**Test 01 CPP**

#include <iostream>

using namespace std;

class Circle

{

private:

    double radius;

public:

    // Constructor

    Circle(double radius)

    {

        this->radius = radius;

    }

    Circle()

    {

        this->radius = 0;

    }

    // Setter

    void setRadius(double radius) { this->radius = radius; }

    // Getter

    double getRadius() { return this->radius; }

};

class Triangle

{

private:

    double base;

    double height;

public:

    // Constructor

    Triangle(double base, double height)

    {

        this->base = base;

        this->height = height;

    }

    Triangle()

    {

        this->base = 0;

        this->height = 0;

    }

    // Seter

    void setBase(double base) { this->base = base; }

    void setHeight(double height) { this->height = height; }

    // Getter

    double getBase() { return this->base; }

    double getHeight() { return this->height; }

};

class Rectangle

{

private:

    double length;

    double width;

public:

    // Constructor

    Rectangle(double length, double width)

    {

        this->length = length;

        this->width = width;

    }

    Rectangle()

    {

        this->length = 0;

        this->width = 0;

    }

    // Setter

    void setWidth(double width) { this->width = width; }

    void setlength(double length) { this->length = length; }

    // getter

    double getWidth() { return this->width; }

    double getlength() { return this->length; }

};

class Square

{

private:

    double side;

public:

    // Constructor

    Square(double side)

    {

        this->side = side;

    }

    Square()

    {

        this->side = 0;

    }

    // Setter

    void setside(double side) { this->side = side; }

    // Getter

    double getside() { return this->side; }

};

class Shapes

{

public:

    // Area of Circle

    double calculateArea(Circle circle)

    {

        double PI = 3.14;

        return PI \* (circle.getRadius() \* circle.getRadius());

    }

    // Area of Triangle

    double calculateArea(Triangle triangle)

    {

        return (0.5) \* triangle.getBase() \* triangle.getHeight();

    }

    // Area of rectangle

    double calculateArea(Rectangle rectangle)

    {

        return rectangle.getlength() \* rectangle.getWidth();

    }

    // Area Of square

    double calculateArea(Square square)

    {

        return square.getside() \* square.getside();

    }

};

int main()

{

    Shapes shape;

    int choice;

    do

    {

        cout << "\n\nWhat do you want to do : \n1) Calculate area of Triangle \t2) Calculate area of Circle \t3) Calculate area of Rectangle \t4) Calculate area of Square \nEnter Your Choice   :";

        cin >> choice;

        switch (choice)

        {

        case 1:

        {

            double base, height;

            cout << "\nEnter Base : ";

            cin >> base;

            cout << "\nEnter Height : ";

            cin >> height;

            Triangle triangle(base, height);

            cout << "\nArea Of Triangle : " << shape.calculateArea(triangle);

            break;

        }

        case 2:

        {

            double radius;

            cout << "\nEnter radius : ";

            cin >> radius;

            Circle circle(radius);

            cout << "\nArea Of Circle : " << shape.calculateArea(circle);

            break;

        }

        case 3:

        {

            double length, width;

            cout << "\nEnter length : ";

            cin >> length;

            cout << "\nEnter width : ";

            cin >> width;

            Rectangle rectangle(length, width);

            cout << "\nArea Of Rectangle : " << shape.calculateArea(rectangle);

            break;

        }

        case 4:

        {

            double side;

            cout << "\nEnter Side : ";

            cin >> side;

            Square square(side);

            cout << "\nArea Of Square : " << shape.calculateArea(square);

            break;

        }

        default:

        {

            cout << "\nInvalid Choice....! ";

            break;

        }

        case 0:

        {

            cout << "\nExiting.............................!!! ";

            break;

        }

        }

    } while (choice != 0);

    return 0;

}

Output:

PS D:\Fullstack-Java-FirstBit-Solutions\Basic-C-and-CPP\CPP\Tests\test01\output> & .\'shapes.exe'

What do you want to do :

1) Calculate area of Triangle 2) Calculate area of Circle 3) Calculate area of Rectangle 4) Calculate area of Square

Enter Your Choice :1

Enter Base : 123

Enter Height : 1234

Area Of Triangle : 75891

What do you want to do :

1) Calculate area of Triangle 2) Calculate area of Circle 3) Calculate area of Rectangle 4) Calculate area of Square

Enter Your Choice :2

Enter radius : 12.2

Area Of Circle : 467.358

What do you want to do :

1) Calculate area of Triangle 2) Calculate area of Circle 3) Calculate area of Rectangle 4) Calculate area of Square

Enter Your Choice :3

Enter length : 121

Enter width : 34

Area Of Rectangle : 4114

What do you want to do :

1) Calculate area of Triangle 2) Calculate area of Circle 3) Calculate area of Rectangle 4) Calculate area of Square

Enter Your Choice :4

Enter Side : 12

Area Of Square : 144

What do you want to do :

1) Calculate area of Triangle 2) Calculate area of Circle 3) Calculate area of Rectangle 4) Calculate area of Square

Enter Your Choice :5

Invalid Choice....!

What do you want to do :

1) Calculate area of Triangle 2) Calculate area of Circle 3) Calculate area of Rectangle 4) Calculate area of Square

Enter Your Choice :3

Enter length : 12

Enter width : 33

Area Of Rectangle : 396

What do you want to do :

1) Calculate area of Triangle 2) Calculate area of Circle 3) Calculate area of Rectangle 4) Calculate area of Square

Enter Your Choice :0

Exiting.............................!!!

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