



JAIN
DEEMED-TO-BE UNIVERSITY

Programming in C
Lab File

Experiments No.: 19 to 23

Subject Code: 16BCA1C05L
Class: I Year I Semester (BCA)

Prepared By
Suman Garai
JU2020BCAS19059

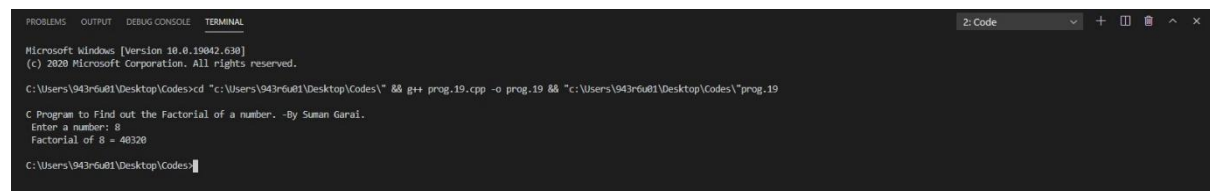
Experiment 19:

C Program to Find out the Factorial of a number.

Code:

```
#include <stdio.h>
main()
{
    int i, n, fact = 1;
    printf("\nC Program to Find out the Factorial of
    a number. -By Suman Garai. ");
    printf("\n Enter a number: ");
    scanf("%d", &n);
    for (i = 1; i <= n; i++) fact = fact * i;
    printf(" Factorial of %d = %d\n", n, fact);
}
```

Output:



The screenshot shows a Windows terminal window with the following content:

```
Microsoft Windows [Version 10.0.19042.630]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\943r6u01\Desktop\Codes>cd "c:\Users\943r6u01\Desktop\Codes\" && g++ prog.19.cpp -o prog.19 && "c:\Users\943r6u01\Desktop\Codes\prog.19

C Program to Find out the Factorial of a number. -By Suman Garai.
Enter a number: 8
Factorial of 8 = 40320

C:\Users\943r6u01\Desktop\Codes>
```

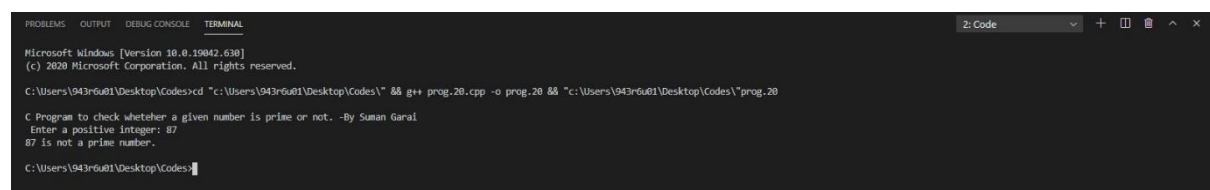
Experiment 20:

C Program to check whether a given number is prime or not.

Code:

```
#include <stdio.h>
main()
{
    int n, i, j, flag = 0;
    printf("\nC Program to check whether a given
    number is prime or not. -By Suman Garai");
    Label:printf("\n Enter a positive integer: ");
    scanf("%d", &n);
    if (n == 1)
        printf("1 is neither a prime nor a composite
        number.\n");
    else if ( n > 1 )
    {
        for(i = 1; i <= n; i++)
        {
            if (n%i == 0) flag++;
        }
        if (flag == 2) printf("%d is a prime
        number.\n", n);
        else
        {
            printf("%d is not a prime number.\n", n);
        }
    }
    else { printf("Invalid Number. Please Enter Value
    Correctly !"); goto Label; }
}
```

Output:



```
Microsoft Windows [Version 10.0.19042.630]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\943r6u01\Desktop\Codes>cd "c:\Users\943r6u01\Desktop\Codes\" && g++ prog.20.cpp -o prog.20 && "c:\Users\943r6u01\Desktop\Codes\"prog.20

C Program to check whether a given number is prime or not. -By Suman Garai
Enter a positive integer: 87
87 is not a prime number.

C:\Users\943r6u01\Desktop\Codes>
```

Experiment 21:

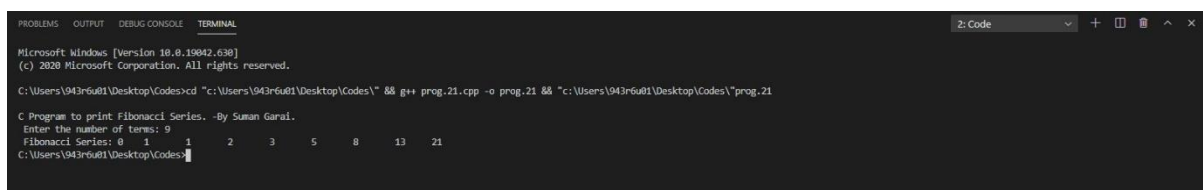
C Program to print Fibonacci Series.

Code:

```
#include <stdio.h>
main()
{
    int i, n, t1 = 0, t2 = 1, nxtTrm;
    printf("\nC Program to print Fibonacci Series. -  
By Suman Garai.");
    printf("\n Enter the number of terms: ");
    scanf("%d", &n);
    printf(" Fibonacci Series: ");

    for (i = 1; i <= n; ++i)
    {
        printf("%d\t", t1);
        nxtTrm = t1 + t2;
        t1 = t2;
        t2 = nxtTrm;
    }
}
```

Output:



The screenshot shows a Windows terminal window with the following content:

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
2: Code
Microsoft Windows [Version 10.0.19042.630]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\943r6u01\Desktop\Codes>cd "c:\Users\943r6u01\Desktop\Codes\" && g++ prog.21.cpp -o prog.21 && "c:\Users\943r6u01\Desktop\Codes\"prog.21

C Program to print Fibonacci Series. -By Suman Garai.
Enter the number of terms: 9
Fibonacci Series: 0 1 1 2 3 5 8 13 21
C:\Users\943r6u01\Desktop\Codes>
```

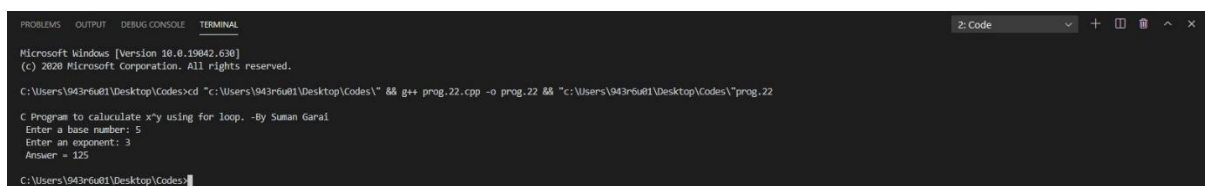
Experiment 22:

C Program to calculate x^y using for loop.

Code:

```
#include <stdio.h>
main()
{
    int base, exp;
    long long result = 1;
    printf("\nC Program to calculate  $x^y$  using for loop. -By Suman Garai");
    printf("\n Enter a base number: ");
    scanf("%d", &base);
    printf("\n Enter an exponent: ");
    scanf("%d", &exp);
    for(exp != 0; exp--;) result *= base;
    printf("\n Answer = %lld\n", result);
}
```

Output:



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Microsoft Windows [Version 10.0.19042.630]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\943r6u01\Desktop\Codes>cd "C:\Users\943r6u01\Desktop\Codes\" && g++ prog.22.cpp -o prog.22 && "C:\Users\943r6u01\Desktop\Codes\prog.22"

C Program to calculate  $x^y$  using for loop. -By Suman Garai
Enter a base number: 5
Enter an exponent: 3
Answer = 125

C:\Users\943r6u01\Desktop\Codes>
```

Experiment 23:

C Program to find the sum of Sin(x)/Cos(x) series.

Code:

```
#include <stdio.h>
void sinx(float, int);
void cosx(float, int);
main()
{
    int n, o;
    float x;
    printf("\nC Program to find the sum of
    Sin(x)/Cos(x) series. -By Suman Garai");
    printf("\n Enter the value for x : ");
    scanf("%f", &x);
    printf(" Enter the value for n : ");
    scanf("%d", &n);
    Label: printf(" Choose:- [[1]] Sin(x) | [[2]] Cos(x) :
    ");
    scanf("%d", &o);
    switch (o)
    {
        case 1: sinx(x, n); break;
        case 2: cosx(x, n); break;
        default : printf("Invalid Entry. Please Enter
        Value Correctly !"); goto Label; break;
    }
}

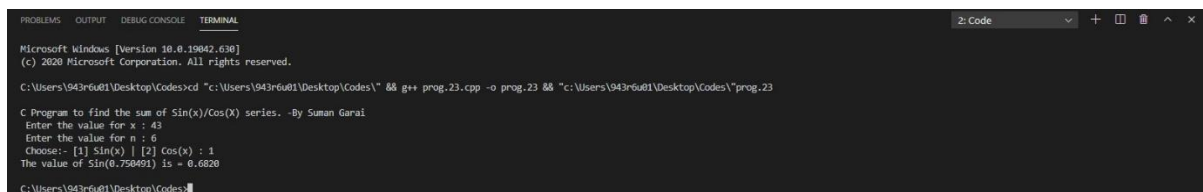
void sinx(float x, int n)
{
    int i;
    float sum, t;
    x=x*3.14159/180;
    t=x;
    sum=x;
    for(i=1; i<=n; i++)
    {
        t=(t*(-1)*x*x)/(2*i*(2*i+1));
        sum=sum+t;
    }
}
```

```

    }
    printf("The value of Sin(%f) is = %.4f\n", x,
sum);
}
void cosx(float x, int n)
{
    int i;
    float sum, t;
    x=x*3.14159/180;
    for(i=1;i<=n;i++)
    {
        t=t*(-1)*x*x/(2*i*(2*i-1));
        sum=sum+t;
    }
    printf("The value of Cos(%f) is : %.4f\n", x,
sum);
}

```

Output:



```

Microsoft Windows [Version 10.0.19042.630]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\943r6u01\Desktop\Codes>cd "c:\Users\943r6u01\Desktop\Codes\" && g++ prog.23.cpp -o prog.23 && "c:\Users\943r6u01\Desktop\Codes\"prog.23

C Program to find the sum of Sin(x)/Cos(X) series. -By Suman Garai
Enter the value for x : 43
Enter the value for n : 6
Choose:- [1] Sin(x) | [2] Cos(x) : 1
The value of Sin(0.750491) is = 0.6820

C:\Users\943r6u01\Desktop\Codes>

```



```

Microsoft Windows [Version 10.0.19042.630]
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C:\Users\943r6u01\Desktop\Codes>cd "c:\Users\943r6u01\Desktop\Codes\" && g++ prog.23.cpp -o prog.23 && "c:\Users\943r6u01\Desktop\Codes\"prog.23

C Program to find the sum of Sin(x)/Cos(X) series. -By Suman Garai
Enter the value for x : 43
Enter the value for n : 6
Choose:- [1] Sin(x) | [2] Cos(x) : 2
The value of Cos(0.750491) is : 37469532876371978000000000000000.0000

C:\Users\943r6u01\Desktop\Codes>

```

-- THE END --