Name	Vineet Parmar
UID no.	2021300092
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.
ALGORITHM:	1. START 2. Define integer function vowel with a character c as parameter 3. If(c is equal to any of vowels) Return 1 Else Return 0 4. Define integer function consonant with a character c as parameter 5. If(vowels(c)=0 and ((c>=65 and c<=90)or(c>=97 and c<=122)) Return 1 Else Return 0 6. Define integer function words with a character array str[] as parameter 7. Count =0, i=0 8. If (str[i] is equal to ‘ ‘) count++ 9. I++ 10. Return count+1 11. Define main function 12. Input string str 13. I=0,vcount=0,ccount=0 14. If(vowels(str[i])=1) vcount++ Else(consonants(str[i]=1)) ccount++ 15. Repeat till str[i]!=0 16. Print vcount

	17. Print ccount 18. Print vcount+ccount 19. Print words(str) 20. Print i 21. STOP

PROGRAM:	#include<stdio.h>
	int vowels(char c)
	{
	if(c=='A' || c=='E' || c=='I' || c=='O' || c=='U' || c=='a' || c=='e' || c=='i' || c=='o' || c=='u')
	return 1;
	else
	return 0;
	}
	int consonant(char c)
	{
	if(vowels(c)==0 && ((c>=65 && c<=90) || (c>=97 && c<=122)))
	return 1;
	else
	return 0;
	}
	int words(char str[])
	{
	int count=0;
	for(int i=0;i<str[i]!=0;i++)
	if(str[i]==' ')
	count++;
	return count+1;
	}
	int main()
	{
	char str[100];
	int vcount=0, ccount=0;
	printf("Enter a string : ");
	scanf("%[^\n]",str);
	for(int i=0;str[i]!='\0';i++)
	{
	if(vowels(str[i])==1)
	vcount++;

```
        else if(consonant(str[i])==1)
            ccount++;
    }
    int  word=words(str);
    printf("No of vowels : %d\n",vcount);
    printf("No of consonants : %d\n",ccount);
    printf("No of characters : %d\n",vcount+ccount);
    printf("Length of the string : %d\n",i);
    printf("No of words : %d\n",word);
    return 0;
}
```

RESULT:

```
Enter a string : I have 5 cars
No of vowels : 4
No of consonants : 5
No of characters : 9
Length of the string : 13
No of words : 4


...Program finished with exit code 0
Press ENTER to exit console.
```

Program 2

PROBLEM STATEMENT :	Write a Menu driven Program to: 1. copy one string to another one by one character 2. Find the string length 3. compare two strings 4. reverse the string 5. Concatenate one string to another string 6. lower case to upper
ALGORITHM:	1. START 2. Define void function copystr with two character arrays str[] and strn[] as parameters. 3. Int i=0 4. strn[i]=str[i] 5. i++ 6. Repeat 5 and 6 untill str[i]!=0 7. strn[i]=0 8. Define integer function length with character array str[] as parameters 9. i=0

	10. i++ 11. Repeat 10 till str[i]!=0 12. Return i 13. Define void function compare with 3 character array str1[], str2[] and str[] as parameters 14. int i=0, count=0 15. if(str1[i]<str2[i]) copystr(str2,str) count=1 Go to step else if(str1[i]>str2[i]) copystr(str1,str) count=1 Go to step 16. i++ 17. Repeat 15 and 16 till str1[i] =0 or str2[i]=0 18. if count=0 copystr(str1,str) 19. Define void function reverse with 2 character arrays str[] and strn[] as parameters. 20. Int length = length(str) 21. i=0 22. strn[i] = str[len-i-1] 23. i++ 24. Repeat 22 and 23 till i<len 25. str[len]=0 26. Define void function concatenate with 3 character arrays str1[], str2[] and str[] as parameters. 27. Len = length(str1), i=0 28. str[i]=str1[i] 29. i++ 30. Repeat 28 and 29 till str[i]!=0 31. str[i]=str2[i-len] 32. i++ 33. Repeat 31 and 32 till str2[i-len]!=0 34. str[i]=0 35. Define void function convert with two character arrays str[] and strn[] as parameters. 36. Int i=0 37. if(str[i]>=97 and str[i]<=122)

	strn[i] = str[i]-32 else strn[i] = str[i] 38. i++ 39. Repeat 37 and 38 till str[i] !=0 40. Define main function 41. Input two strings str1[] and str2[] 42. int option 43. Input option 44. If (option ==1) copystr(str1,strn1) copystr(str2,strn2) print str1 and str2 else if (option == 2) print length(str1) and length(str2) else if (option == 3) compare(str1,str2,strn) print strn else if (option == 4) reverse(str1,strn1) reverse(str2,strn2) print strn1 and strn2 else if (option == 5) concatenate(str1,str2,strn) print strn else if (option == 6) convert(str1,strn1) convert(str2,strn2) print strn1 and strn2 45. Return 0 46. STOP

PROGRAM:	#include<stdio.h>
	void copystr(char str[], char strn[])
	{
	int i;
	for(i=0;str[i]!='\0';i++)
	strn[i]=str[i];
	strn[i]='\0';
	}

```
int length(char str[])
{
   int i;
   for(i=0;str[i]!='\0';i++);
   return i;
}
void compare(char str1[], char str2[], char str[])
{
   int count=0;
   for(int i=0;(str1[i]!='\0'|| str2[i]!='\0');i++)
   {
      if(str1[i]<str2[i])
      {
         copystr(str2,str);
         count=1;
         break;
      }
      else if(str1[i]>str2[i])
      {
         copystr(str1,str);
         count=1;
         break;
      }
   }
   if(count==0)
   {
      copystr(str1,str);
   }
}
void reverse(char str[],char strn[])
{
   int len = length(str);
   for(int i=0;i<len;i++)
   {
      strn[i]=str[len-i-1];
   }
   strn[len]='\0';
}
void concatenate(char str1[], char str2[],char str[])
{
```

```
    int len= length(str1);
    int i;
    for(i=0;str1[i]!='\0';i++)
        str[i]=str1[i];
    for(i=i;str2[i-len]!='\0';i++)
        str[i]=str2[i-len];
    str[i]='\0';
}
void convert(char str[],char strn[])
{
    int i;
    for(i=0;str[i]!='\0';i++)
    {
        if(str[i] >= 97 && str[i] <= 122)
            strn[i] = str[i] - 32;
        else
            strn[i] = str[i];
    }
    strn[i]='\0';
}
int main()
{
    int trash;
    char str1[100], str2[100],strn1[100],strn2[100];
    printf("Enter string 1: ");
    scanf("%[^\n]",str1);
    printf("Enter string 2: ");
    scanf(" %[^\n]",str2);
    int option;
    do
    {
        printf("WELCOME\n");
        printf("Choose one of the following options\n");
        printf("1.Copy one string to another\n");
        printf("2.Find string length\n");
        printf("3.Compare the two strings\n");
        printf("4.Reverse the two strings\n");
        printf("5.Concatenate the two strings\n");
        printf("6.Lower case to upper case\n");
        printf("7.Exit\n");
```

```
scanf("%d",&option);
switch(option)
{
   case 1:
   {
      copystr(str1,strn1);
      copystr(str2,strn2);
      printf("%s\n",strn1);
      printf("%s\n\n",strn2);
      break;
   }
   case 2:
   {
      printf("Length of string 1 is: %d\n",length(str1));
      printf("Length of string 2 is: %d\n\n",length(str2));
      break;
   }
   case 3:
   {
      compare(str1,str2,strn1);
      printf("The greater string is: %s\n\n",strn1);
      break;
   }
   case 4:
   {
      reverse(str1,strn1);
      reverse(str2,strn2);
      printf("%s\n",strn1);
      printf("%s\n\n",strn2);
      break;
   }
   case 5:
   {
      concatenate(str1,str2,strn1);
      printf("%s\n\n",strn1);
      break;
   }
   case 6:
   {
      convert(str1,strn1);
```

```
            convert(str2,strn2);
            printf("%s\n",strn1);
            printf("%s\n\n",strn2);
            break;
        }
        case 7:
            break;
        default:
        {
            printf("Invalid Choice. Pls Enter again:\n ");
            break;
        }
    }
  }while(option!=7);
  return 0;
}
```

RESULT:

```
D:\Studies\Programs\Assignment 7>gcc -o hello "As 7.2.c"

D:\Studies\Programs\Assignment 7>hello
Enter string 1: I have
Enter string 2: 5 cars
WELCOME
Choose one of the following options
1.Copy one string to another
2.Find string length
3.Compare the two strings
4.Reverse the two strings
5.Concatenate the two strings
6.Lower case to upper case
7.Exit
5
I have 5 cars

WELCOME
Choose one of the following options
1.Copy one string to another
2.Find string length
3.Compare the two strings
4.Reverse the two strings
5.Concatenate the two strings
6.Lower case to upper case
7.Exit
4
 evah I
srac 5

WELCOME
Choose one of the following options
1.Copy one string to another
2.Find string length
3.Compare the two strings
4.Reverse the two strings
5.Concatenate the two strings
6.Lower case to upper case
7.Exit
6
I HAVE
5 CARS
```

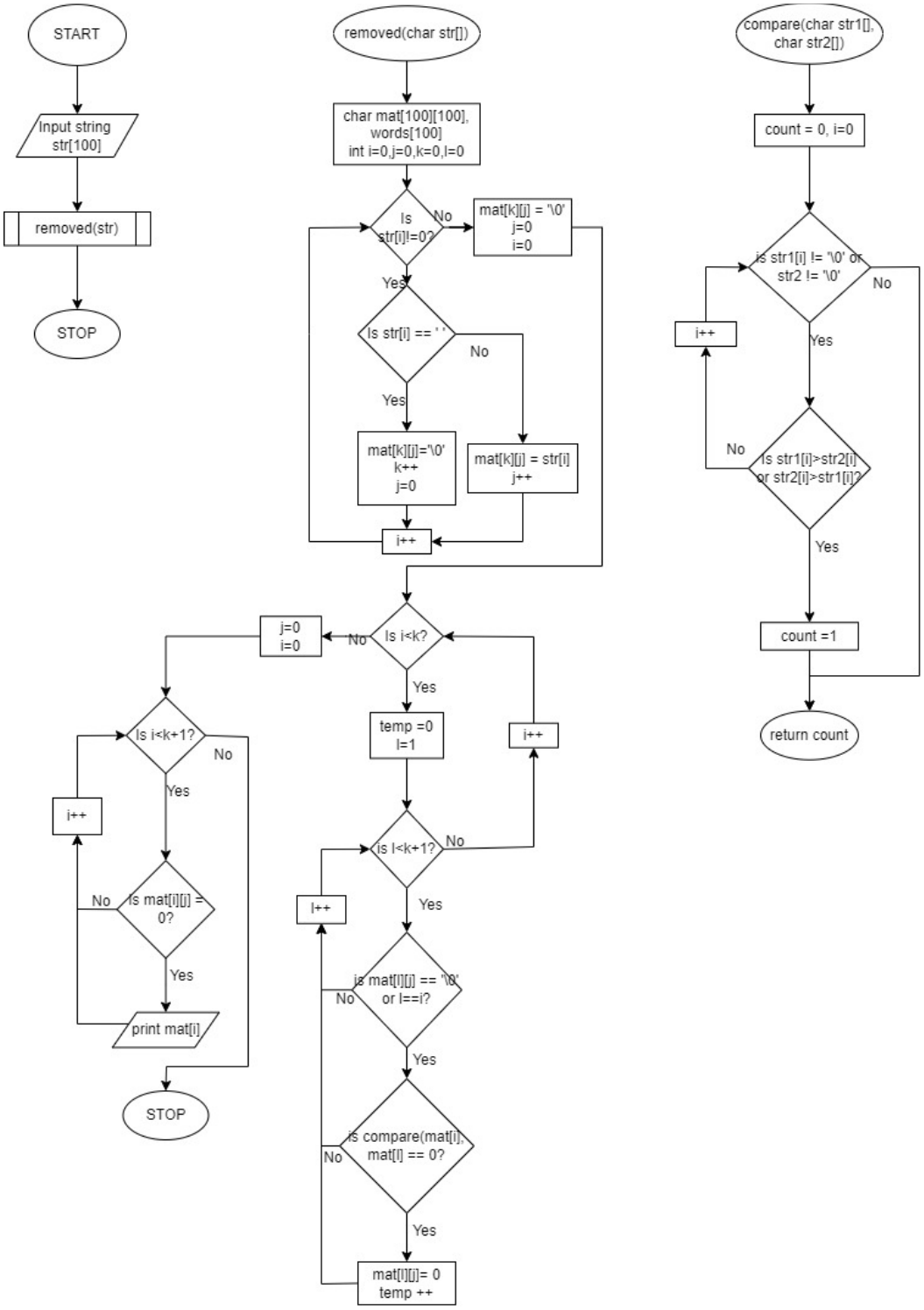
```
WELCOME
Choose one of the following options
1.Copy one string to another
2.Find string length
3.Compare the two strings
4.Reverse the two strings
5.Concatenate the two strings
6.Lower case to upper case
7.Exit
3
The greater string is: 5 cars

WELCOME
Choose one of the following options
1.Copy one string to another
2.Find string length
3.Compare the two strings
4.Reverse the two strings
5.Concatenate the two strings
6.Lower case to upper case
7.Exit
7

D:\Studies\Programs\Assignment 7>
```

Program 3

PROBLEM STATEMENT:	Write a program to delete all repeated words in string. Input: welcome to C programming class, welcome again to C class Output: welcome to C programming class, again
ALGORITHM:	1. START 2. Define integer function compare with two character arrays str1[] and str2[] as parameters 3. Count = 0, I=0 4. If (str1[i]>str2[i] or str1[i]<str2[i]) count = 1 Go to step 7 5. i++

	6. Repeat 4 and 5 till str1[i] = 0 or str2[i] =0 7. Return count 8. Define void function removed with a character array as parameters 9. char mat[100][100], words[100] 10. int i=0,j=0,k=0,l=0 11. If (str[i]==32) mat[k][j]=0 k++ j=0 Else mat[k][j]=str[i] j++ 12. i++ 13. Repeat 11 and 12 till str[i]!=0 14. mat[k][j]=0 j=0 i=0 15. temp=0 l=1 16. If(mat[i][j]==0 or l==1) Check if (compare(mat[i],mat[l])==0) mat[i][j] = 0 temp++ 17. l++ 18. Repeat 16 and 17 till l<k+1\ 19. .i++ 20. Repeat 15,16,17,18 and 19 till i<k 21. i=0 j=0 22. Is mat[i][j]!=0? Print mat[i] 23. i++ 24. Repeat 22 and 23 till i<k+1 25. STOP

FLOWCHART:



PROGRAM:

```
#include<stdio.h>
int compare(char str1[100],char str2[100])
{
```

```
    int count=0;
    for(int i=0;(str1[i]!='\0' || str2[i]!='\0');i++)
    {
        if((str1[i]>str2[i]) || (str1[i]<str2[i]))
        {
            count=1;
            break;
        }
    }
    return count;
}
void removed(char str[100])
{
    char mat[100][100], words[100];
    int i=0,j=0,k=0,l=0;
    for(i=0;str[i]!='\0';i++)
    {
        if(str[i]==' ')
        {
            mat[k][j] = '\0';
            k++;
            j=0;
        }
        else
        {
            mat[k][j] = str[i];
            j++;
        }
    }
    mat[k][j]='\0';
    j=0;
    for(i=0;i<k;i++)
    {
        int temp=0;
        for(l=1;l<k + 1;l++)
        {
            if(mat[l][j] == '\0' || l == i)
            {
                continue;
            }
```

```
            if(compare(mat[i],mat[l])==0)
            {
                mat[l][j] = '\0';
                temp++;
            }
        }
    }
    j=0;
    for(i=0;i<k + 1;i++)
    {
        if(mat[i][j] == '\0')
            continue;
        else
            printf("%s ",mat[i]);
    }
}
int main()
{
    char str[100];
    printf("Enter a string: ");
    scanf("%[^\n]",str);
    removed(str);
    return 0;
}
```

RESULT:

```
D:\Studies\Programs\Assignment 7>gcc -o hello "As 7.3.c"

D:\Studies\Programs\Assignment 7>hello
Enter a string: I have have 10 cars cars
I have 10 cars
D:\Studies\Programs\Assignment 7>
```

CONCLUSION:	In this experiment, we learned about the basics of strings. We got to know how to input a string in different ways. We also learned about the different operations that can be performed on a string such as concatenation, reversing, etc.