EXPERIMENTS

11. ***Sort an Array in Ascending Order.***
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16. ***Reverse a Given String.***
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Expt 11: Sort an Array in Ascending Order.

Aim:

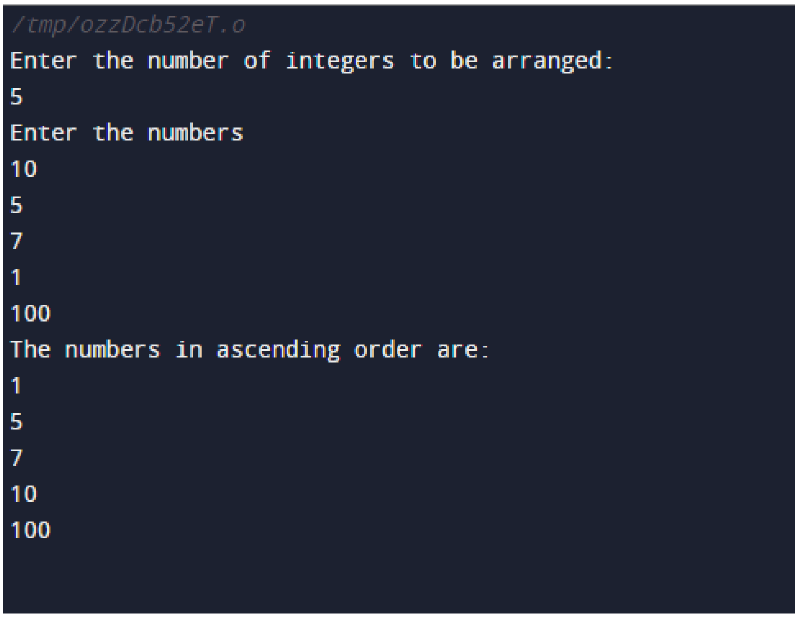
To sort an array of N integers in ascending order.

Algorithm:

- Sort N integers in an array
- First element taken, compared with all other elements of the array, the process is continued till the last element, in a loop.
- If the remainder is not 0, increment the counter
- End the loop
- Display the counter as the result

```
//***************************************************************************** //
Program name : Ascend.c
// Author : Anantha Krishnan R J
// Date Written : 15/06/2021
// Date Compiled : 15/06/2021
// Aim of the Program : To sort an array of N integers in ascending order.
//******************************************************************************
//******************************************************************************
#include<stdio.h>

int main()
{
  int n, i, a[100], temp, j;

  printf("Enter the number of integers to be arranged:\n");
  scanf("%d", &n);

printf("Enter the numbers\n");
for(i=0; i<n; i++)
{
    scanf("%d", &a[i]);
}
for(i=0; i<(n-1); i++)
  {
     for(j=0; j<(n-1-i); j++)
     {
          if(a[j]>a[j+1])
         {
              temp=a[j];
             a[j]=a[j+1];
             a[j+1]=temp;
        }
    }
}
printf("The numbers in ascending order are:\n");

  for(i=0; i<n; i++)
    printf("%d\n", a[i]);

}
```

Output :



```
/tmp/ozzDcb52eT.o
Enter the number of integers to be arranged:
5
Enter the numbers
10
5
7
1
100
The numbers in ascending order are:
1
5
7
10
100
```

Expt 12: Evaluate the Length of a String

Aim:

To find the length of a given string.

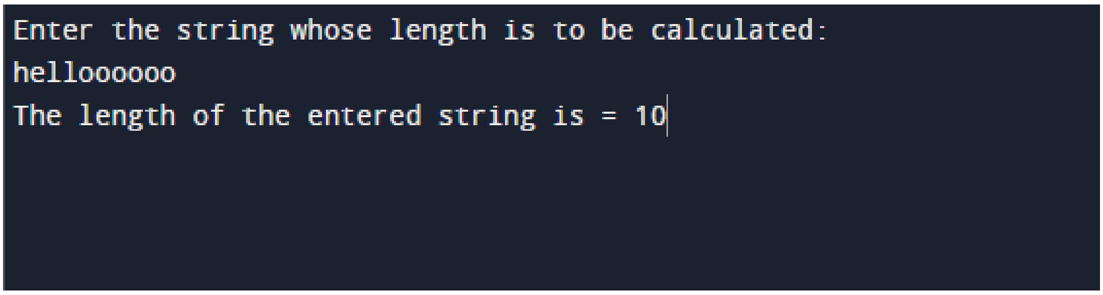
Algorithm:

- Read the string through the keyboard.
- Use strlen function to find the length of the string.
- Display the result of length of string.

Program:

```
//************************************************************************ //
Program name : stringlen.c
// Author : Anantha Krishnan R J
// Date Written : 15/06/2021
// Date Compiled : 15/06/2021
// Aim of the Program : To find the length of a given string.
//************************************************************************
//************************************************************************

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

int main()
{
   char str[100];
   int len;
   printf("Enter the string whose length is to be calculated:\n");
   scanf("%s", str);
   len=strlen(str);
   printf("The length of the entered string is = %d",len);

}
```

Output:



```
Enter the string whose length is to be calculated:
hellooooo
The length of the entered string is = 10
```

Expt 13: Copy Contents of a String to Another.

Aim:

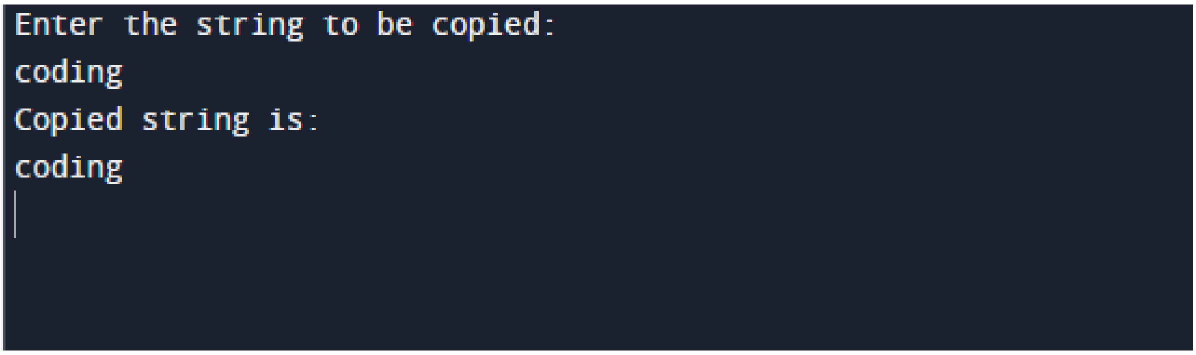
To copy the contents of a string to another without using library functions.

Algorithm:

- Declare 2 array of the same length.
- Use a loop and copy each character of the source string to the destination string.
- Display both the strings.

```
//*************************************************************************** //
Program name : copystr.c
// Author : Anantha Krishnan R J
// Date Written : 15/06/2021
// Date Compiled : 15/06/2021
// Aim of the Program : To copy the contents of a string to another without using library
functions.
//****************************************************************************
//****************************************************************************

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

int main()
{
    int i, len;
    char a[100], b[100], temp;

    printf("Enter the string to be copied:\n");
    fgets(a, 100, stdin);

    len=strlen(a);

     for(i=0; i<len; i++)
    {
        temp=a[i];
        a[i]=b[i];
        b[i]=temp;
     }
   printf("Copied string is:\n %s", b);
}
```

Output:



```
Enter the string to be copied:
coding
Copied string is:
coding
```

Expt 14: Compare Two Strings

Aim:

To compare two strings without any standard functions and if the strings are not identical, display the position where the characters are different.

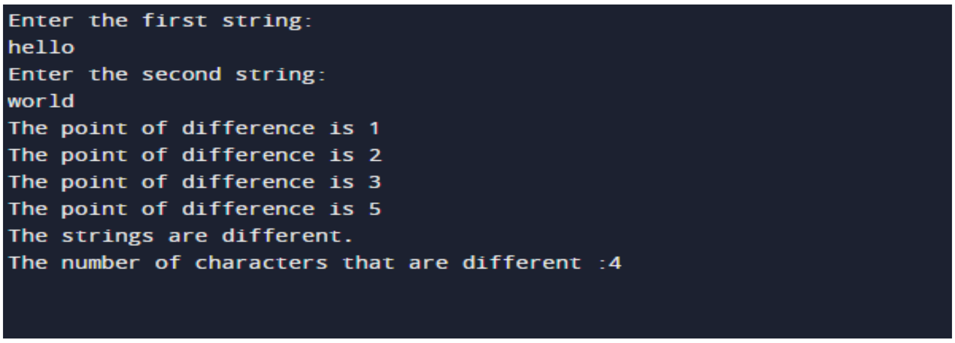
Algorithm:

- Read in the two strings.
- Using a loop, check the corresponding characters of both the strings.
- If identical, the loop is continued.
- Otherwise, a counter variable 'diff' is incremented.
- Display the locations where the strings are non-identical.
- Display the number of places where the two strings are different.

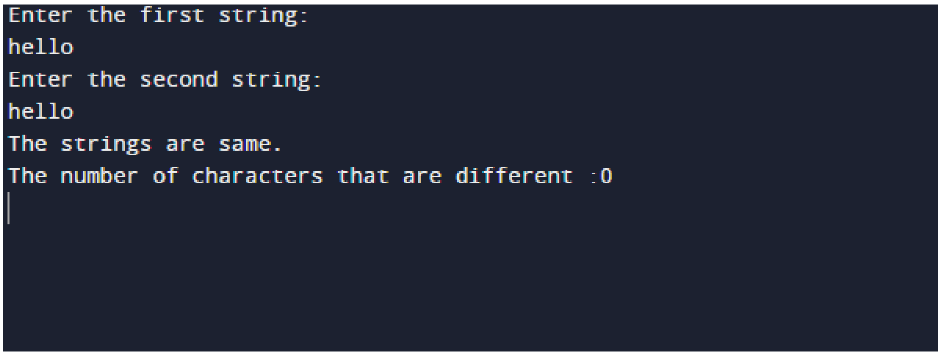
```
//************************************************************************** //
Program name : cmpstr.c
// Author : Anantha Krishnan R J
// Date Written : 15/06/2021
// Date Compiled : 15/06/2021
// Aim of the Program : To compare two strings without any standard functions and if the
strings are not identical, display the position where the characters are different.

//***************************************************************************
//***************************************************************************

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

int main()
{
    int len, i, diff=0;
    char a[100], b[100];

  printf("Enter the first string:\n");
  fgets(a, 100, stdin);

  printf("Enter the second string:\n");
  fgets(b, 100,stdin);

  len=strlen(a);
  for(i=0; i<len; i++)

   if(a[i]==b[i])
```

```
    {
        continue;
    }
    else
    {
      s++;
      printf("The point of difference is %d\n", i+1);
    }


if(s==0)
  {
     printf("The strings are same.\n");
  }
else
  {
     printf("The strings are different.\n");
  }

printf("The number of characters that are different : %d\n", diff);

}
```

Output:



```
Enter the first string:
hello
Enter the second string:
world
The point of difference is 1
The point of difference is 2
The point of difference is 3
The point of difference is 5
The strings are different.
The number of characters that are different :4
```



```
Enter the first string:
hello
Enter the second string:
hello
The strings are same.
The number of characters that are different :0
```

Expt 15: Concatenate Two Strings

Aim:

To concatenate two strings without a standard function.

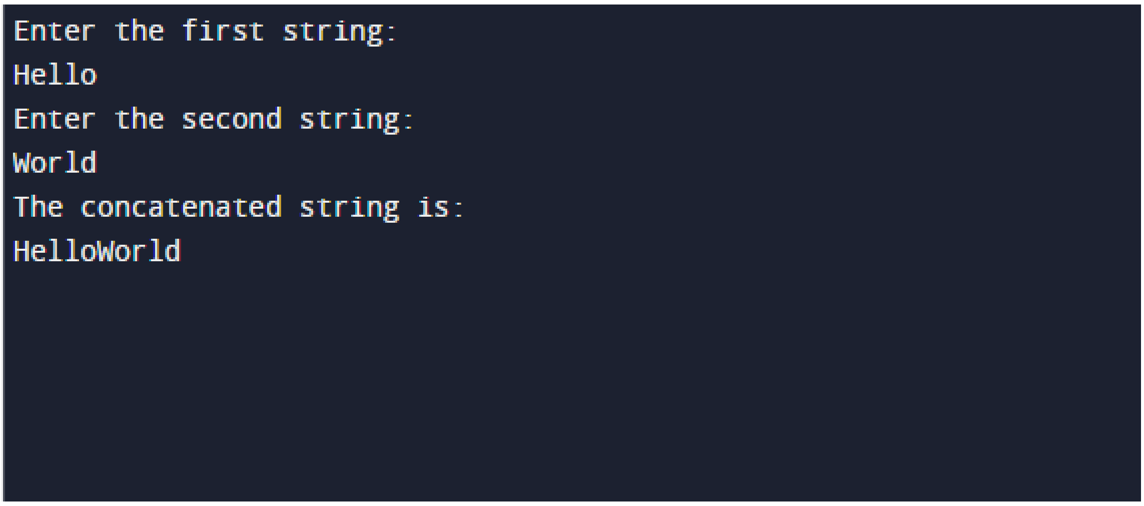
Algorithm:

- Read the two strings.
- Declare a third string to store the concatenated string.
- Use a loop, store the first string to the third.
- Store the 2nd string to the 3rd, starting from the current position.
- Display the 3rd string.

```
//************************************************************************ //
Program name : concatstr.c
// Author : Anantha Krishnan R J
// Date Written : 15/06/2021
// Date Compiled : 15/06/2021
// Aim of the Program : To concatenate two strings.

//************************************************************************
//************************************************************************

#include<stdio.h>

#include<string.h>

int main()

{
   int i=0, j=0;
   char a[100], b[100], c[100];

   printf("Enter the first string:\n");
   scanf("%s", a);

   printf("Enter the second string:\n");
   scanf("%s", b);

while(a[i]!='\0')
{
   c[i]=a[i];
   i++;
}
  while(b[j]!='\0')
  {
     c[i]=b[j];
```

```
      i++;
      j++;
  }

c[i]='\0';
printf("The concatenated string is:\n%s", c);


}
```

Output:



```
Enter the first string:
Hello
Enter the second string:
World
The concatenated string is:
HelloWorld
```

Expt 16: Reverse a Given String

Aim:

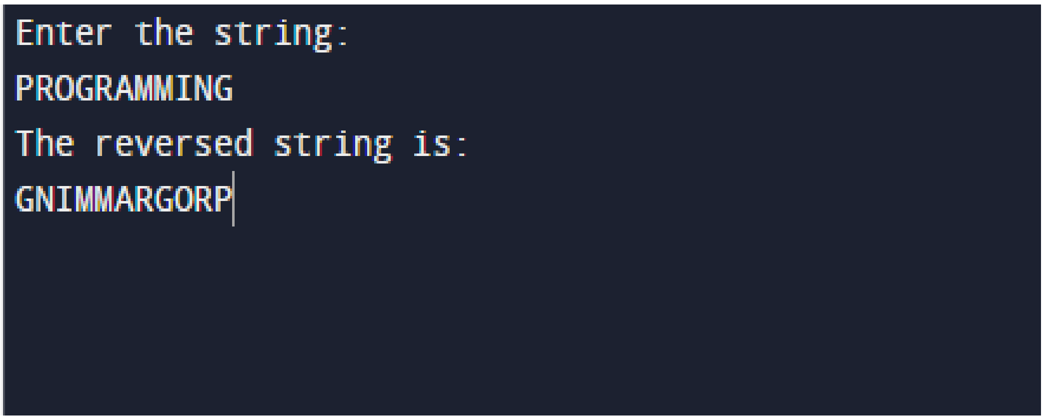
To reverse a given string.

Algorithm:

- Read in a string ‘str’
- Assign a variable ‘len’ to the string length
- Use loop len/2 times
- Assign a temporary variable ‘temp’
- Make the input string equal to the temp string and then assign temp string to the reverse string
- Print out str as the reverse string

```
//*********************************************************************** //
Program name : revstr.c
// Author : Anantha Krishnan R J
// Date Written : 15/06/2021
// Date Compiled : 15/06/2021
// Aim of the Program : To reverse a given string.

//***********************************************************************
//***********************************************************************

int main()

{

     int i=0, len;
    char str[100], temp[100];
    printf("Enter the string:\n");
    scanf("%s", str);

   len=strlen(str);

     for(i=0; i<len/2; i++)
       {
           temp[i]=str[i];
           str[i]=str[len-1-i];
           str[len-1-i]=temp[i];
       }

printf("The reversed string is:\n%s", str);


}
```

Output:



```
Enter the string:
PROGRAMMING
The reversed string is:
GNIMMARGORP
```

Expt 17: Check a Palindrome String

Aim:

To check whether the given string is a palindrome or not.

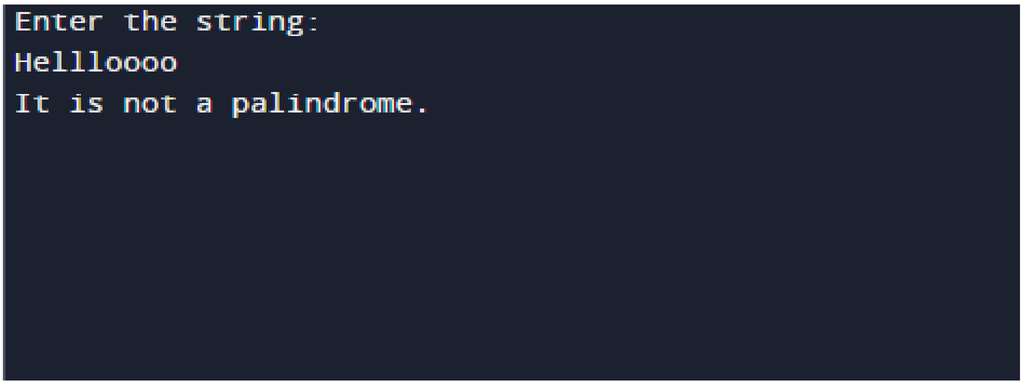
Algorithm:

- Read in a string ‘str’
- Assign a variable len, which gives the length of a string
- Using loop, assign a variable i=0, and check is the first and last characters are the same
- Increment i
- If they are found equal, display that it is a palindrome
- If found unequal, display that it is not a palindrome

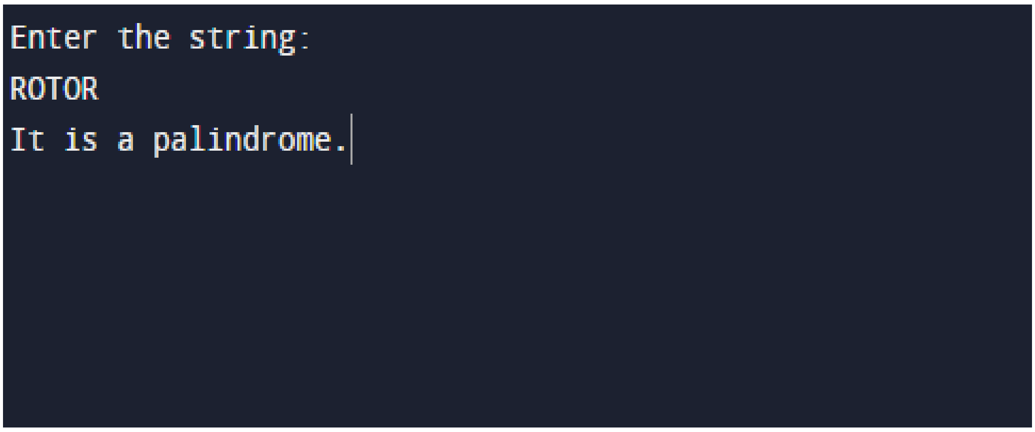
```
//************************************************************************ //
Program name : palinchk.c
// Author : Anantha Krishnan R J
// Date Written : 15/06/2021
// Date Compiled : 15/06/2021
// Aim of the Program : To check whether the given string is a palindrome or not.

//*************************************************************************
//*************************************************************************

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

int main()
{
   int i=0, len, s=0;
   char str[100];

  printf("Enter the string:\n");
  scanf("%s", str);

  len=strlen(str);


    for(i=0; i<len/2; i++)
      {
         if(str[i]==str[len-i-1])
            {
            continue;
            }
        else
```

```
            {
                s++;
            }
      }
      if(s==0)
        {
            printf("It is a palindrome.");
        }
     else
       {
           printf("It is not a palindrome.");
       }

  }
```

Output:



```
Enter the string:
Hellloooo
It is not a palindrome.
```



```
Enter the string:
ROTOR
It is a palindrome.
```