LAB 15 String - Character Array

NAME - ABHINAV ANAND ROLL NO – 22052611 SECTION – B16

1. Implement the following string library functions

A String length

```
#include<stdio.h>
#include<string.h>
void main()
{
    char str[20];
    printf("Enter The String ");
    scanf("%s",str);
    int len=strlen(str);
    printf("Length of the string %d",len);
}
```

Output

```
Enter The String Hello
Length of the string 5
```

B String copy

```
#include<stdio.h>
#include<string.h>
void main()
{
    char str1[10],str2[10];
    printf("Enter The String ");
    scanf("%s",str1);
    printf("Enter The String ");
    scanf("%s",str2);
    strcpy(str1,str2);
    printf("FRIST STRING %s \t \t SECOND STRING: %s ",str1,str2);
    strcpy(str1,"DELHI");
    strcpy(str2,"CALCUTTA");
}
```

Output

```
Enter The String SwapMeUp
Enter The String Howarh
FRIST STRING Howarh              SECOND STRING: Howarh
```

C String concatenation

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

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```
void main()
{
    char str1[20],str2[20];
    printf("Enter The String ");
    scanf("%s",str1);
    printf("Enter The String ");
    scanf("%s",str2);
    strcat(str1,str2);
    printf("FIRST STRING %s SECOND STRING %s ",str1,str2);
    strcat(str1,"_one");
    printf("FINAL STRING %s ",str1);

}
```

Output

```
Enter The String Banaras
Enter The String Uttarpradesh
FIRST STRING BanarasUttarpradesh SECOND STRING Uttarpradesh
FINAL STRING BanarasUttarpradesh_one
```

D String compare

```
#include<stdio.h>
#include<string.h>
void main()
{
    char str1[10],str2[10];
    printf("Enter The String ");
    scanf("%s",str1);
    printf("Enter The String ");
    scanf("%s",str2);
    if((strcmp(str1,str2)==0))
    printf("string are same");
    else
    printf("string are not same");
}
```

Output

```
Enter The String Hello
Enter The String Hey
string are not same
```

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2 Implement the above string functions without using library

A String compare

```
#include<stdio.h>
int strcamp(char str1[],char str2[])
{
    int i=0;
    while(str1[i]!='\0' && str2[i]!='\0' && str1[i]==str2[i])
    i++;
    if(str1[i]==str2[i])
    return 0;
    else
    return(str1[i]-str2[i]);
}
void main()
{
    char str1[10],str2[10];
    printf("Enter The String ");
    scanf("%s",str1);
    printf("Enter The String ");
    scanf("%s",str2);
    int re=strcamp(str1,str2);
    if(re==0)
    printf("string are same");
    else
    printf("string are not same");
}
```

Output

```
Enter The String Calcutta
Enter The String Kolkata
string are not same
```

B String copy

```
#include<stdio.h>
void mystrcpy(char str1[],char str2[])
{
    int i=0;
    for(i=0;str1[i]!='\0';i++)
    str2[i]=str1[i];
    str2[i]='\0';
```

```
}
void main()
{
    char str1[10],str2[10];
    printf("Enter The String ");
    gets(str1);
    mystrcpy(str2,str1);
    printf("Copied String %s",str2);
}
```

Output

```
Enter The String Mumbai
Copied String Mumbai
```

C String concatenation

```
#include <stdio.h>
void mystrcat(char str1[40], char str2[40])
{
    int i, len = 0;
    for (i = 0; str1[i] != '\0'; i++)
        len++;
    for (i = 0; str2[i] != '\0'; i++)
        str1[len + i] = str2[i];
    str1[len + i] = '\0';
}
int main()
{
    char str1[50], str2[50];
    int i, len = 0;
    printf("Enter first string:\n");
    gets(str1);
    printf("Enter second string:\n");
    gets(str2);
    mystrcat(str1, str2);
    printf("Concatenated string is: %s", str1);
    return 0;
}
```

Output

```
Enter first string:
Makein
```

```
Enter second string:

India

Concatenated string is: MakeinIndia
```

D String length

```
#include<stdio.h>

int astrlen(char str[])

{

    int i=0;

    while(str[i]!='\0')

    i++;

    return i;

}

void main()

{

    char str[20];

    printf("Enter The String ");

    scanf("%s",str);

    int len=astrlen(str);

    printf("Length of the string %d",len);

}
```

```
Output

Enter The String HowUDo

Length of the string 6
```

3 Test whether a word is palindrome or not

```
#include<stdio.h>

#include<string.h>

void main()

{

    char str[20];

    printf("Enter The String ");

    scanf("%s",str);

    int len=strlen(str);

    int cout =0;

    for(int i=0;i<len;i++){

    if(str[i]!=str[len-i-1])

    cout=1;

    }
```

```
    if(cout==0)
    printf("PALINDROME STRING");
    else
    printf("NOT PALINDROME STRING");
}
```

```
Output
Enter The String YOUOY
PALINDROME STRING
```

4 Enter any string and reverse it

```
#include<stdio.h>
#include<string.h>
void main()
{
    char str[20];
    printf("Enter The String ");
    scanf("%s",str);
    int len=strlen(str);
    char rev[len];
    int i;
    for(i=0;i<len;i++){
        rev[i]=str[len-1-i];
    }
    rev[i]='\0';
    printf("REVERSE STRING %s",rev);
}
```

```
Output
Enter The String DELHI
REVERSE STRING IHLED
```

5 Accept a sentence and count the number of words in it

```
#include<stdio.h>
#include<string.h>
void main()
{
    char str[100];
    printf("Enter The String ");
    gets(str);
    int len=strlen(str);
```

```
    int count =1;
    int i;
    for(i=0;i<len;i++){
        if(str[i]==' ')
        count++;
    }
    printf("COUNT OF WORDS %d",count);
}
```

Output

```
Enter The String Let Me Calm Down
COUNT OF WORDS 4
```

6 Input two strings consisting of a maximum 10 characters. Examine both the strings and remove all the common characters from both of these strings. Display the resultant strings

```
#include <stdio.h>
#include <string.h>
int main()
{
    char str1[10], str2[10];
    char result1[10], result2[10];
    int i, j, k;
    int len1, len2;
    printf("Enter the first string: ");
    scanf("%s", str1);
    printf("Enter the second string: ");
    scanf("%s", str2);
    len1 = strlen(str1);
    len2 = strlen(str2);

    k = 0;
    for (i = 0; i < len1; i++)
    {
        for (j = 0; j < len2; j++)
        {
            if (str1[i] == str2[j])
            {
                str1[i] = str2[j] = '*';
                break;
            }
```

```
        }
    }
    k = 0;
    for (i = 0; i < len1; i++)
    {
        if (str1[i] != '*')
        {
            result1[k++] = str1[i];
        }
    }
    result1[k] = '\0';
    k = 0;
    for (i = 0; i < len2; i++)
    {
        if (str2[i] != '*')
        {
            result2[k++] = str2[i];
        }
    }
    result2[k] = '\0';
    printf("Resultant string 1: %s\n", result1);
    printf("Resultant string 2: %s\n", result2);
    return 0;
}
```

Output

```
Enter the first string: RAMESH
Enter the second string: RAKESH
Resultant string 1: M
Resultant string 2: K
```

7 Input a string and calculate the frequency of each character in that string

```
#include <stdio.h>
#include <string.h>
int main(){
    char str[20],a;
    int b=0;
    printf("Enter the string: ");
    scanf("%s", str);
    printf("Enter the character to be searched: ");
    scanf(" %c",&a);
```

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```
    for (int i = 0; i < strlen(str); i++) {
        if (str[i] == a) {
            b++;
        }
    }
    printf("The character '%c' is found %d times.\n", a, b);
    return 0;
}
```

Output

```
Enter the string: INDIA
Enter the character to be searched: D
The character 'D' is found 1 times.
```