Name	Debjit Ghosal
UID no.	2023300065
Experiment No.	7

AIM:	**Implement various text processing problems.**
Program 1	
PROBLEM STATEMENT :	Write a program to count the number of vowels, consonants, total characters and words in the given string.

PSEUDO CODE :	function main:
	create str of size 1000
	vowels = 0
	consonants = 0
	blank = 0
	
	print "Enter the sentence:"
	input str
	
	for i from 0 to length of str - 1:
	if str[i] is 'a' or str[i] is 'e' or str[i] is 'i' or str[i] is 'o' or str[i] is 'u':
	vowels = vowels + 1
	else if str[i] is ' ':
	blank = blank + 1
	else:
	consonants = consonants + 1
	
	words = blank + 1
	
	print "The number of words are", words
	print "The number of characters are", length of str
	print "The number of vowels are", vowels
	print "The number of consonants are", consonants

PROGRAM:

```
#include<stdio.h>
#include<string.h>
int main()
{
int vowels=0,consonants=0,words=1,i;

char str[1000];
scanf("%[^\n]",str);
printf("%s",str);
   for(i=0;str[i]!='\0';i++)
    {
     if(str[i]=='a' || str[i]=='e' || str[i]=='i' || str[i]=='o' || str[i]=='u')
     vowels++;
  else if(str[i]==' ')
          words++;
else
   consonants++;
      }
     printf("\n vowels= %d \n consonants = %d \n words = %d ",vowels,
consonants, words);

return 0;
}
```

RESULT:

```
psipl@psipl-OptiPlex-3000:~/Desktop/2023300065$ gcc stringword.c
psipl@psipl-OptiPlex-3000:~/Desktop/2023300065$ ./a.out
My friend is Samarth
My friend is Samarth
 vowels= 5
 consonants = 12
 words = 4 psipl@psipl-OptiPlex-3000:~/Desktop/2023300065$
```

Program 2	
PROBLEM STATEMENT :	Write a Menu driven Program to i)copy one string to another one by one character. ii) Find the string length iii) compare two strings iv) reverse the string v) Concatenate one string to another string. vi) lower case to upper

PSEUDO CODE :	function len(str):
	  i = 0
	  while str[i] is not null:
	  i = i + 1
	  return i
	
	function copy(str1):
	  create str2 of size 200
	  b = len(str1)
	  for i from 0 to b-1:
	  str2[i] = str1[i]
	  print "the copied string is", str2
	
	function comp(str1, str2):
	  count = 0
	  for i from 0 to len(str1)-1:
	  for j from 0 to len(str2)-1:
	  if str1[i] > str2[j]:
	  return 1
	  else if str1[i] < str2[j]:
	  return -1
	  else if str1[i] == str2[j]:
	  count = count + 1
	  if count is equal to len(str1):
	  return 0
	
	function reverse(str):
	  create result of size 100
	  b = len(str)
	  for i from 0 to b-1:

```
        result[i] = str[b-i-1]
    print "the reversed string is", result

function concatenate(str1, str2):
    b = len(str1)
    for i from 0 to b-1:
        str1[i+b] = str2[i]
    print "the concatenated string is", str1

function upper(str1):
    b = len(str1)
    for i from 0 to b-1:
        if str1[i] >= 97 and str1[i] <= 122:
            str1[i] = str1[i] - 32
    print "the string in uppercase is", str1

function main():
    a = 0
    print "1. To copy 1 string to another string 1 by 1 character"
    print "2. To find the string length"
    print "3. To compare the strings"
    print "4. To find the reverse of the string"
    print "5. To concatenate 1 string to another"
    print "6. To convert lowercase string to uppercase"
    print "7. Exit"

    repeat:
        input a
        switch a:
            case 1:
                str1 = input string
                call copy(str1)
                break
            case 2:
                str = input string
                length = len(str)
                print "The length of the string is", length
                break
            case 3:
                str1 = input string
```

	str2 = input string result = comp(str1, str2) print result break case 4: str = input string call reverse(str) break case 5: str1 = input string str2 = input string call concatenate(str1, str2) break case 6: str1 = input string call upper(str1) break case 7: print "Menu is Exited" break default: print "!ERROR!" end switch until a is equal to 7

PROGRAM:	#include<stdio.h>
	#include<stdlib.h>
	int main()
	{
	int c;
	printf("The choices are:\n1.Store one string in another\n2.Find length of string\n3.Compare given strings whether they are equal or not\n4.Find reverse of the string\n5.Concatinate one string to another\n6.Convert the given string from lower case to upper case\n7.Exit");
	
	printf("\nEnter choice: ");
	scanf("%d", &c);
	getchar();

```
switch(c)
{
        case 1:char str1[50], str2[50];
                printf("Enter first string: ");
                scanf("%[^\n]s", str1);
                for (int i=0;str1[i]!='\0';i++)
                str2[i]=str1[i];
                printf("The second string is: %s", str2);
                break;
        case 2:char str[50];
                printf("Enter the string: ");
                scanf("%[^\n]s", str);
                int length=0;
                for (int i1=0;str[i1]!='\0';i1++)
                length++;
                printf("The length of the string is: %d", length);
                break;
        case 3:int n=0, length3=0;
                char str3[50], str4[50];
            printf("Enter the first string: ");
            scanf("%[^\n]s", str3);
            getchar();
            printf("Enter the second string: ");
            scanf("%[^\n]s", str4);
            for (int i2=0;str4[i2]!='\0';i2++)
            {
                        length3++;
                        if (str3[i2]==str4[i2])
                        n++;
            }
            if (n==length3)
            printf("The strings are equal");
            else
            printf("The strings are not equal");
            break;
        case 4:int length5=0, i3;
            char str5[50], temp[50];
            printf("Enter the string: ");
            scanf("%[^\n]s", str5);
            for (i3=0;str5[i3]!='\0';i3++)
```

```
                {
                        length5++;
                        temp[i3]=str5[i3];
                }
                for (int j=0;j<length5;j++)
                str5[length5-j-1]=temp[j];
                printf("The reverse of string is: %s", str5);
                break;
        case 5:int length6=0, x, y;
                char str6[50], str7[50];
                printf("Enter the first string: ");
                scanf("%[^\n]s", str6);
                getchar();
                printf("Enter the second string: ");
                scanf("%[^\n]s", str7);
                for (int i4=0;str6[i4]!='\0';i4++)
                        length6++;
                        for (x=length6, y=0;str7[y]!='\0';x++, y++)
                        str6[x]=str7[y];
                        str6[x]='\0';
                        printf("The concatinated string is: %s", str6);
                        break;
        case 6:char str8[50];
                        printf("Enter the string in lowercase: ");
                        scanf("%[^\n]s", str8);
                for (int i5=0;str8[i5]!='\0';i5++)
                str8[i5]-=32;
                printf("The string in uppercase is: %s", str8);
                break;
        case 7:exit(0);
        default:printf("Invalid choice");
    }
                return 0;
}
```

RESULT:

```
sahil@sahil-VirtualBox:~/Desktop/2023300065$ ./a.out
The choices are:
1.Store one string in another
2.Find length of string
3.Compare given strings whether they are equal or not
4.Find reverse of the string
5.Concatinate one string to another
6.Convert the given string from lower case to upper case
7.Exit
Enter choice: 1
Enter first string: Hello
The second string is: Hello sahil@sahil-VirtualBox:~/Desktop/
```

Program 3	
PROBLEM STATEMENT:	Write a program which reads a word and finds whether it is a palindrome or not.

ALGORITHM:	function len(str):
	  i = 0
	  while str[i] is not null:
	  i = i + 1
	  return i
	
	function isPalindrome(str):
	  create result of size 100
	  b = len(str)
	  count = 0
	
	  for i from 0 to b - 1:
	  result[i] = str[b - i - 1]
	
	  print "the reversed string is", result
	
	  for i from 0 to b - 1:
	  if str[i] is equal to result[i]:
	  count = count + 1
	
	  if count is equal to b:
	  print "it is palindrome"
	  else:

	print "it is not a palindrome" function main(): create str of size 100 print "Enter the string:" input str call is Palindrome(str)

PROGRAM:	#include<stdio.h>
	#include<string.h>
	int main()
	{
	char str[200];
	printf("Enter the String :");
	scanf("%s",str);
	
	int l=0;
	int h=strlen(str) - 1;
	
	while(h>l)
	{
	if(str[l++]!=str[h--])\
	{
	printf("%s is not a palindrome \n",str);
	return 0;
	}
	}
	
	printf("%s is a palindrome \n",str);
	return 0;
	}

RESULT:

```
psipl@psipl-OptiPlex-3000:~/Desktop/2023300065$ gcc string_palindrome.c
psipl@psipl-OptiPlex-3000:~/Desktop/2023300065$ ./a.out
Enter the String :naman
naman is a palindrome
psipl@psipl-OptiPlex-3000:~/Desktop/2023300065$ ./a.out
Enter the String :maa
maa is not a palindrome
psipl@psipl-OptiPlex-3000:~/Desktop/2023300065$
```

CONCLUSION:	By this experiment I have learned various operations to do on character string with and without using library functions.