String Basics in C Language

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

```
#include<stdio.h>
int main()
{
    char a[30];
    int i;
    printf("\nEnter your name : ");
    fgets(a, 30, stdin);
    for (i = 0; a[i]; i++);
    printf("Length of string : %d", i - 1);
    return 0;
}
================================================================================
Output:
Enter your name : today is monday
Length of string : 15
```

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

```
#include<stdio.h>
int main()
{
    char a[30], search;
    int i, count = 0;
    printf("Enter any string : ");
    fgets(a, 30, stdin);
    printf("Enter any character that you want to count : ");
    search = getchar();
    for (i = 0; a[i]; i++)
    {
        if(a[i] == search)
            count++;
    }
    printf("The occurrence of \''%c\'' in a given string is %d", search,
count);
    return 0;
}
================================================================================
Output:
Enter any string : my name is shekh akhtar
Enter any character that you want to count : m
The occurrence of ''m'' in a given string is 2
```

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

```
#include<stdio.h>
int main()
{
    char a[50];
    int i, count = 0;
    printf("Enter any string : ");
    fgets(a, 50, stdin);
    for (i = 0; a[i]; i++)
    {
        if (a[i] == 'a' || a[i] == 'e' || a[i] == 'i' || a[i] == 'o' || a[i]
== 'u' || a[i] == 'A' || a[i] == 'E' || a[i] == 'I' || a[i] == 'O' || a[i] ==
'U')
        {
           count++;
        }
    }
```

```
    printf("Vowels in given string is %d", count);
    return 0;
}
```

```
Output:
Enter any string : Today is friday and I am very Happy
Vowels in given string is 10
```

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

```
#include<stdio.h>
int main()
{
    char a[50];
    int i;
    printf("Enter any string in lower case : ");
    fgets(a, 50, stdin);
    printf("Given string in upper case\n");
    for (i = 0; a[i]; i++)
    {
        if (a[i] == 32)
        {
            printf(" ");
        }

        printf("%c", a[i] - 32);
    }
    return 0;
}
```

```
Output:
Enter any string in lower case : today is friday
Given string in upper case
TODAY IS FRIDAY
```

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

```
#include<stdio.h>
int main()
{
    char a[50];
    int i;
    printf("Enter any string in upper case : ");
    fgets(a, 50, stdin);
    printf("Given string in lower case\n");
    for (i = 0; a[i]; i++)
    {
        if (a[i] == 10)
        {
            break;
        }

        if (a[i] == 32)
        {
            printf(" ");
            continue;
```

```
        }
        printf("%c", a[i] + 32);
    }
    return 0;
}
```

```
Output:
Enter any string in upper case : MY NAME IS SHEKH AKHTAR
Given string in lower case
my name is shekh akhtar
```

6. Write a program to reverse a string.

```
#include <stdio.h>
#include <string.h>
int main()
{
    char a[30];
    int i, length, temp;
    printf("Enter any string : ");
    fgets(a, 30, stdin);
    for (i = 0; a[i]; i++)
        ;
    length = i - 2;
    for (i = 0; i < length; i++)
    {
        temp = a[i];
        a[i] = a[length];
        a[length] = temp;
        length--;
    }
    printf("Reversed string : %s", a);
    return 0;
}
```

```
Output:
Enter any string : Akhtar
Reversed string : rathkA
```

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

```
#include <stdio.h>
int main()
{
    char a[30];
    int i, length, alphabet = 0, digit = 0, character = 0;
    printf("Enter a string : ");
    fgets(a, 30, stdin);
    for (i = 0; i < a[i]; i++)
        ;
    length = i;
    for (i = 0; i < length; i++)
    {
        if ((a[i] >= 65 && a[i] <= 90) || (a[i] >= 97 && a[i] <= 122))
            alphabet++;
        else
```

```
            (a[i] >= '0' && a[i] <= '9') ?  digit++ : character++;

    }
    printf("The total number of Alphabets = %d", alphabet);
    printf("\nThe total number of Digits = %d", digit);
    printf("\nThe total number of Special-Characters = %d", character);
    return 0;
}
```

```
Output:
Enter a string : Assignment17 MysirG8055
The total number of Alphabets = 16
The total number of Digits = 6
The total number of Special-Characters = 1
```

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

```
#include <stdio.h>
int main()
{
    char a[30], b[30];
    int i;
    printf("Enter any string : ");
    fgets(a, 30, stdin);

    for (i = 0; a[i]; i++)
    {
        b[i] = a[i];
        printf("%c", b[i]);
    }
    return 0;
}
```

```
Output:
Enter any string : My name is Shekh Akhtar.
My name is Shekh Akhtar.
```

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

```
// Write a C program to sort a string array in ascending order.
#include <stdio.h>
int main()
{
    char a[30];
    int i, j, temp, l;
    printf("Enter any string (either all in lowercase or all in uppercase) :
");

    // Input from the user
    fgets(a, 30, stdin);
    for (i = 0; a[i]; i++);
    l = i - 1;

    // print array element
    printf("Before sorting : %s", a);

    for (i = 0; i < l - 1; i++)
    {
        for (j = i + 1; j < l; j++)
        {
            if (a[i] > a[j])
            {
                temp = a[j];
                a[j] = a[i];
                a[i] = temp;
```

```
            }
        }
    }
    printf("After sorting : %s", a);
    return 0;
}
```

```
================================================================================
Output:
Enter any string (either all in lowercase or all in uppercase) : mysirg
Before sorting : mysirg
After sorting : gimrsy
```

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

```
#include <stdio.h>
void characterFrequency(char[], char[]);
int main()
{
    char a[50], b[255] = {0};
    int i;

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

    characterFrequency(a, b);

    return 0;
}

void characterFrequency(char x[], char y[])
{
    int c = 0, count = 0, i;
    char temp;
    for (i = 0; x[i]; i++)
    {
        if(x[i] == 32 || x[i] == 10)
            continue;
        c++;
        temp = x[i];
        y[temp] = y[temp] + 1;
    }
    printf("The frequency of each element of an array are follows :\n");
    for (i = 0; i < 255; i++)
    {
        if (y[i] != 0)
        {
            count++;
            printf("%c ---> %d\n", i, y[i]);
            if (count == c)
                break;
        }
    }
}
```

```
================================================================================
Output:
Enter any string : shekh.akhtar.14090@gmail.com
The frequency of each element of an array are follows :
. ---> 3
0 ---> 2
1 ---> 1
4 ---> 1
9 ---> 1
@ ---> 1
a ---> 3
c ---> 1
```

```
e ---> 1
g ---> 1
h ---> 3
i ---> 1
k ---> 2
l ---> 1
m ---> 2
o ---> 1
r ---> 1
s ---> 1
t ---> 1
```