Assignement 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 x,int y)

        {

            real=x;

            img=y;

        }

        void print()

        {

            cout<<real<<" + "<<img<<"i "<<endl;

        }

};

int main()

{

    complex c;

    c.set(3,4);

    c.print();

    return 0;

}

3 + 4i

PS C:\Users\tusha\Documents\coadind>

1. 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 x,int y,int z)

        {

            hr=x;

            min=y;

            sec=z;

        }

        void print()

        {

            cout<<"entered time is: "<<endl;

            cout<<hr<<" hr  "<<min<<" min  "<<sec<<" sec "<<endl;

        }

};

int main()

{

    time t;

    t.set(3,40,12);

    t.print();

    return 0;

}

entered time is:

3 hr 40 min 12 sec

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1. Define a class Factorial and define an instance member function to find the Factoria of a number using class. Input:

#include<iostream>

using namespace std;

class factorial

{

    private:

        int n;

        int fact;

    public:

        void set(int x)

        {

            n=x;

        }

        int get()

        {

            return n;

        }

        int get\_factorial()

        {

            return fact;

        }

        void calculate\_fact()

        {

            int f=1;

            for(int i=1;i<=n;i++)

            {

                f=f\*i;

            }

            fact=f;

        }

};

int main()

{

    factorial f;

    f.set(5);

    f.calculate\_fact();

    cout<<"factorial of "<<f.get()<<" is "<<f.get\_factorial()<<endl;

    return 0;

}

Output:

factorial of 5 is 120

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4. Define a class LargestNumber and define an instance member function to find the

Largest of three Numbers using the class.

Input;

#include<iostream>

using namespace std;

class largest\_number

{

    private:

        int a;

        int b;

        int c;

        int large;

    public:

        void set(int x,int y,int z)

        {

            a=x;

            b=y;

            c=z;

        }

        void largest\_num()

        {

            if(a>b && a>c)

                large= a;

            else if(b>a && b>c)

                large=b;

            else if(c>a && c>b)

                large= c;

            else

                large = 0;

        }

        void print()

        {

            if(large==0)

                cout<<"all numbers are same"<<endl;

            else

                cout<<"the laargest number is "<<large<<endl;

        }

};

int main()

{

    largest\_number l;

    l.set(3,40,12);

    l.largest\_num();

    l.print();

    return 0;

}

output:

the laargest number is 40

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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 n;

        int reverse\_n;

    public:

        void set(int x)

        {

            n=x;

        }

        int get\_n()

        {

            return n;

        }

        int get\_reverse()

        {

            return reverse\_n;

        }

        void reverse\_num()

        {

            int remainder;

            reverse\_n=0;

            while (n>0)

            {

                remainder=n%10;

                reverse\_n=reverse\_n \* 10 + remainder;

                n=n/10;

            }

        }

};

int main()

{

    reverse r;

    r.set(256);

    r.reverse\_num();

    cout<<"the reverse number of 256 is "<<r.get\_reverse()<<endl;

    return 0;

}

assign\_25\_05.cpp -o assign\_25\_05 } ; if ($?) { .\assign\_25\_05 }

the reverse number of 256 is 652

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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.

Input:

#include<iostream>

using namespace std;

class calculating\_square

{

    private:

        int n;

        int square;

        static int count;

    public:

        calculating\_square()

        {

            count++;

        }

        void set(int x)

        {

            n=x;

        }

        int get()

        {

            return square;

        }

        int get\_n()

        {

            return n;

        }

        void square\_calculation()

        {

            square= n\*n;

        }

        int get\_count()

        {

            cout<< count;

        }

};

int calculating\_square ::count=0;

int main()

{

    calculating\_square s1,s2;

    s1.set(25);

    s2.set(45);

    s1.square\_calculation();

    s2.square\_calculation();

    cout<<"the square of the"<<s1.get\_n()<<" is "<<s1.get()<<endl;

    cout<<"the square of the "<<s2.get\_n()<<" is "<<s2.get()<<endl;

    s2.get\_count();

    return 0;

}

Output;

PS C:\Users\tusha\Documents\coadind> cd "c:\Users\tusha\Documents\coadind\" ; if ($?) { g++ assig\_25\_07.cpp -o assig\_25\_07 } ; if ($?) { .\assig\_25\_07 }

the square of the25 is 625

the square of the 45 is 2025

2

7. Define a class Greatest and define instance member function to find Largest among

3 numbers using classes.

Input:

#include<iostream>

using namespace std;

class gretest

{

    private:

        int a;

        int b;

        int c;

        int max;

    public:

        void set(int x, int y, int z)

        {

            a=x;

            b=y;

            c=z;

        }

        void maximum()

        {

            max=((a>b && a>c)?a : (b>a && b>c)? b : c);

            cout<<"the maximum among "<<a<<" "<<b<<" "<<c<<" is "<< max <<endl;

        }

};

int main()

{

    gretest g1, g2;

    g1.set(12, 45 , 1);

    g2.set(42,56,21);

    g1.maximum();

    g2.maximum();

    return 0;

}

Output:

PS C:\Users\tusha\Documents\coadind> cd "c:\Users\tusha\Documents\coadind\" ; if ($?) { g++ greater\_number.cpp -o greater\_number } ; if ($?) { .\greater\_number }

the maximum among 12 45 1 is 45

the maximum among 42 56 21 is 56

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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,area;

    public:

       void set(int x, int y)

       {

            l=x;

            b=y;

       }

        int get\_len()

        {

            return l;

        }

        int get\_bth()

        {

            return b;

        }

       int get\_area()

       {

            return area;

       }

       void calculate\_area()

       {

            area=l\*b;

       }

};

int main()

{

    rectangle r;

    r.set(4,5);

    r.calculate\_area();

    cout<<"the area of the rectangle "<<"("<<r.get\_len()<<" , "<<r.get\_bth()<<") is "<<r.get\_area();

    return 0;

}

Output:

area\_of\_reactangle.cpp -o area\_of\_reactangle } ; if ($?) { .\area\_of\_reactangle }

the area of the rectangle (4 , 5) is 20

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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 d;

        float area;

    public:

       void set(int x)

       {

            d=x;

       }

        int get\_dia()

        {

            return d;

        }

       float get\_area()

       {

            return area;

       }

       void calculate\_area()

       {

            area=3.1415\*d\*d;

       }

};

int main()

{

    circle c;

    c.set(4);

    c.calculate\_area();

    cout<<"the area of the circle with diameter of "<<c.get\_dia()<<" is "<<c.get\_area()<<endl;

    return 0;

}

Output;

PS C:\Users\tusha\Documents\coadind> cd "c:\Users\tusha\Documents\coadind\" ; if ($?) { g++ area\_of\_reactangle.cpp -o area\_of\_reactangle } ; if ($?) { .\area\_of\_reactangle }

the area of the circle with diameter of 4 is 50.264

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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 circle

{

    private:

        int d;

        float area;

    public:

       void set(int x)

       {

            d=x;

       }

        int get\_dia()

        {

            return d;

        }

       float get\_area()

       {

            return area;

       }

       void calculate\_area()

       {

            area=3.1415\*d\*d;

       }

};

class rectangle

{

    private:

        int l, b,area;

    public:

       void set(int x, int y)

       {

            l=x;

            b=y;

       }

        int get\_len()

        {

            return l;

        }

        int get\_bth()

        {

            return b;

        }

       int get\_area()

       {

            return area;

       }

       void calculate\_area()

       {

            area=l\*b;

       }

};

class square

{

    private:

        int a,area;

    public:

       void set(int x)

       {

          a=x;

       }

        int get\_side()

        {

            return a;

        }

       int get\_area()

       {

            return area;

       }

       void calculate\_area()

       {

            area=a\*a;

       }

};

int main()

{

    circle c;

    c.set(4);

    c.calculate\_area();

    cout<<"the area of the circle with diameter of "<<c.get\_dia()<<" is "<<c.get\_area()<<endl;

    rectangle r;

    r.set(4,5);

    r.calculate\_area();

    cout<<"the area of the rectangle "<<"("<<r.get\_len()<<" , "<<r.get\_bth()<<") is "<<r.get\_area();

    square s;

    s.set(8);

    s.calculate\_area();

    cout<<"\nthe area of the square is "<<s.get\_area();

    return 0;

}

output;

PS C:\Users\tusha\Documents\coadind> cd "c:\Users\tusha\Documents\coadind\" ; if ($?) { g++ area\_of\_reactangle.cpp -o area\_of\_reactangle } ; if ($?) { .\area\_of\_reactangle }

the area of the circle with diameter of 4 is 50.264

the area of the rectangle (4 , 5) is 20

the area of the square is 64

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