**GOA COLLEGE OF ENGINEERING**

**DEPARTMENT OF COMPUTER ENGINEERING**

**SUBJECT: - OOPS**

**FACULTY: - Prof. AMIT P. PATIL & Prof. NITESH NAIK CLASS: - SE Comp (III)**

**PLATFORM: - Dev C++/VS 2010 YEAR: - 31-7-23 to DEC 23**

**Exercise 1**

1. Write a C++ program to find x^n where x and n are user inputs.

#include<iostream>

using namespace std;

int main()

{

    int x, n, sol=1;

    cout<<"Enter x and n: "<<endl;

    cin>>x>>n;

    for(int i=0; i<n; i++){

        sol \*= x;

    }

    cout<<x<<"^"<<n<<"="<<sol<<endl;

    return 0;

}

**Output:**

Enter x and n:

3 5

3^5=243

2. Write a c++ program to find the factorial of a number.

#include<iostream>

using namespace std;

int fact(int n)

{

    if(n==0){

        return 1;

    }

    else{

        n \*= fact(n-1);

        return n;

    }

}

int main()

{

    int n;

    cout<<"Enter number to find factorial: ";

    cin>>n;

    cout<<"Factorial of "<<n<<" = "<<fact(n)<<endl;

    return 0;

}

Output:

Enter number to find factorial: 6

Factorial of 6 = 720

3. Write a c++ program to find the Sin series of a number upto 2 terms.

#include<iostream>

#include<math.h>

using namespace std;

int fact(int n)

{

    if(n==0){

        return 1;

    }

    else{

        n \*= fact(n-1);

        return n;

    }

}

int main()

{

        float n, x, cnt=1, sign=1, f\_sol;

    cout<<"Enter inputs for sin series"<<endl;

    cout<<"x: "; cin>>x;

    cout<<"n: "; cin>>n;

    for(int i=0; i<n; i++)

    {

    cout<<pow(x,cnt)/fact(cnt)<<endl;

        f\_sol += sign\*(pow(x,cnt)/fact(cnt));

    sign\*=-1;

    cnt+=2;

    }

    cout<< "solution of sin series of "<<x<<" upto "<<n<<" terms is : "<<f\_sol<<endl;

}

Output:

Enter inputs for sin series

x: 5

n: 3

5

20.8333

26.0417

solution of sin series of 5 upto 3 terms is : 10.2083

4. Write a C++ program to determine if the entered number is prime.

#include<iostream>

using namespace std;

int isprime(int n)

{

     for(int i=2; i<n/2; i++){

        if(n%i==0){

            return 0;

        }

    }

}

int main()

{

    int n;

    cout<<"Enter a number: ";

    cin>>n;

    if(isprime(n)==0)

        cout<<n<<" is not a prime Number"<<endl;

    else

        cout<<n<<" is a prime Number"<<endl;

}

Output:

Enter a number: 13

13 is a prime Number

5. Write a C++ program to reverse a 4 digit number.

#include<iostream>

using namespace std;

int main()

{

    int num,rev=0;

    cout << "Enter a 4 digit number: ";

    cin>>num;

    int temp = num;

    while(temp>0)

    {

        rev = rev\*10 + temp%10;

        temp/=10;

    }

    cout<<"The reversed number is:"<<rev<<endl;

}

Output:

Enter a 4 digit number: 1234

The reversed number is:4321