

- CS117 OOP
- Chapter 5

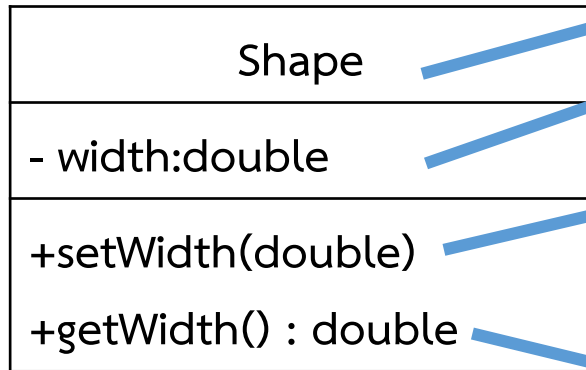
## OOP in JAVA Language



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# Class



```
public class Shape {  
    private double width=0;
```

```
    void setWidth(double w)  
    {  
        width=w;  
    }
```

```
    double getWidth()  
    {  
        return width;  
    }  
}
```

# Class

## การใช้งาน Shape

Shape
- width:double
+setWidth(double) +getWidth() : double

```
public class HelloWorld {
```

```
    public static void main(String[]  
args) {
```

```
        Shape x=new Shape();
```

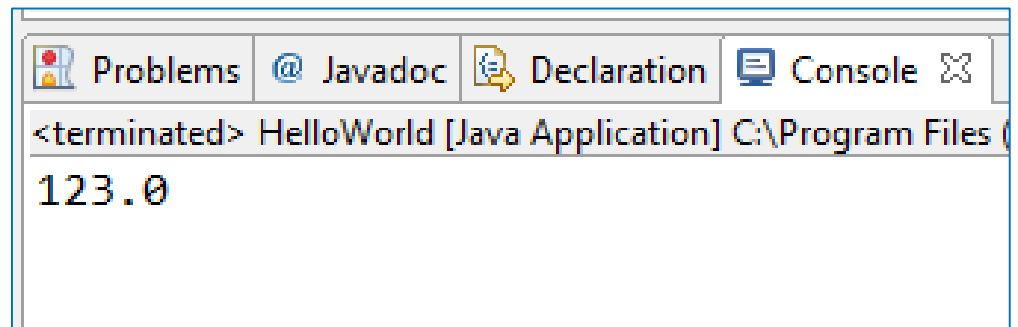
```
        x.setWidth(123);
```

```
        System.out.println(x.getWidth());
```

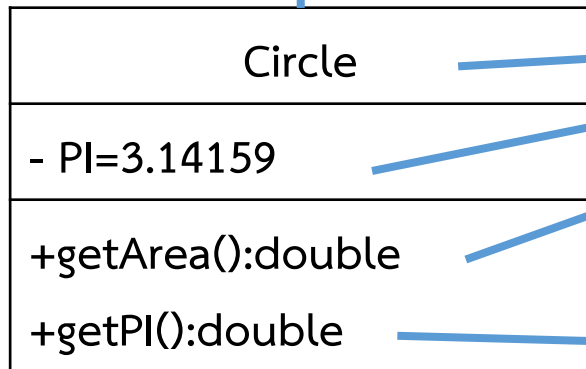
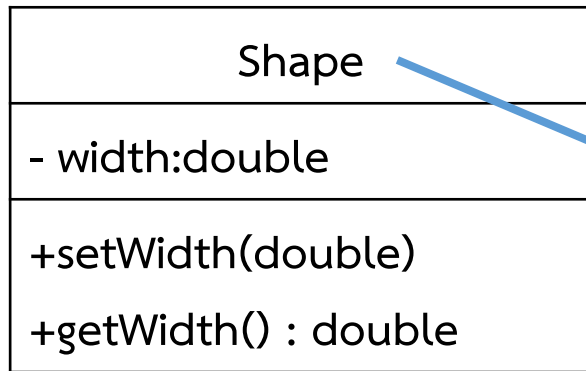
```
    }
```

```
}
```

x:Shape
- width:double = 123
+setWidth(double) +getWidth() : double



# Class

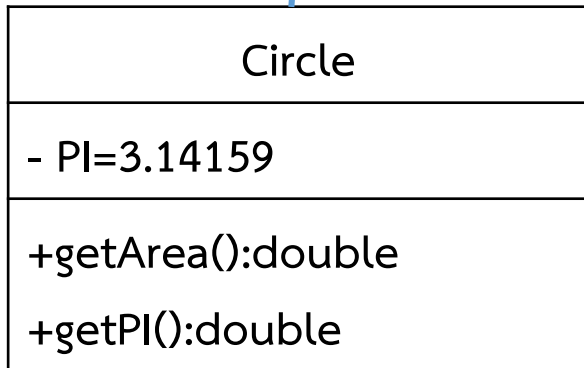
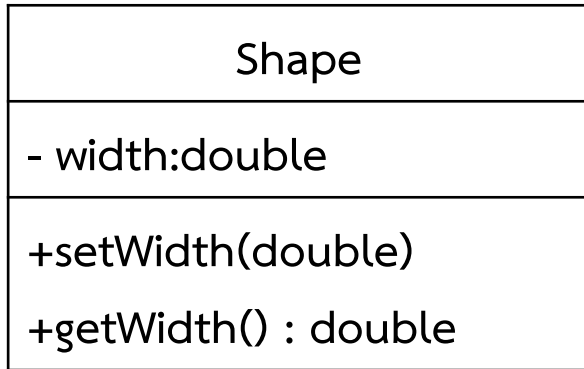


```
public class Shape {  
    private double width=0;  
  
    void setWidth(double w)  
    {  
        width=w;  
    }  
    double getWidth()  
    {  
        return width;  
    }  
}
```

```
public class Circle extends Shape {  
    private double PI=3.1415926;  
    double getArea()  
    {  
        return PI*(getWidth()/2)*(getWidth()/2);  
    }  
    double getPI()  
    {  
        return PI;  
    }  
}
```

# Class

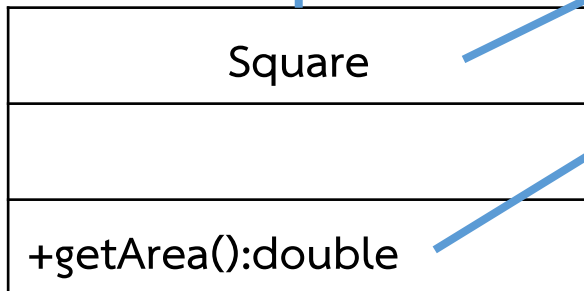
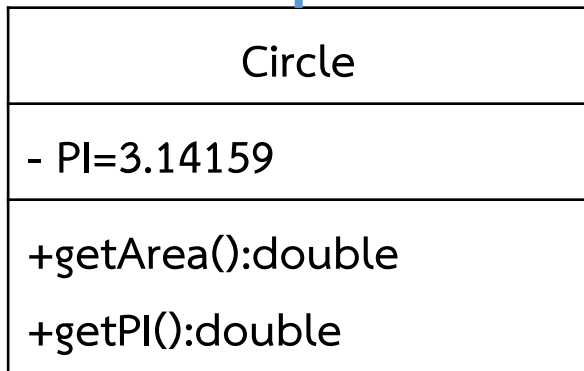
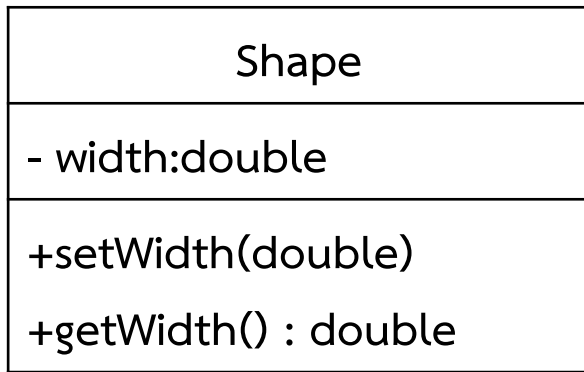
## การใช้งาน Circle



```
public class HelloWorld {  
  
    public static void main(String[]  
args) {  
        Circle x=new Circle();  
        x.setWidth(2);  
  
        System.out.println(x.getWidth());  
  
        System.out.println(x.getArea());  
    }  
}
```

```
Problems @ Javadoc Declaration Console ✕  
<terminated> HelloWorld [Java Application] C:\Program Files  
2.0  
3.1415926
```

# Class

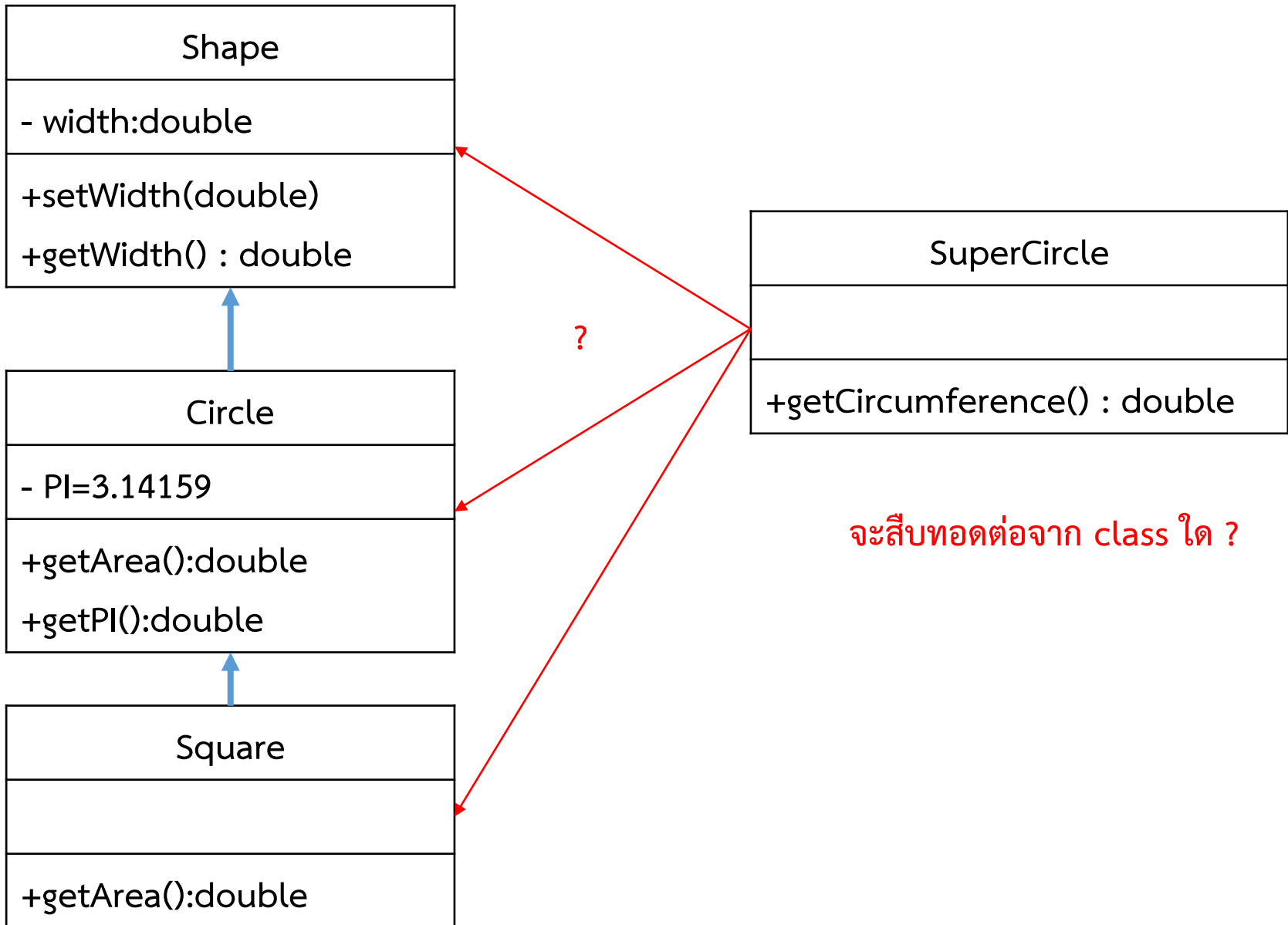


```
public class Circle extends Shape {  
    private double PI=3.1415926;  
    double getArea()  
    {  
        return PI*(getWidth()/2)*(getWidth()/2);  
    }  
  
    double getPI()  
    {  
        return PI;  
    }  
}
```

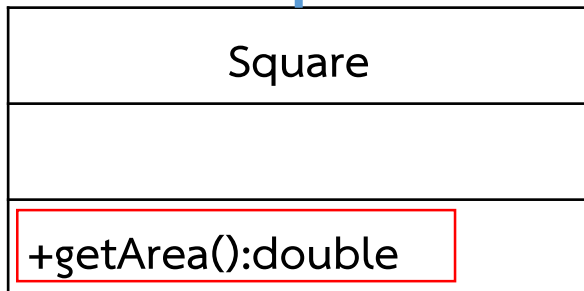
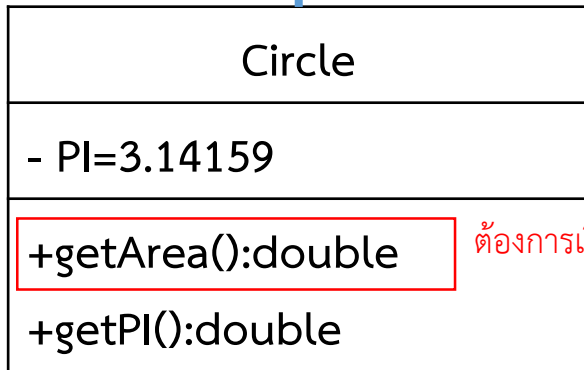
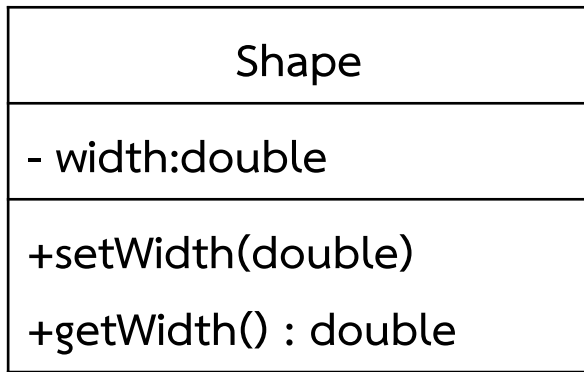
Circle.getArea() ถูก override ด้วย Square.getArea()

```
public class Square extends Circle  
{  
    double getArea()  
    {  
        return getWidth()*getWidth();  
    }  
}
```

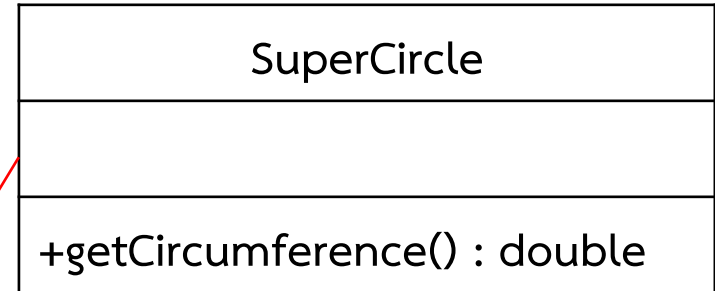
# Class



# Class



แต่ได้ method นี้



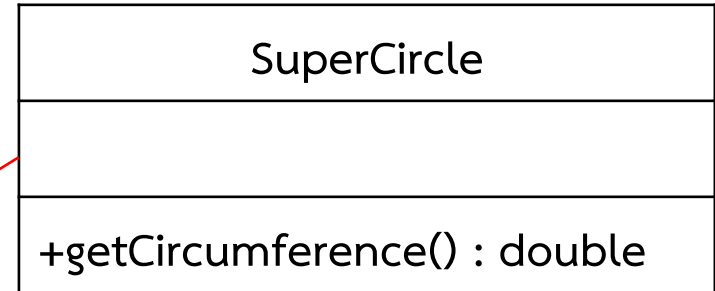
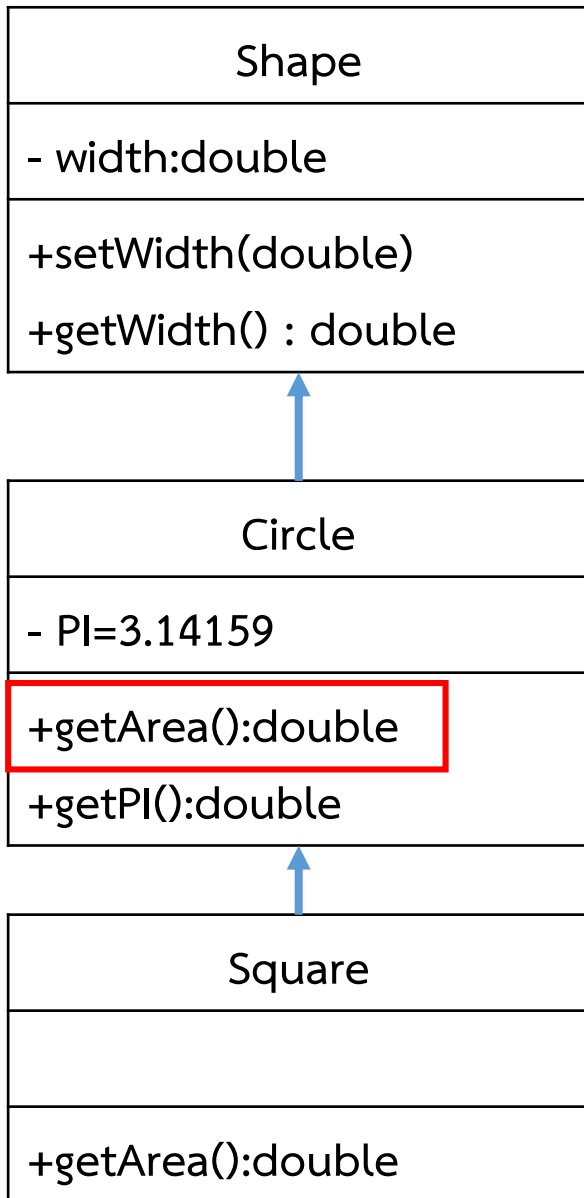
ต้องการเรียก method นี้

คำนวณเส้นรอบวงถูก แต่คำนวณพื้นที่ผิด

```
public class SuperCircle extends Square {  
    double getCircumference()  
    {  
        return (getWidth()/2)*2*getPI();  
    }  
}
```



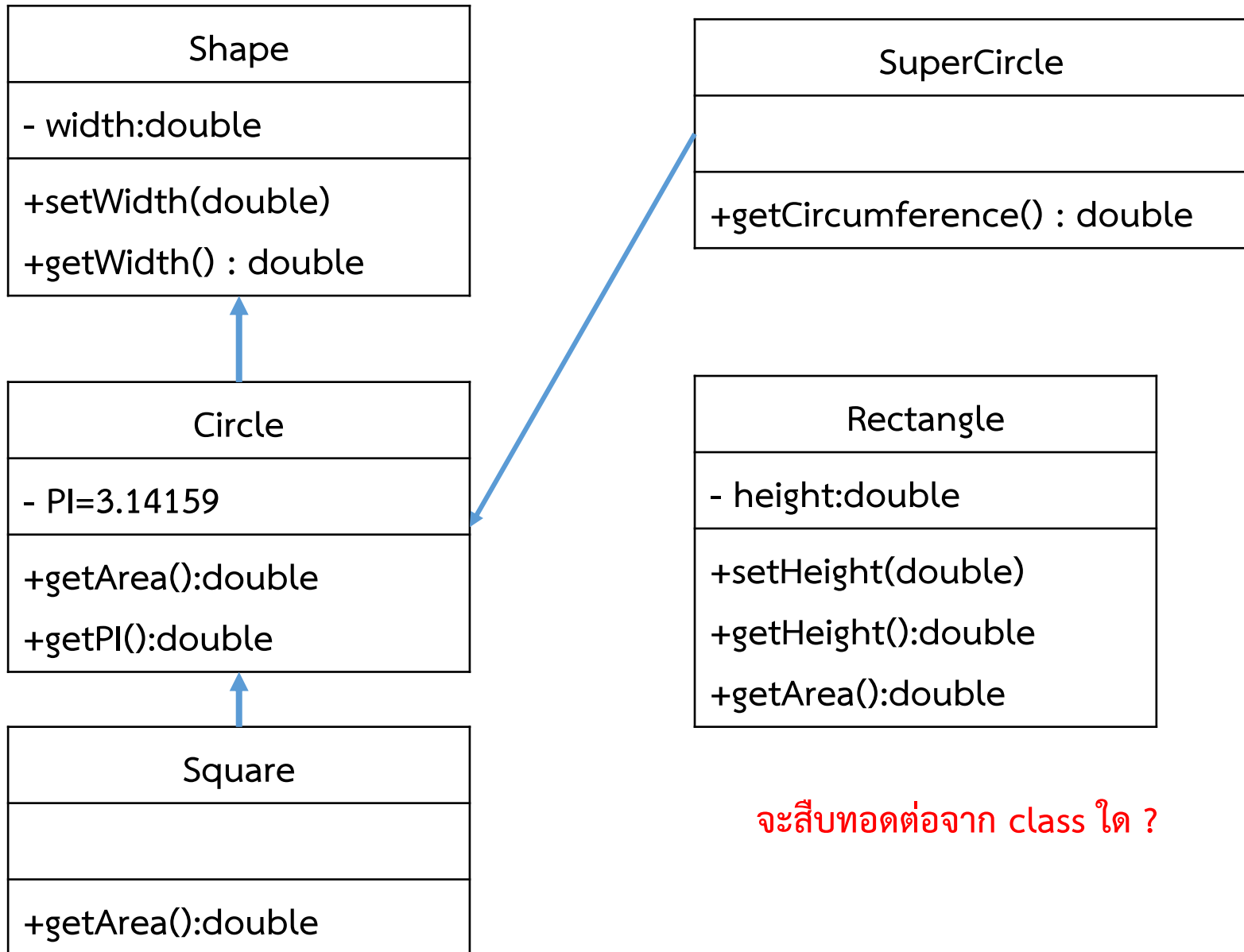
# Class



คำนวณเส้นรอบวงกลม และคำนวณพื้นที่ได้ด้วย

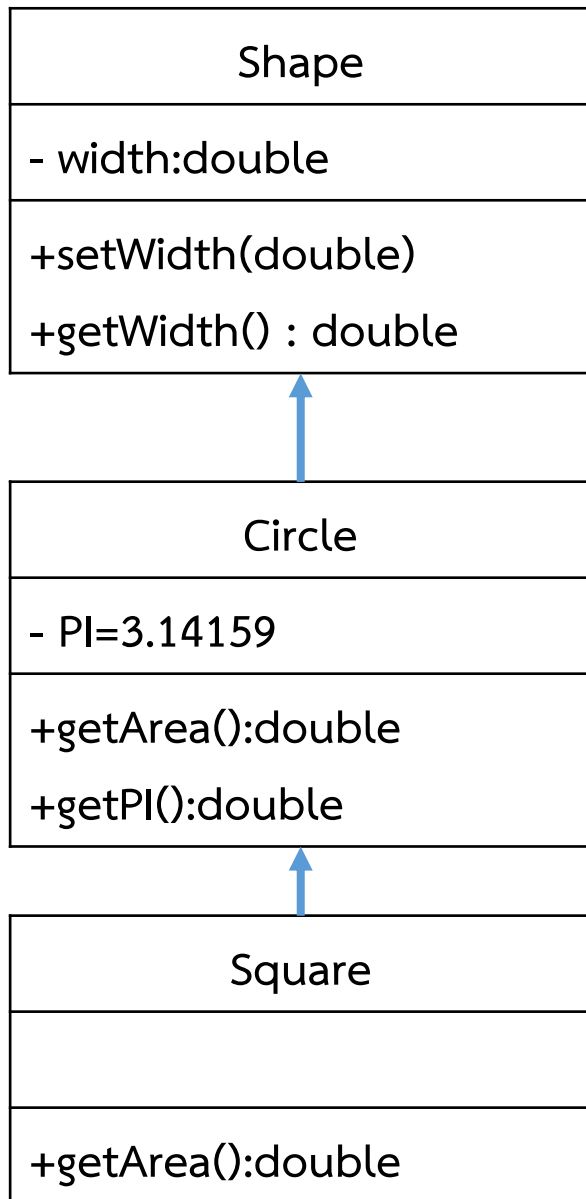
```
public class SuperCircle extends Circle {
    double getCircumference()
    {
        return (getWidth()/2)*2*getPI();
    }
}
```

# Class



จะสืบทอดต่อจาก class ไต ?

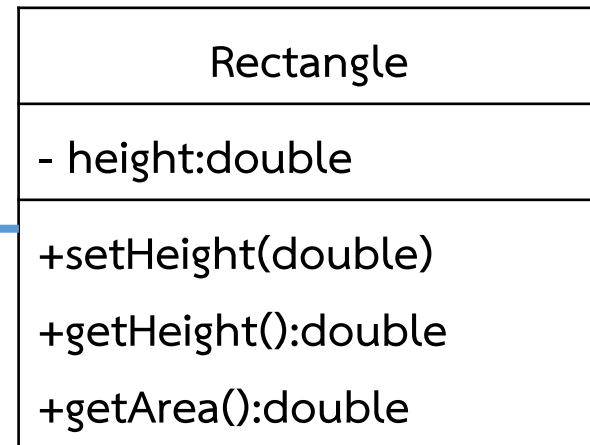
# Class



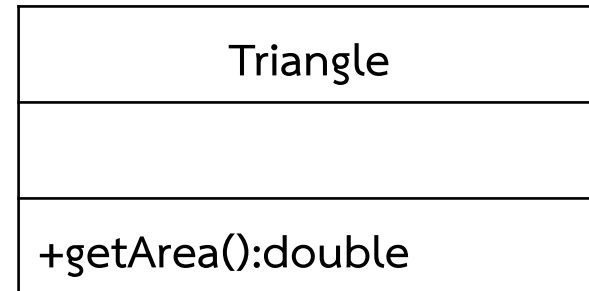
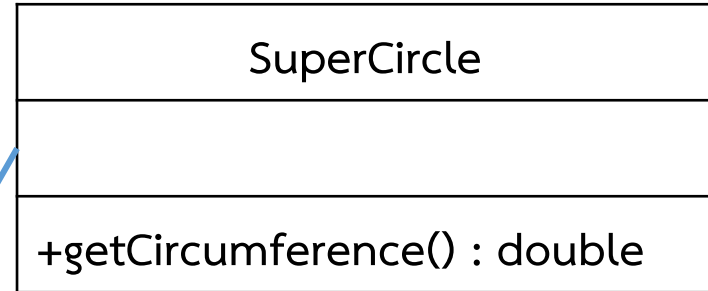
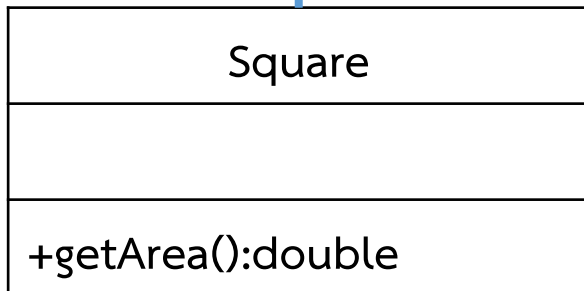
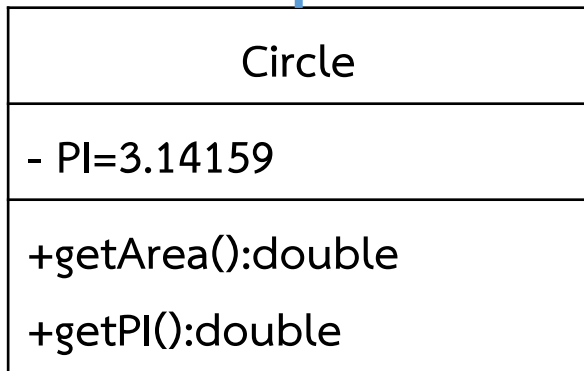
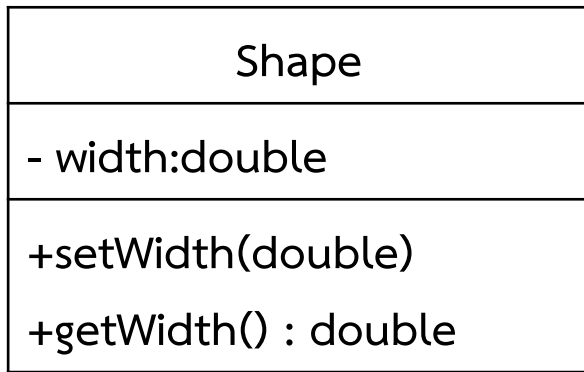
```
public class Rectangle extends Square {
    private double Height;

    void setHeight(double h)
    {
        Height=h;
    }
    double getHeight()
    {
        return Height;
    }

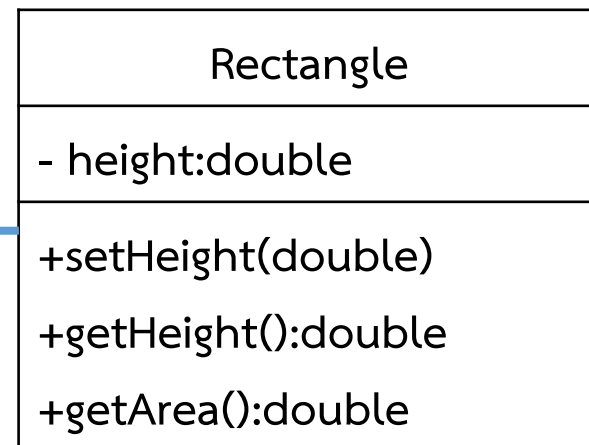
    double getArea()
    {
        return getWidth()*getHeight();
    }
}
```



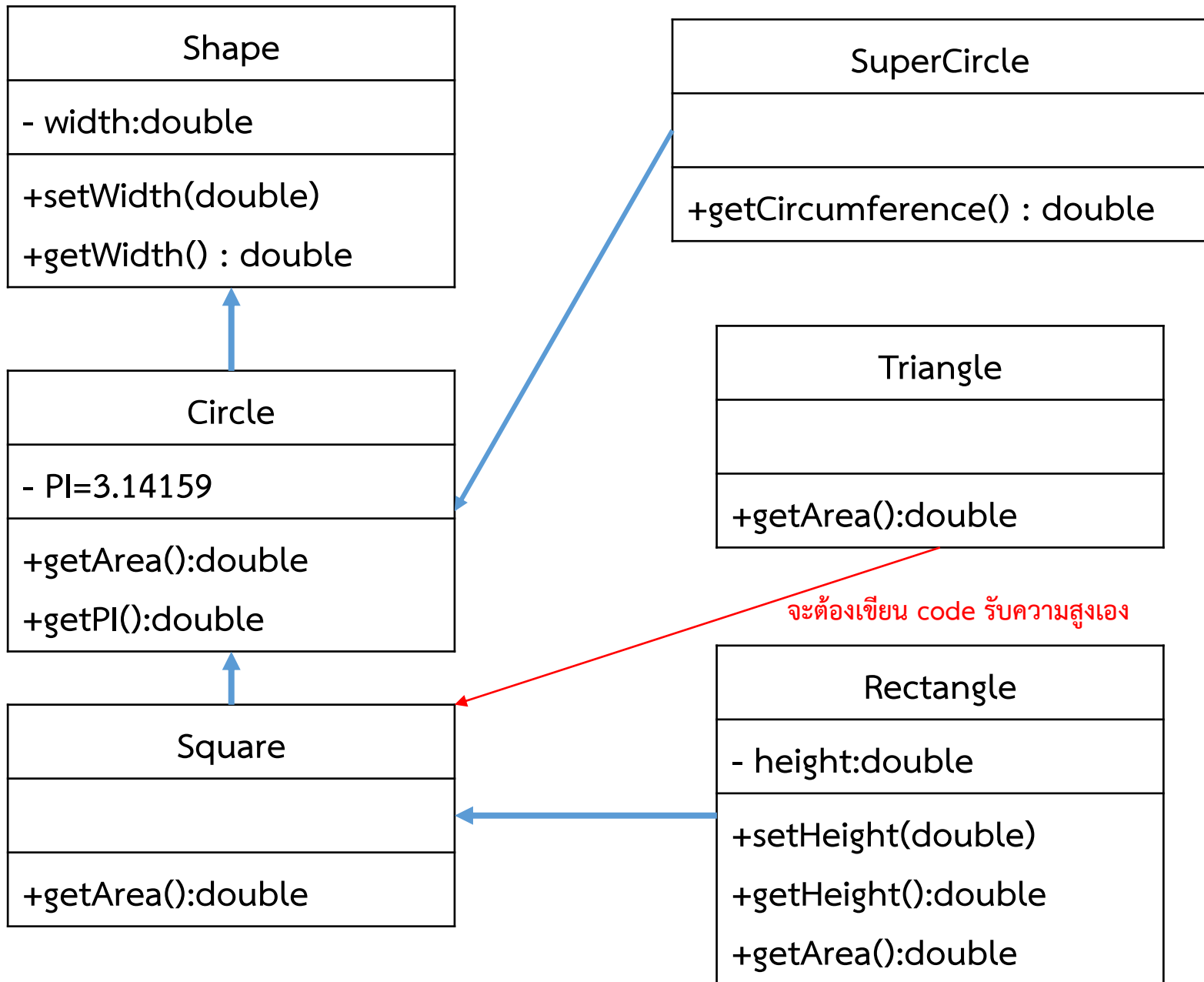
# Class



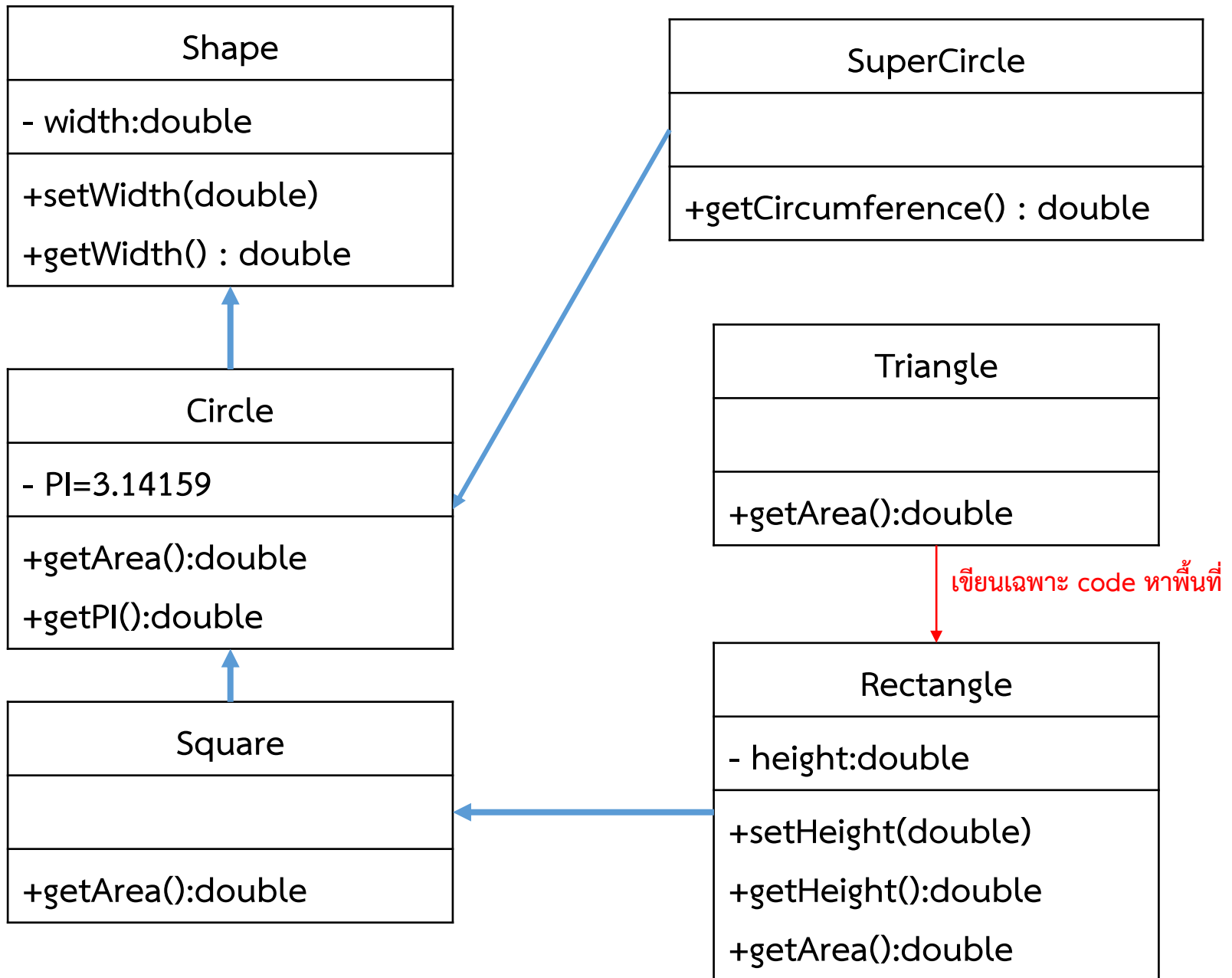
จะสืบทอดต่อจาก class ไต ?



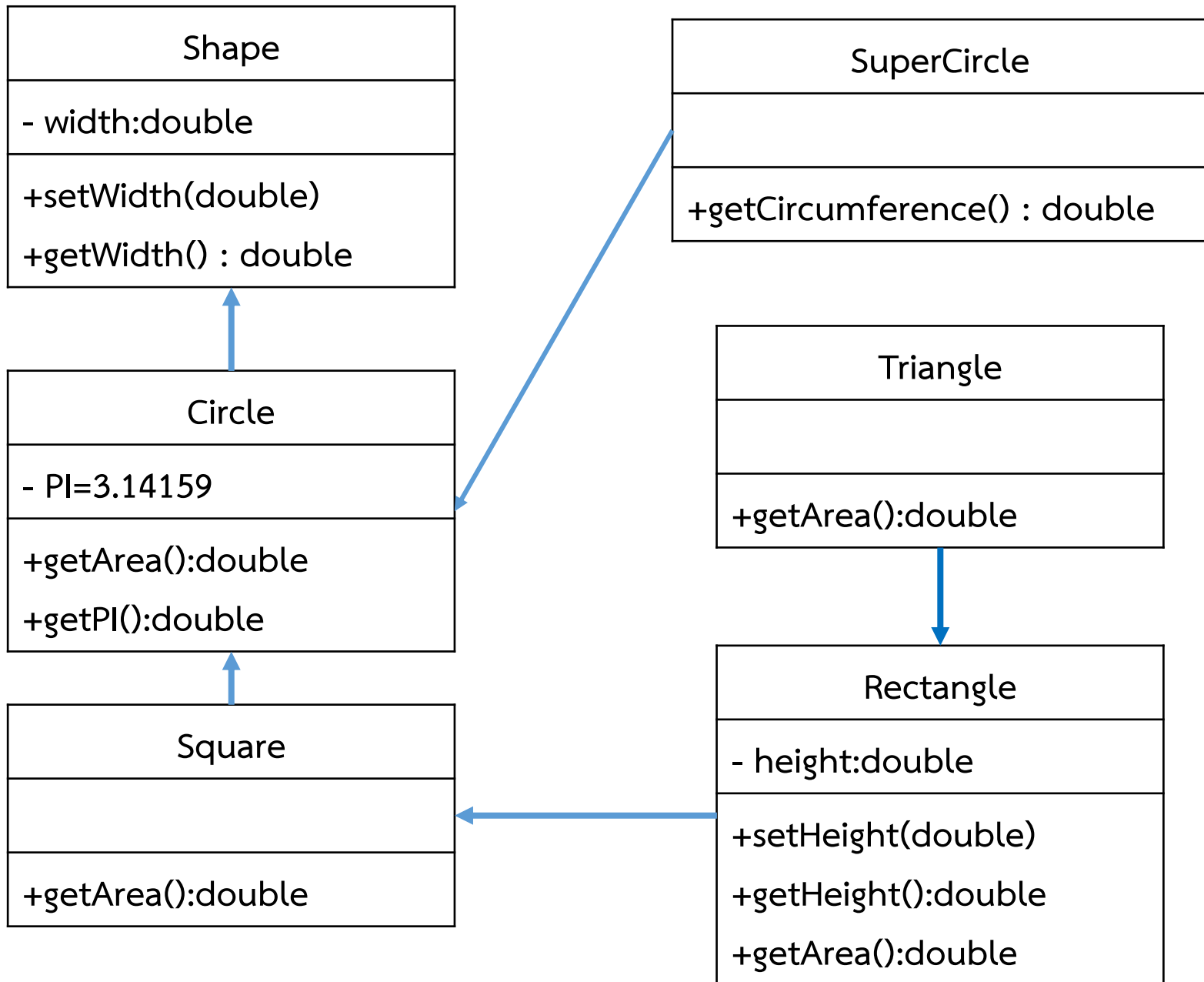
# Class



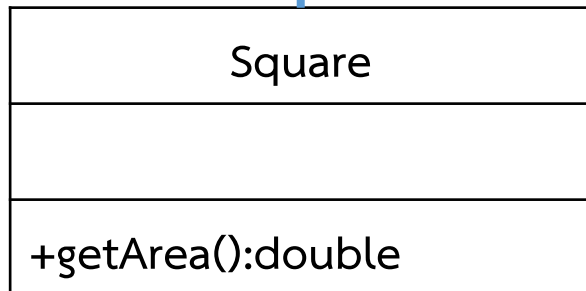
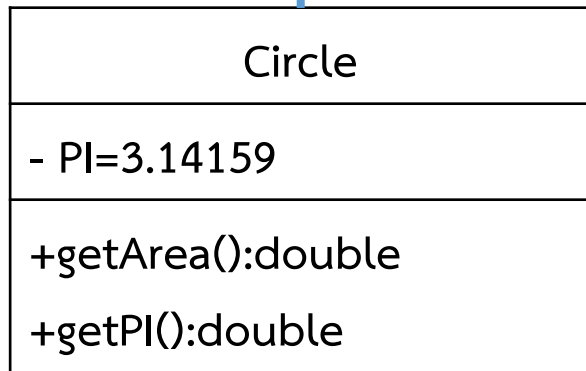
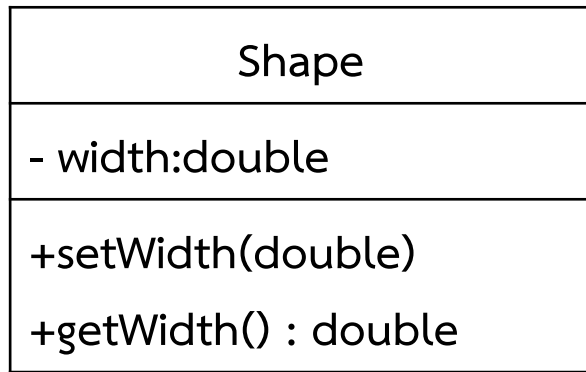
# Class



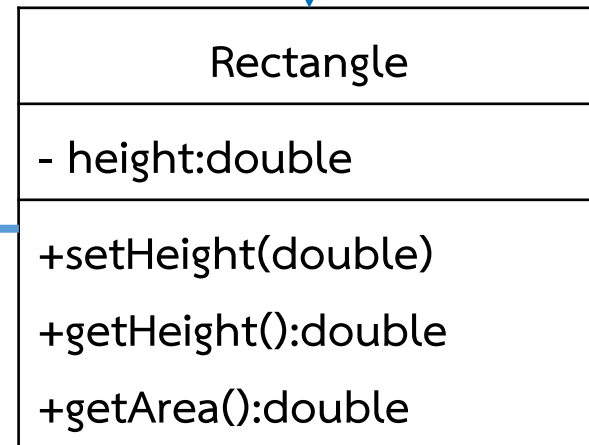
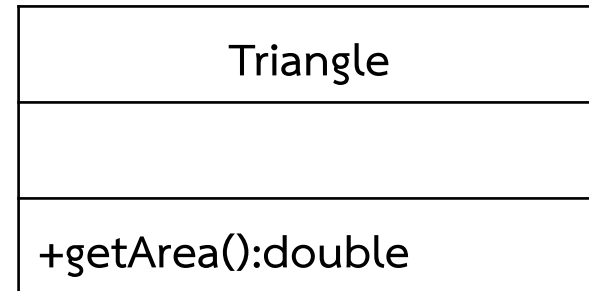
# Class



# Class

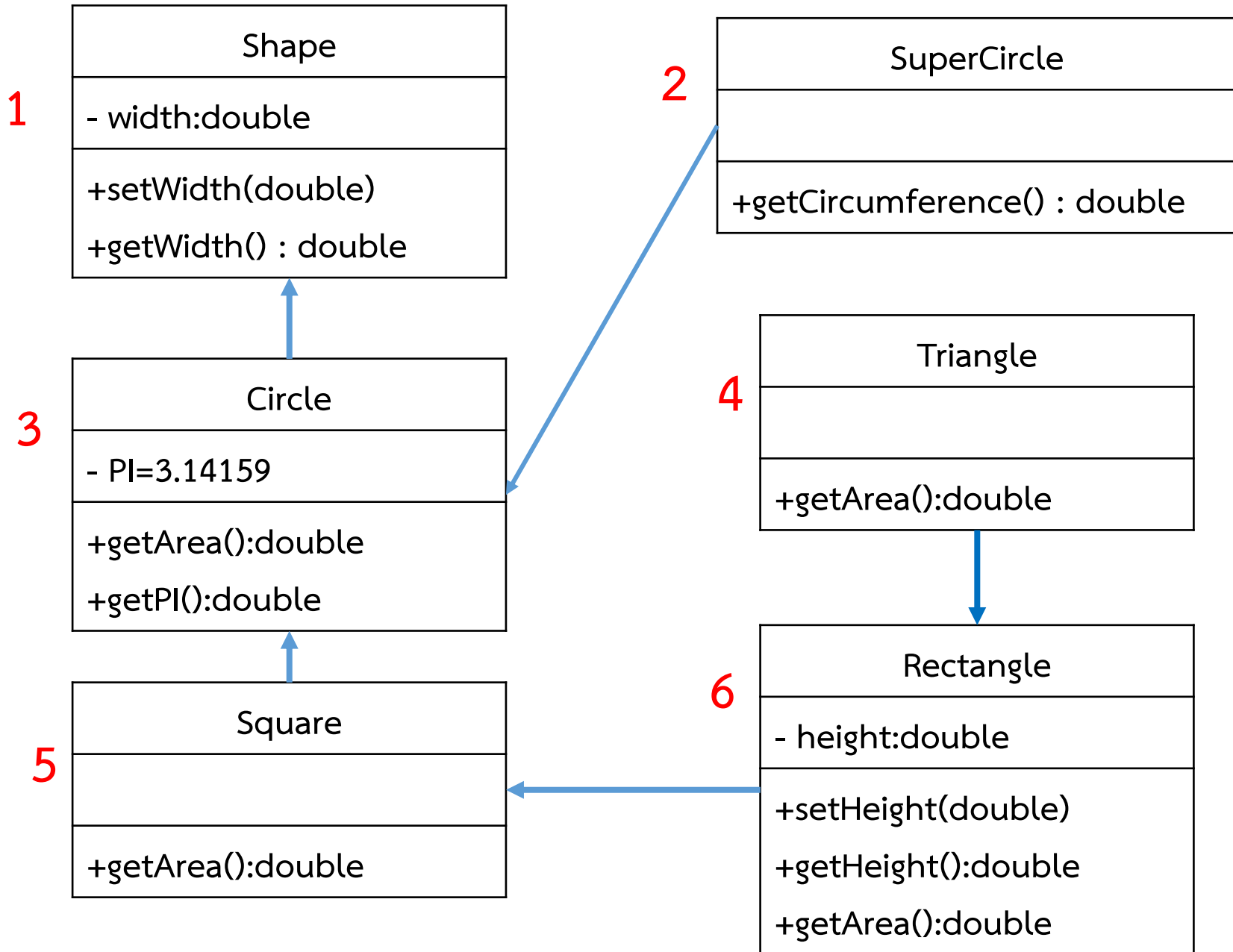


```
public class Triangle extends Rectangle {  
    double getArea()  
    {  
        return getWidth()*getHeight()*0.5;  
    }  
}
```





# Class



# Homework

ให้ทุกคนทำความเข้าใจกับทั้ง 6 คลาสนี้ เพราะเราจะมาเขียนโปรแกรมกันในคาบแลป

