**1. Write a C++ program to an abstract class which shown the concept of abstraction.**

#include <iostream>

using namespace std;

class implementAbstraction

{

private:

int a, b;

public:

// method to set values of

// private members

void set(int x, int y)

{

a = x;

b = y;

}

void display()

{

cout<<"a = " <<a << endl;

cout<<"b = " << b << endl;

}

};

int main()

{

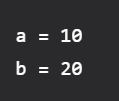
implementAbstraction obj;

obj.set(10, 20);

obj.display();

return 0;

}



**2. Write a C++ program where you implement a class with public and private members is an example of data abstraction.**

#include <iostream>

using namespace std;

class implementAbstraction

{

private:

int a, b;

public:

// method to set values of

// private members

void set(int x, int y)

{

a = x;

b = y;

}

void display()

{

cout<<"a = " <<a << endl;

cout<<"b = " << b << endl;

}

};

int main()

{

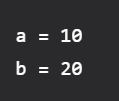
implementAbstraction obj;

obj.set(10, 20);

obj.display();

return 0;

}



**3. Write a C++ program to calculate the area of a rectangle and triangle using the abstract class.**

#include <iostream>

using namespace std;

// Base class

class Shape {

public:

// pure virtual function providing interface framework.

virtual int getArea() = 0;

void setWidth(int w) {

width = w;

}

void setHeight(int h) {

height = h;

}

protected:

int width;

int height;

};

// Derived classes

class Rectangle: public Shape {

public:

int getArea() {

return (width \* height);

}

};

class Triangle: public Shape {

public:

int getArea() {

return (width \* height)/2;

}

};

int main(void) {

Rectangle Rect;

Triangle Tri;

Rect.setWidth(5);

Rect.setHeight(7);

// Print the area of the object.

cout << "Total Rectangle area: " << Rect.getArea() << endl;

Tri.setWidth(5);

Tri.setHeight(7);

// Print the area of the object.

cout << "Total Triangle area: " << Tri.getArea() << endl;

return 0;

}



**5. Write a complex class which hide the complexity of adding two number and Add two Complex Numbers by Passing to a member function.**

#include<iostream>

using namespace std;

class complex{

int a;

int b;

public:

void setData(int v1, int v2){

a = v1;

b = v2;

}

void setDataBySum(complex o1, complex o2){

a = o1.a + o2.a;

b = o1.b + o2.b;

}

void printNumber(){

cout<<"Your complex number is "<<a<<" + "<<b<<"i"<<endl;

}

void sum(){

cout<<"Sum is "<<a<<" + "<<b<<"i"<<endl;

}

};

int main(){

complex c1, c2, c3;

c1.setData(1, 2);

c1.printNumber();

c2.setData(3, 4);

c2.printNumber();

c3.setDataBySum(c1, c2);

c3.sum();

return 0;

}

