Lab 7

1. Write a program in C++ to create a class with a method using constructor and destructor. The method has to decide whether a given year is a leap year or not.

A. CODE:

```
#include<iostream>
using namespace std;
class leapyear
{
   public:

     void isleapyear(int yr)
      {
       if(((yr%4==0)&&(yr%100!=0)||(yr%400==0)))
         cout<<"Given year is a leap year"<<endl;
       else
          cout<<"Guven year is not a leap year"<<endl;
      }
};
int main()
{
   int year;
   leapyear x;
   cout<<"Enter any year: "<<endl;
   cin>>year;
   x.isleapyear(year);
   return 0;
```

```
}
```

SAMPLE INPUT AND SAMPLE OUTPUT:

```
Enter any year:
2000
Given year is a leap year
```

2. Create a class with two functions-one recursive and one non recursive. Either of these function should be capable of calculating the factorial of a number

A. <u>CODE</u>:

```
#include<iostream>
using namespace std;
class factorial
{
   private:
      int num;
   public:
      int recursive(int num);
      int non_recursive(int n);
      factorial()
      {
          num=0;
      }
      ~factorial()
      {
          cout<<"\nDestructor is called";
      }
};
int factorial::recursive(int num)
{
   if(num>1)
   {
       return num*recursive(num-1);
   }
   else
      return 1;
}
int factorial::non_recursive(int n)
```

```
{
    int i,fact=1;
    for(i=1;i<-n;i++)
    {
        fact=fact*i;
    }
    return fact;
}
int main()
{
    int value;
    factorial f;
    cout<<"Enter the number: ";
    cin>>value;
    cout<<"Factorial is "<<f.recursive(value);
    cout<<"\nFactorial is "<<f.non_recursive(value);
}
```

SAMPLE INPUT AND SAMPLE OUTPUT:

```
Enter the number: 3
Factorial is 6
Factorial is 1
Destructor is called
```