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
```