Assignment - 17 A Job Ready Bootcamp in C++, DSA and IOT MySirG
String Basics in C Language

1. Write a program to calculate the length of the string. (without using built-in method)

Program -

```
#include<stdio.h>

int main()
{
    char str[] = "Hello World!";

    int len;

    for(len = 0 ; str[len]; len++);

    printf("The length of the string is %d",len);
    return 0;
}
```

Output -

The length of the string is 12

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2. Write a program to count the occurrence of a given character in a given string.

Program -

```
#include<stdio.h>

int main()
{
    char str[] = "Hello World!" , ch = 'l';
    int len , count = 0 , i;

    for(len = 0 ; str[len] ; len++);

    for(i = 0 ; i < len ; i++)
    {
        if(ch == str[i])
            count++;
    }

    if(count)
        printf("Character \'%c\' occurs %d times in  the string
\"%s\"",ch,count,str);
    return 0;
}
```

Output -

Character 'l' occurs 3 times in the string "Hello World!"

3. Write a program to count vowels in a given string

Program -

```
#include<stdio.h>

int main()
{
    char str[50];
    int count = 0 , i;

    printf("Enter a string: ");
    fgets(str,50,stdin);

    for(i = 0 ; str[i] ; i++)
    {
       if(str[i] == 'a' || str[i] == 'A')
            count++;
       if(str[i] == 'e' || str[i] == 'E')
            count++;
       if(str[i] == 'i' || str[i] == 'I')
            count++;
       if(str[i] == 'o' || str[i] == 'O')
            count++;
       if(str[i] == 'u' || str[i] == 'U')
            count++;
    }

    printf("There are %d vowels in the string",count);

    return 0;
}
```

Output -

Enter a string: Ineuron
There are 4 vowels in the string

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4. Write a program to convert a given string into uppercase

Program -

```
#include<stdio.h>

int main()
{
    char str[50];
    int i;

    printf("Enter a string: ");
    fgets(str,50,stdin);

    for(i = 0 ; str[i] ; i++)
```

```
    {
        if(str[i] >= 'a' && str[i] <= 'z')
            str[i] = str[i] - 32;
    }

    printf("String in uppercase : %s",str);

    return 0;
}
```

Output -
Enter a string: hello there
String in uppercase : HELLO THERE

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5. Write a program to convert a given string into lowercase

Program -

```
#include<stdio.h>

int main()
{
    char str[50];
    int i;

    printf("Enter a string: ");
    fgets(str,50,stdin);

    for(i = 0 ; str[i] ; i++)
    {
        if(str[i] >= 'A' && str[i] <= 'Z')
            str[i] = str[i] + 32;
    }

    printf("String in lowercase : %s",str);

    return 0;
}
```

Output -
Enter a string: HELLO THERE
String in lowercase : hello there

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6. Write a program to reverse a string.

Program -

```
#include<stdio.h>

int main()
{
```

```
    char str[50] , s;
    int i , len;

    printf("Enter a string: ");
    fgets(str,50,stdin);

    for(len = 0 ; str[len] ; len++);

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

    printf("It's reverse : %s",str);

    return 0;
}
```

Output -
Enter a string: MySirG
It's reverse :
GriSyM

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7. Write a program in C to count the total number of alphabets, digits and special characters in a string.

Program -

```
#include<stdio.h>

int main()
{
    char str[50];
    int i , alpha = 0 , digits = 0 , special = 0;

    printf("Enter a string: ");
    fgets(str,50,stdin);

    for(i = 0 ; str[i] ; i++)
    {
        if(str[i] >= 'A' && str[i] <= 'Z')
            alpha++;
        else if(str[i] >= 'a' && str[i] <= 'z')
            alpha++;
        else if(str[i] >= '0' && str[i] <= '9')
            digits++;
        else if(str[i] == ' ' || str[i] == '\n' || str[i] == '\r' ||
str[i] == '\v' || str[i] == '\t' || str[i] == '\f')
            continue;
```

```
        else
            special++;
    }

    printf("Total number of Alphabets = %d\n",alpha);
    printf("Total number of Digits = %d\n",digits);
    printf("Total number of special characters = %d",special);

    return 0;
}
```

Output -
Enter a string: hello#@990
Total number of Alphabets = 5
Total number of Digits = 3
Total number of special characters = 2

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8. Write a program in C to copy one string to another string.

Program -

```
#include<stdio.h>

int main()
{
    char str[] = "Hello World";
    int len , i;

    for(len = 0 ; str[len] ; len++);

    char ch[len];
    for(i = 0 ; i <= len ; i++)
    {
        ch[i] = str[i];
    }

    printf("Copied string : %s",ch);
    return 0;
}
```

Output -
Copied string : Hello World

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9. Write a C program to sort a string array in ascending order.

Program -

```
#include<stdio.h>

int main()
{
```

```
    char str[50], s;
    int i , j;

    printf("Enter a string: ");
    fgets(str,50,stdin);

    for(i = 0 ; str[i] ; i++)
    {
        for(j = i+1 ; str[j] ; j++)
        {
            if(str[i] > str[j])
            {
                s = str[i];
                str[i] = str[j];
                str[j] = s;
            }
        }
    }

    printf("Sorted string in ascending order: %s",str);
    return 0;
}
```

Output -
Enter a string: EDBCA
Sorted string in ascending order:
ABCDE

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10. Write a program in C to Find the Frequency of Characters.

Program -

```
#include<stdio.h>

int main()
{
    char str[50] , s;
    int i , j , count;

    printf("Enter a string: ");
    fgets(str,50,stdin);

    int len;
    for(len = 0 ; str[len] ; len++);

    for(i = 0 ; i < len ; i++)
    {
        count = 1;
        for(j = 0 ; j < len ; j++)
        {
            if(i != j && str[i] == str[j] && str[j] != '\0')
```

```
            {
                str[j] = '\0';
                count++;
            }
        }
        if(str[i] != '\0' && str[i] != '\n')
            printf("Frequency of \'%c\' : %d\n",str[i],count);
    }
    return 0;
}
```

Output -

Enter a string: HelloWorld
Frequency of 'H' : 1
Frequency of 'e' : 1
Frequency of 'l' : 3
Frequency of 'o' : 2
Frequency of 'W' : 1
Frequency of 'r' : 1
Frequency of 'd' : 1