Test 01 CPP

```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)
    {
```

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        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);
```

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            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.....!!!
PS D:\Fullstack-Java-FirstBit-Solutions\Basic-C-and-CPP\CPP\Tests\test01\output>
```