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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:	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 vowel(char l)
	{
	if (l == 'a' || l == 'e' || l == 'i' || l == 'o' || l == 'u' || l == 'A' || l == 'E' || l == 'I' || l == 'O' || l == 'U')
	return 1;
	else
	return 0;
	}
	int consonant(char l)
	{
	if (vowel(l)==0 && ((l>=65 && l<=90) || (l>=97 && l<=122)))
	return 1;
	else
	return 0;
	}
	int words(char str[])
	{
	int count=0;
	for(int i=0;str[i]!='\0';i++)
	{
	if(str[i]==' ')
	count++;
	}
	return count+1;
	}

```c
int main()
{
   int vc=0,cc=0,i;
   char str[100];
   printf("Enter the string\n");
   scanf("%[^\n]s",str);
   for(i=0;str[i]!='\0';i++)
   {
      if(vowel(str[i])==1)
         vc++;
      else if(consonant(str[i])==1)
         cc++;
   }
   printf("Number of vowels: %d\nNumber of consonants:
%d\nNumber of Characters: %d\nNumber of words: %d\nLength of
String: %d",vc,cc,vc+cc,words(str),i);
   return 0;
}
```

RESULT:

```
PS D:\C Programming\C Practicals-SPIT\Experiment-7> cd "c
rog1 } ; if ($?) { .\prog1 }
Enter the string
hello you 2, how are you doing?
Number of vowels: 11
Number of consonants: 11
Number of Characters: 22
Number of words: 7
Length of String: 31
PS D:\C Programming\C Practicals-SPIT\Experiment-7>
```

Program 2	
PROBLEM STATEMENT:	Write a Menu driven Program to: (Do not use library functions) 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
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 strc1*[]*,char strc2*[]*)
	{
	int i=0;
	while(strc1[i]!='\0')
	{
	strc2[i]=strc1[i];
	i++;
	}
	strc2[i]='\0';
	}

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

```
    int i=0,j=0;
    while(str1[i]!='\0')
    {
        strn[i]=str1[i];
        i++;
    }
    while(str2[j]!='\0')
    {
        strn[i]=str2[j];
        i++;
        j++;
    }
    strn[i]='\0';
}
void upper(char str[])
{
    int i;
    for(i=0;str[i]!='\0';i++)
    {
        if(str[i]>='a' && str[i]<='z')
            str[i]=str[i]-32;
    }
}
int main()
{
    char str1[100],str2[100];
    char str3[100],str4[100],str5[100],str6[100];
    int option;
    printf("Enter string 1: ");
    scanf("%[^\n]s",str1);
    printf("Enter string 2: ");
    scanf(" %[^\n]s",str2);
    do
    {
        printf("WELCOME!\n");
        printf("1. Copy String\n");
        printf("2. Length of String\n");
        printf("3. Compare Strings\n");
        printf("4. Reverse Strings\n");
```

```
printf("5. Concatenate Strings\n");
printf("6. Lower to Upper\n");
printf("7. Exit\n");
printf("Enter your choice: ");
scanf("%d", &option);
switch(option)
{
   case 1:
   {
      copystr(str1,str3);
      printf("Copied String 1: %s\n",str3);
      copystr(str2,str4);
      printf("Copied String 2: %s\n",str4);
      break;
   }
   case 2:
   {
      printf("Length of String 1: %d\n",length(str1));
      printf("Length of String 2: %d\n",length(str2));
      break;
   }
   case 3:
   {
      compare(str1,str2,str5);
      printf("The greater string is: %s\n",str5);
      break;
   }
   case 4:
   {
      reverse(str1,str3);
      reverse(str2,str4);
      printf("Reversed String 1: %s\n",str3);
      printf("Reversed String 2: %s\n",str4);
      break;
   }
   case 5:
   {
      concat(str1,str2,str6);
      printf("Concatenated String: %s\n",str6);
```

```
            break;
        }
        case 6:
        {
            upper(str1);
            upper(str2);
            printf("Uppercase String 1: %s\n",str1);
            printf("Uppercase String 2: %s\n",str2);
            break;
        }
        case 7:
        {
            printf("Thank you!\n");
            break;
        }
        default:
        {
            printf("Invalid Choice Try again!");
            break;
        }
      }
   }while(option!=7);
   return 0;
}
```

RESULT:

```
Enter string 1: hello how are you?
Enter string 2: I am fine!
WELCOME!
1. Copy String
2. Length of String
3. Compare Strings
4. Reverse Strings
5. Concatenate Strings
6. Lower to Upper
7. Exit
Enter your choice: 1
Copied String 1: hello how are you?
Copied String 2: I am fine!
WELCOME!
1. Copy String
2. Length of String
3. Compare Strings
4. Reverse Strings
5. Concatenate Strings
6. Lower to Upper
7. Exit
Enter your choice: 2
Length of String 1: 18
Length of String 2: 10
WELCOME!
1. Copy String
2. Length of String
3. Compare Strings
4. Reverse Strings
5. Concatenate Strings
6. Lower to Upper
7. Exit
```

```
Enter your choice: 3
The greater string is: hello how are you?
WELCOME!
1. Copy String
2. Length of String
3. Compare Strings
4. Reverse Strings
5. Concatenate Strings
6. Lower to Upper
7. Exit
Enter your choice: 4
Reversed String 1: ?uoy era woh olleh
Reversed String 2: !enif ma I
WELCOME!
1. Copy String
2. Length of String
3. Compare Strings
4. Reverse Strings
5. Concatenate Strings
6. Lower to Upper
7. Exit
Enter your choice: 5
Concatenated String: hello how are you?I am fine!
WELCOME!
1. Copy String
2. Length of String
3. Compare Strings
4. Reverse Strings
5. Concatenate Strings
6. Lower to Upper
7. Exit
```

```
WELCOME!
1. Copy String
2. Length of String
3. Compare Strings
4. Reverse Strings
5. Concatenate Strings
6. Lower to Upper
7. Exit
Enter your choice: 6
Uppercase String 1: HELLO HOW ARE YOU?
Uppercase String 2: I AM FINE!
WELCOME!
1. Copy String
2. Length of String
3. Compare Strings
4. Reverse Strings
5. Concatenate Strings
6. Lower to Upper
7. Exit
Enter your choice: 7
Thank you!
PS D:\C Programming\C Practicals-SPIT\Experiment-7>
```

Program 3	
PROBLEM STATEMENT:	Write a program to find and replace a particular word from the string. Input: I LOVE CANADA BECAUSE CANADA IS A GREAT COUNTRY Word to Find : CANADA Word to replace :INDIA Output:I LOVE INDIA BECAUSE INDIA IS A GREAT COUNTRY
ALGORITHM:	1. START (replacestr) 2. Initialize str1 & str2 3. Wordlen = strlen(wor) 4. Len = strlen(str) 5. For i=0,i++ 6. match = strstr(str, wor) 7. if(!(match)) 8. break 9. match = match + wordle 10. strcpy(str2,match) 11. match = match – wordlen 12. if(match) 13. strcpy(match,rep) 14. strcat(str,str2); 15. Output str 16. STOP 1. START (main) 2. Input str,wor,rep 3. replacestr(str, wor, rep) 4. STOP

PROGRAM:	#include<stdio.h>
	#include<string.h>
	void replacestr(char str*[]*,char wor*[]*,char rep*[]*)
	{
	char str1[100],str2[200];
	char* match;
	int i;
	int wordlen = strlen(wor);

```
    int len = strlen(str);
    strcpy(str1,str);
    for(i=0;i<len;i++)
    {
        match = strstr(str, wor);
        if(!(match))
            break;

        match = match + wordlen;
        strcpy(str2,match);
        match = match - wordlen;
        if(match)
        {
            strcpy(match,rep);
        }
        strcat(str,str2);
    }
    printf("%s", str);
}
int main()
{
    char str[100], wor[100], rep[100];
    printf("Enter the sentance:\n");
    scanf("%[^\n]s", str);
    printf("Enter the word to be replaced:\n");
    scanf(" %[^\n]s", wor);
    printf("Enter the replacement word:\n");
    scanf(" %[^\n]s", rep);
    replacestr(str, wor, rep);
    return 0;
}
```

RESULT:

```
PS D:\C Programming\C Practicals-SPIT\Experiment-7> cd
rog3 } ; if ($?) { .\prog3 }
Enter the sentance:
I LOVE CANADA BECAUSE CANADA IS A GREAT COUNTRY
Enter the word to be replaced:
CANADA
Enter the replacement word:
INDIA
I LOVE INDIA BECAUSE INDIA IS A GREAT COUNTRY
PS D:\C Programming\C Practicals-SPIT\Experiment-7>
```

CONCLUSION:	We learnt how to initialize strings in c and how to use strings to solve word/text processing problems by using string.h library of C and performing functions like searching, sorting, comparing and copying strings.