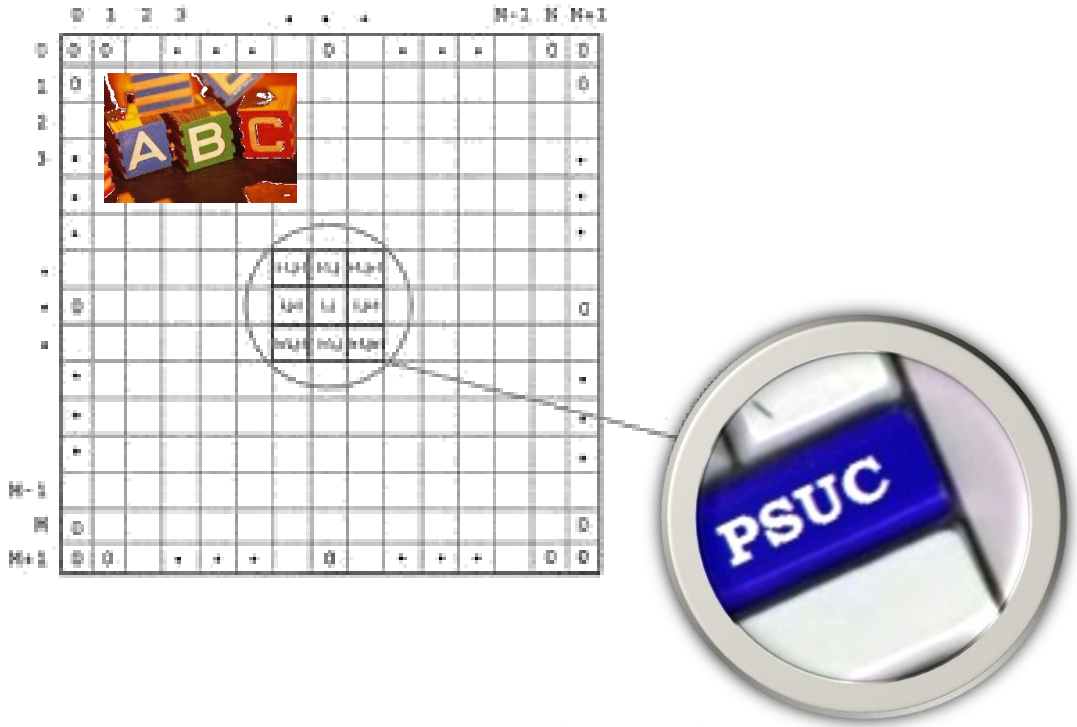


S11_2

STRINGS and STRING HANDLING FUNCTIONS

Objectives

To learn and appreciate the following concepts

- String
- String Handling Functions
- Programs using strings

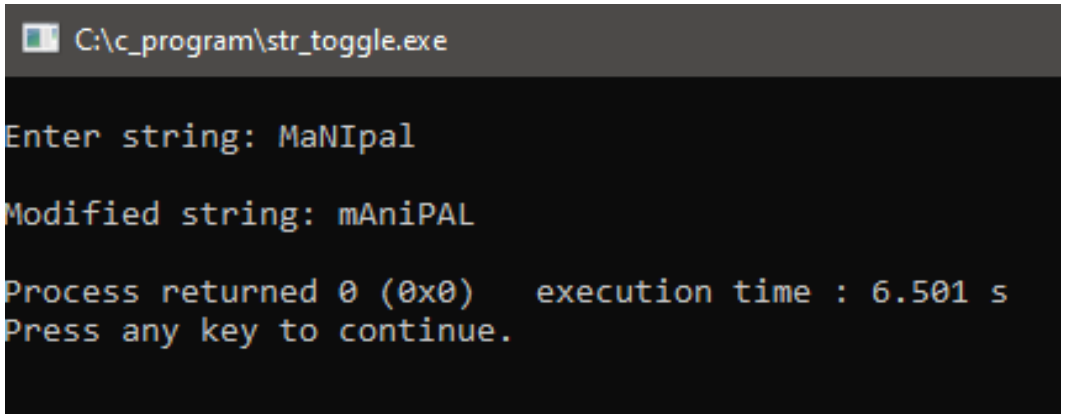
Session outcome

At the end of session student will be able to

- Understand string and String Handling Functions
- Write programs using strings

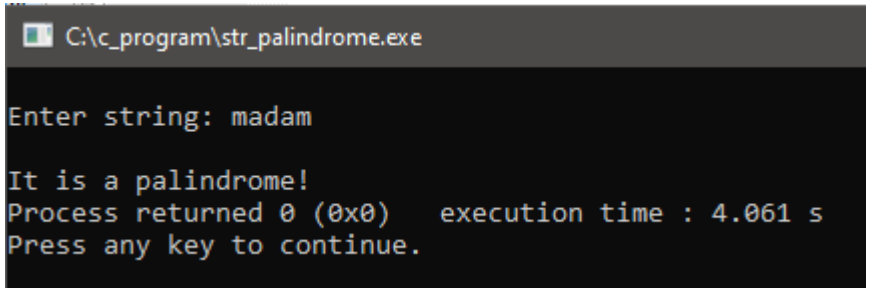
Input a string and toggle the case of every character in the input string.

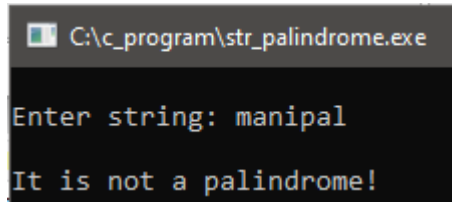
```
#include<stdio.h>
int main()
{char string[100];
int i;
printf("\nEnter string: ");
gets(string);
for(i=0;string[i]!='\0';i++)
{
if(string[i]>='A'&&string[i]<='Z')
string[i]+=32;
else if(string[i]>='a'&&string[i]<='z')
string[i]-=32;
}
printf("\nModified string: ");
puts(string);
return 0;
}
```



Check whether the given string is a palindrome or not.

```
#include<stdio.h>
int main()
{
char string[100];
int i,n=0,flag=0;
printf("\nEnter string: ");
gets(string);
for(i=0;string[i]!='\0';i++)
n++;
for(i=0;i<n/2;i++)
{
   if(string[i]!=string[n-1-i])
{
   flag=1;
   break;
}}
if(flag==0)
printf("\nIt is a palindrome!");
else
printf("\nIt is not a palindrome!");
return 0;
}
```





Library functions: String Handling functions (built-in)

- Used to manipulate a given string.
- These functions are part of string.h header file.
  - strlen ()
    - ✓ gives the length of the string. E.g. strlen(string)
  - strcpy ()
    - ✓ copies one string to other. E.g. strcpy(Dstr1, Sstr2)
  - strcmp ()
    - ✓ compares the two strings. E.g. strcmp(str1, str2)
  - strcat ()
    - ✓ Concatinate the two strings. E.g. strcat(str1, str2)

Library function: strlen()

- String length can be obtained by using the following function

  n=strlen(string);

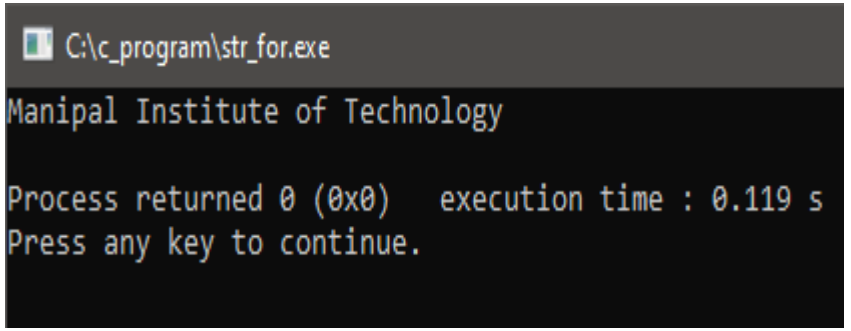
- This function counts and returns the number of characters in a string, where n is an integer variable which receives the value of the length of the string.

- The argument may be a string constant.

  Eg: printf("%d",strlen("Manipal")); prints out 7.

Copies a string using a for loop

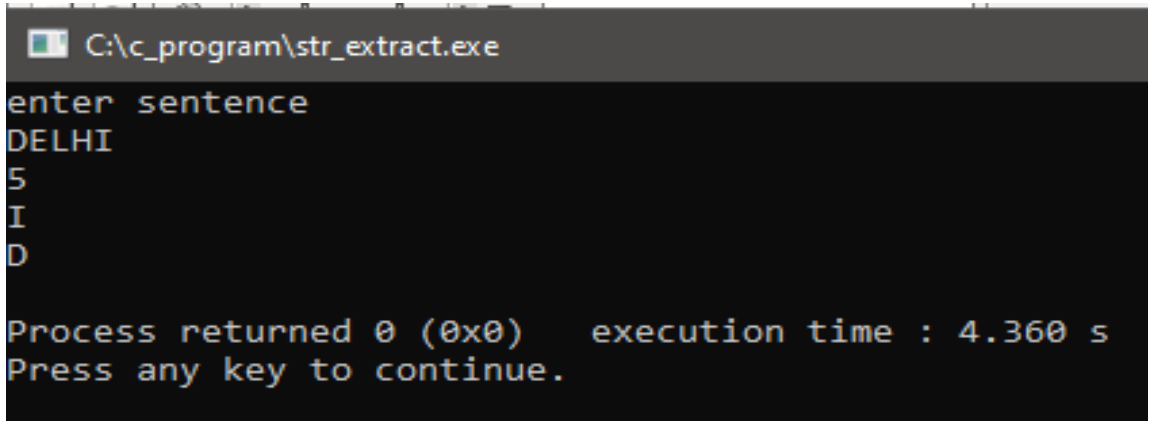
```
#include <stdio.h>
#include<string.h>
int main()
{
   char str1[ ] = "Manipal Institute of Technology";
   const int MAX = 80;                    //size of str2 buffer
   char str2[MAX]; //empty string
   int j;
   for(j=0 ; j<strlen(str1); j++)         //copy strlen characters
         str2[j] = str1[j];               // from str1 to str2
   str2[j] = '\0';                        //insert NULL at end
   printf("%s\n",str2);                   //display str2
  return 0;
}
```



Extracting a character from a string

```
#include <stdio.h>
#include<string.h>
int main()
{
const int MAX = 100;
char sent[MAX];
int len;
printf("enter sentence \n");
gets(sent);
len=strlen(sent);
printf("%d\n",len);
printf("%c\n",sent[len-1]);
printf("%c\n",sent[0]); }
```

sent[0] sent[1] sent[2] sent[3] sent[4]



To encrypt and decrypt a string

```
#include <stdio.h>
#include<string.h>
int main()
{
const int MAX = 100;
char sent[MAX];
int len,i;
printf("enter sentence \n");
gets(sent);
for(i=0;sent[i]!='\0';i++)
sent[i]=sent[i]+1;
printf(" the encrypted string is \n");
puts(sent);
for(i=0;sent[i]!='\0';i++)
sent[i]=sent[i]-1;
printf(" the decrypted string is \n");
puts(sent);}
```

```
enter sentence
abcd
 the encrypted string is
bcde
 the decrypted string is
abcd
```

```
enter sentence
manipal
 the encrypted string is
nbojqbm
 the decrypted string is
manipal
```

Library function: strcpy()

Copying a String the EASY WAY using

strcpy(destination, source)

- The strcpy function works almost like a string assignment operator and assigns the contents of source to destination.

✓ destination may be a character array variable or a string constant.

e.g., **strcpy(city, ”DELHI”);**

will assign the string “DELHI” to the string variable city.

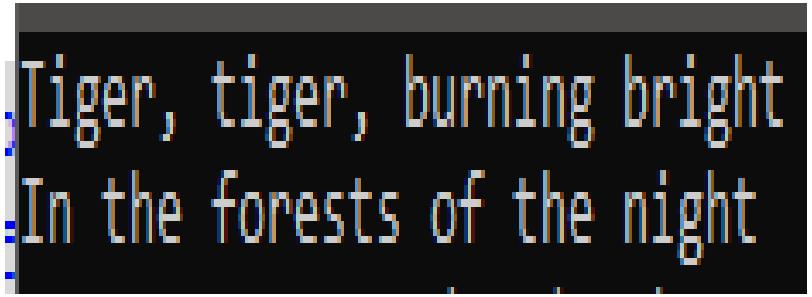
✓ Similarly, the statement **strcpy(city1, city2);**

will assign the contents of the string variable city2 to the string variable city1.

The size of the array city1 should be large enough to receive the contents of city2.

strcpy(): Example

```
#include <stdio.h>

#include<string.h>

int main() {

char str1[ ] = "Tiger, tiger, burning bright\n"

                "In the forests of the night";

const int MAX = 80; //size of str2 buffer

 char str2[MAX]; //empty string

strcpy(str2, str1); //copy str1 to str2

printf("%s",str2);//display str2

 }
```



Summary

- Strings and String Handling Functions
- Programs using strings