CPP ASSIGNMENT- 3(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;

void SetValue (int = 0, int=0);

void PrintComplex ();

class Complex

{

    private:

        int real, img;

    public:

        void SetValue (int x, int y)

        {

            real = x; img = y;

        }

        void PrintComplex ()

        {

            cout<<real<<"+"<<img<<"i"<<"\n";

        }

};

int main ()

{

    Complex c1, c2;

    c1.SetValue (2, 3);

    c1.PrintComplex ();

    c2.SetValue (34, 23);

    c2.PrintComplex ();

    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 h, m, s;

    public:

        void SetTime (int x, int y, int z)

        {

            h=x; m=y; s=z;

        }

        void ShowTime ()

        {

            cout<<h<<"hr "<<m<<"min "<<s<<"sec"<<"\n";

        }

};

int main ()

{

    Time T1;

    int a, b, c;

    cout<<"Enter hour, minutes and second: ";

    cin>>a>>b>>c;

    T1.SetTime(a, b, c);

    T1.ShowTime();

    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

{

    private:

        int n;

    public:

      void FindFactorial ();

     void setValue (int x)

      {

        n = x;

      }

};

void Factorial :: FindFactorial ()

        {

            int fact = 1;

            for (int i=1; i<=n; i++)

            {

                fact = fact\*i;

            }

            cout<<"factorial of "<<n<<" is "<<fact;

        }

int main ()

{

    Factorial f1;

    int a;

    cout<<"Enter a number: ";

    cin>>a;

    f1.setValue (a);

    f1.FindFactorial ();

    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 LargestNumber

{

    private:

        int a, b, c;

    public:

        void FindLargest ();

        void setValue (int x, int y, int z)

        {

            a = x; b = y; c = z;

        }

};

  void LargestNumber :: FindLargest ()

        {

            if(a>b)

            {

                if(a>c)

                  cout<<"Largest Number is: "<<a;

                else

                   cout<<"Largest Number is: "<<b;

            }

            else

              {

                if(b>c)

                  cout<<"Largest Number is: "<<b;

                else

                   cout<<"Largest Number is: "<<c;

              }

        }

int main ()

{

    LargestNumber N1;

    int a, b, c;

    cout<<"Enter the values: ";

    cin>>a>>b>>c;

    N1.setValue (a, b, c);

    N1. FindLargest();

    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 ReverseNumber

{

    private:

        int a;

    public:

        int ReverseOf ();

        void SetVal (int x)

        {

            a = x;

        }

};

int ReverseNumber :: ReverseOf ()

{

    int rev = 0;

    while(a)

    {

        rev = rev\*10 + a%10;

        a = a/10;

    }

    return rev;

}

int main ()

{

    ReverseNumber R;

    int n, rev;

    cout<<"Enter a Number: ";

    cin>>n;

    R. SetVal (n);

    rev = R. ReverseOf ();

    cout<< "Reverse of" <<n <<" is "<<rev<<endl;

    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 n;

        static int count;

    public:

        void FindSqareof (int x)

        {

            count++;

            cout<<"Square of "<<x<<" is "<<x\*x<<endl;

            cout<<"Function call: "<<count<<endl;

        }

};

int Square :: count;

int main ()

{

    int num1, num2;

    cout<<"Enter two Number: ";

    cin>>num1>>num2;

    Square S1, S2, S3;

    S1. FindSqareof (num1);

    S2. FindSqareof (num2);

    S1. FindSqareof (12);

    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 a, b, c;

    public:

    void setValue (int x, int y, int z)

    {

        a = x; b = y; c = z;

    }

    void FindGreatest ();

};

void Greatest ::  FindGreatest ()

        {

            if(a>b)

            {

                if(b>c)

                    cout<<a<<endl;

                else

                    cout<<c<<endl;

            }

            else

            {

                if(b>c)

                    cout<<b;

                else

                  cout<<c;

            }

        }

        int main ()

        {

            int m, n, p;

            cout<<" Enter three number: ";

            cin>>m>>n>>p;

            Greatest G1;

            G1. setValue (m, n, p);

            G1. FindGreatest ();

            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:

        int l, b;

    public:

        void AreaOf (int x, int y)

        {

            cout<<"Area of rectangle is "<<x\*y<<endl;

        }

};

int main ()

{

    int a, b;

    cout<<"Enter length and breadth of rectangle: ";

    cin>> a>>b;

    Rectangle A;

    A. AreaOf (a, b);

    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:

        int a;

    public:

        void Area (int x)

        {

            cout<<"Area of Circle is "<<3.14\*x\*x;

        }

};

int main ()

{

    int r;

    cout<<"Enter radius of rectangle: ";

    cin>>r;

    Circle C1;

    C1. Area(r);

    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:

        int a, b;

    public:

        void AreaOf (int x)

        {

            cout<<"Area of square is "<<x\*x<<endl;

        }

        void AreaOf (float x)

        {

            cout<<"Area of circle is "<<3.14\*x\*x<<endl;

        }

        void AreaOf (int x, int y)

        {

            cout<<"Enter of rectangle is "<<x\*y<<endl;

        }

};

int main ()

{

    int a;

    float r, l, b;

    cout<<"Enter side of square, length & breadth of rectangle and radius of circle ";

    cin>>a>>r>>l>>b;

    Area A1;

    A1. AreaOf (a);

    A1. AreaOf (r);

    A1 .AreaOf (l, b);

    return 0;

}