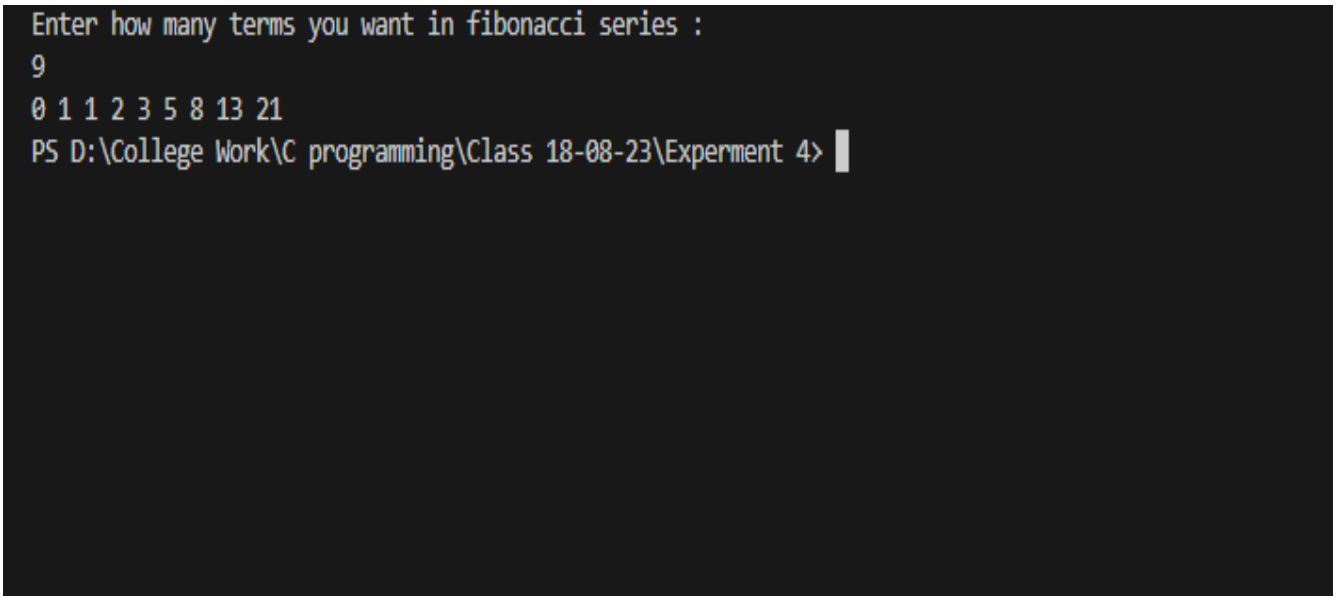
## EXPERIMENT NO. 4

**Ques 1 :- Write a program for printing Fibonacci sequence. Take input from the user to print up to a certain limit.**

```
#include <stdio.h>
int fibonacci(int);
int main()
{
   int num, m = 0, i, r;
   printf("Enter how many terms you want in fibonacci series :\n");
   scanf("%d", &num);
   for (i = 1; i <= num; i++)
   {
      r = fibonacci(m);
      printf("%d ", r);
      m++;
   }
}
int fibonacci(int a)
{
   int s;
   if (a == 0 || a == 1)
```

```
    return (a);
  else
    s = fibonacci(a - 1) + fibonacci(a - 2);
  return (s);
}
```

**Output of the Program :-**




**Ques 2 :- Write a program to swap two variables without using a third variable, depict the same using call by value concept.**

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

```
int swap(int, int);

int main()

{

   int num1, num2;

   printf("Enter the two numbers :\n");

   scanf("%d %d", &num1, &num2);

   printf(" Value Outside the Function(In the caller):\n num1 = %d
num2 = %d\n", num1, num2);

   swap(num1, num2);

}

int swap(int x, int y)

{

   x = x + y;

   y = x - y;

   x = x - y;

   printf("Value Inside the Function : \n num1 = %d num2 = %d\n", x,
y);

}
```

**Output of the Program :-**

```
Enter the two numbers :
55
66
 Value Outside the Function(In the caller):
 num1 = 55 num2 = 66
Value Inside the Function :
 num1 = 66 num2 = 55
PS D:\College Work\C programming\Class 18-08-23\Experment 4>
```

**Ques 3 :- A positive integer is entered through the keyboard. Write a Function to print the prime factors of this number.**

**For example, 24 have prime factors: 2,2,2, and 3, whereas 35 have prime factors 5 and 7.**

```
#include <stdio.h>
int prime(int);
int main()
{
   int num;
   printf("Enter the positive number :\n");
   scanf("%d", &num);
   prime(num);
   return 0;
```

```
}
int prime(int x)
{
   int count;
   for (count = 2; x > 1; count++)
   {
      while (x % count == 0)
      {
         printf("%d ", count);
         x = x / count;
      }
   }
}
```

**Output of the Program :-**

```
Enter the positive number :
24
2 2 2 3
PS D:\College Work\C programming\Class 18-08-23\Experment 4>
```

**Ques 4 :- WAP which makes use of Switch and functions to implement the conversion of a given number to a given format.**

**For eg. If a decimal number is made input, it should ask for which number system you want to convert, and the conversion process should do that. Like Decimal to Binary, the program should take 65 as input and** 1000001.

```
#include <stdio.h>

#include <math.h>

int conversion(int);

int conversion2(int);

int conversion3(int);

int main()
```

```
{
   int num, temp;
   printf("Enter a number :\n");
   scanf("%d", &num);
   printf("For Binary to Decimal Number Press : 1\nFor Decimal to
Binary Number Press : 2\nFor Decimal to Octal Number Press : 3\n");
   scanf("%d", &temp);
   switch (temp)
   {
   case (1):
      conversion(num);
      break;
   case (2):
      conversion2(num);
      break;
   case (3):
      conversion3(num);
      break;
   default:
      printf("Enter the valid number");
```

```
    }
}
int conversion(int n)
{
    int deci = 0, i = 0, reminder;
    while (n != 0)
    {
        reminder = n % 10;
        n = n / 10;
        deci = deci + reminder * pow(2, i);
        i++;
    }
    printf("Binary to decimal number is : %d ", deci);
}
int conversion2(int n)
{
    int reminder, i = 1, bin = 0;
    while (n != 0)
    {
```

```
        reminder = n % 2;
        n = n / 2;
        bin = bin + reminder * i;
        i = i * 10;
    }
    printf("Decimal to Binary Number is :%d", bin);
}
int conversion3(int n)
{
    int reminder, octal = 0, i = 1;
    while (n != 0)
    {
        reminder = n % 8;
        n = n / 8;
        octal = octal + reminder * i;
        i = i * 10;
    }
    printf("Decimal to Octal Number is :%d", octal);
}
```

## Output of the Program :-

```
Enter a number :
1101
For Binary to Decimal Number Press : 1
For Decimal to Binary Number Press : 2
For Decimal to Octal Number Press : 3
1
Binary to decimal number is : 13
PS D:\College Work\C programming\Class 18-08-23\Experment 4>
```

```
Enter a number :
13
For Binary to Decimal Number Press : 1
For Decimal to Binary Number Press : 2
For Decimal to Octal Number Press : 3
2
Decimal to Binary Number is :1101
PS D:\College Work\C programming\Class 18-08-23\Experment 4>
```

```
Enter a number :
78
For Binary to Decimal Number Press : 1
For Decimal to Binary Number Press : 2
For Decimal to Octal Number Press : 3
3
Decimal to Octal Number is :116
PS D:\College Work\C programming\Class 18-08-23\Experment 4>
```