# Assignment – 25

1. Define a class Complex to represent a complex number. Declare instance member variables to store real and imaginary part of a complex number, also define instance member functions to set values of complex number and print values of complex number.

```
#include<iostream>
using namespace std;
class Complex
{
    private:
        int real;
        int img;
    public:
        void set(int r,int i)
        {
            real = r;
            img = i;
        }
        void print()
        {
            cout<<real<<" + "<<img<<"i"<<endl;
        }
};
int main()
{
    Complex a,b;
    a.set(2,3);
    b.set(4,5);
    a.print();
    b.print();
    return 0;
}
```

2. Define a class Time to represent Time (like 3 hr 45 min 20 sec). Declare appropriate number of instance member variables and also define instance member functions to set values for time and display values of time.

```
#include<iostream>
using namespace std;
class Time
{
    private:
        int hr;
        int min;
        int sec;
    public:
        void set(int a,int b,int c)
        {
            hr = a;
            min = b;
            sec = c;
        }
        void print()
        {
            cout<<hr<<" hr "<<min<<" min "<<sec<<" sec"<<endl;
```

```
        }
};
int main()
{
    Time t1,t2;
    t1.set(2,45,23);
    t2.set(9,25,35);
    t1.print();
    t2.print();
    return 0;
}
```

3. Define a class Factorial and define an instance member function to find the Factorial of a number using class.

```
#include<iostream>
using namespace std;
class Factorial
{
    public:
        int fact(int n)
        {
            if(n<=0)
                return 1;
            else
                return n*fact(n-1) ;
        }
};
int main()
{
    Factorial a;
    int n;
    cout<<"Enter Number : ";
    cin>>n;
    cout<<"Factoial of "<<n<<" is : "<<a.fact(n);;
    return 0;
}
```

4. Define a class LargestNumber and define an instance member function to find the Largest of three Numbers using the class.

```
#include<iostream>
using namespace std;
class LargeNumber
{
    private:
        int max;
    public:
        void large(int a,int b,int c)
        {
            if(a>b)
            {
                if(a>c)
                    max = a;
                else
                    max = c;
            }
```

```
            else
            {
                if(b>c)
                    max = b;
                else
                    max = c;
            }
        }
        void print()
        {
            cout<<"Largest Number is : "<<max<<endl;
        }
};
int main()
{
    LargeNumber n;
    int a,b,c;
    cout<<"Enter three Numbers : ";
    cin>>a>>b>>c;
    n.large(a,b,c);
    n.print();
    return 0;
}
```

5. Define a class ReverseNumber and define an instance member function to find Reverse of a Number using class.

```
#include<iostream>
using namespace std;
class Reverse
{
    private:
        int rem;
        int r=0;
    public:
        void reverse(int n)
        {
            while(n!=0)
            {
            rem = n%10;
            r = r*10 + rem;
            n = n/10;
            }
        }
        void print()
        {
            cout<<"Reverse of Number is : "<<r<<endl;
        }
};
int main()
{
    Reverse n;
    int a;
    cout<<"Enter Numbers : ";
    cin>>a;
    n.reverse(a);
    n.print();
```

```
    return 0;
}
```

6. Define a class Square to find the square of a number and write a C++ program to Count number of times a function is called.

```
#include<iostream>
using namespace std;
class Square
{
    private:
        int count = 0;
        int sqr;
    public:
        void power(int n)
        {
            count++;
            sqr = n*n;
        }
        void print()
        {
            cout<<"Square is : "<<sqr;
        }
};
int main()
{
    Square n;
    int a;
    cout<<"Enter Number : ";
    cin>>a;
    n.power(a);
    n.print();
    return 0;
}
```

7. Define a class Greatest and define instance member function to find Largest among 3 numbers using classes.

```
#include<iostream>
using namespace std;
class Greatest
{
    private:
        int max;
    public:
        void large(int a,int b,int c)
        {
            if(a>b)
            {
                if(a>c)
                    max = a;
                else
                    max = c;
            }
            else
            {
                if(b>c)
```

```
                    max = b;
                else
                    max = c;
            }
        }
        void print()
        {
            cout<<"Greatest Number is : "<<max<<endl;
        }
};
int main()
{
    Greatest n;
    int a,b,c;
    cout<<"Enter three Numbers : ";
    cin>>a>>b>>c;
    n.large(a,b,c);
    n.print();
    return 0;
}
```

8. Define a class Rectangle and define an instance member function to find the area of the rectangle.

```
#include<iostream>
using namespace std;
class Rectangle
{
    private:
        float ar;
    public:
        void area(float l,float w)
        {
            ar = l*w;
        }
        void print()
        {
            cout<<"Area is : "<<ar<<endl;
        }
};
int main()
{
    Rectangle n;
    float l,w;
    cout<<"Enter Length and Width : ";
    cin>>l>>w;
    n.area(l,w);
    n.print();
    return 0;
}
```

9. Define a class Circle and define an instance member function to find the area of the circle.

```
#include<iostream>
using namespace std;
class Circle
{
    private:
```

```
        float ar;
    public:
        void area(float r)
        {
            ar = 3.14*r*r;
        }
        void print()
        {
            cout<<"Area is : "<<ar<<endl;
        }
};
int main()
{
    Circle n;
    float r;
    cout<<"Enter Radius : ";
    cin>>r;
    n.area(r);
    n.print();
    return 0;
}
```

10. Define a class Area and define instance member functions to find the area of the different shapes like square, rectangle , circle etc.

```
#include<iostream>
using namespace std;
class Area
{
    private:
        float ar;
    public:
        void carea(float r)
        {
            ar = 3.14*r*r;
        }
        void rarea(float l,float w)
        {
            ar = l*w;
        }
        void sarea(int a)
        {
            ar = a*a;
        }
        void print()
        {
            cout<<"Area is : "<<ar<<endl;
        }
};
int main()
{
    Area s,r,c;
    float ra,l,w;
    int a;
    cout<<"Enter Radius of Circle : ";
    cin>>ra;
    c.carea(ra);
```

```
    c.print();
    cout<<"Enter Length and Width of Rectangle : ";
    cin>>l>>w;
    r.rarea(l,w);
    r.print();
    cout<<"Enter Side of Square : ";
    cin>>a;
    s.sarea(a);
    s.print();
    return 0;
}
```