp() returns positive value if ASCII value of first mismatching element of first string is greater than that of second string and negative value if ASCII value of first mismatching element of first string is less than that of second string. For example:

```
char str1[]="and",str2[]="cat";

temp=strcmp(str1,str2);
```

Since, ASCII value of 'a' is less than that of 'c', variable temp will be negative.

Strlwr ( )

In C programming, strlwr() function converts all the uppercase characters in that string to lowercase characters.

The resultant from strlwr() is stored in the same string.

Syntax of strlwr()

```
strlwr(string_name);
```

Example of strlwr()

```
#include <stdio.h>
#include <string.h>
int main(){
    char str1[]="LOWer Case";
    puts(strlwr(str1));
//converts to lowercase and displays it.
    return 0;
}
```

Output

```
lower case
```

Function strlwr() leaves the lowercase characters as it is and converts uppercase characters to lowercase.

Strupr ( )

In C programming, strupr() function converts all the lowercase characters in that string to uppercase characters.

The resultant from strupr() is stored in the same string.

Syntax of strupr()

```
strupr(string_name);
```

Example of strupr()

```c
#include <stdio.h>
#include <string.h>
int main(){
    char str1[]="UppEr Case";
    puts(strupr(str1));
 //Converts to uppercase and displays it.
    return 0;
}
```

Output

```
UPPER CASE
```

Function strupr() leaves the uppercase characters as it is and converts lowercase characters to uppercase.