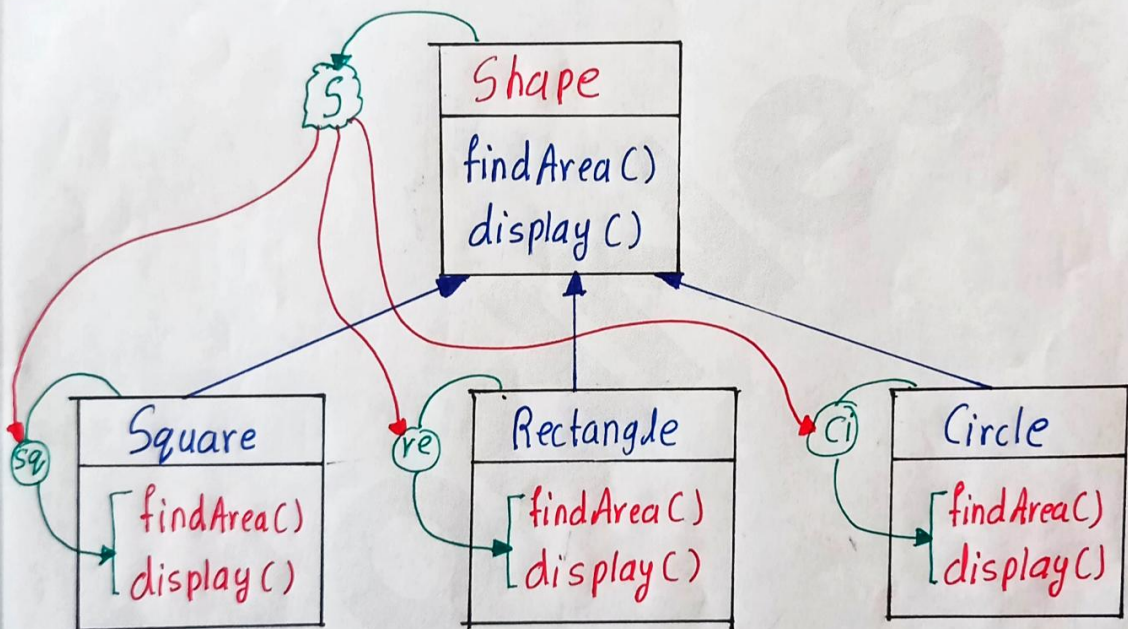


Achieving Polymorphism And Benefits

To achieve polymorphism we must get rid of tight coupling in the program.

Tight coupling refers to the process of a child type reference variable referring to a Child class object.



```
public class Shape {
```

```
    void findArea()
```

```
    {
```

```
        System.out.println("print area of the shape");
```

```
    }
```

```
    void display()
```

```
    {
```

```
        System.out.println("print name of the shape");
```

```
    }
```

```
}
```

```
public class Square extends Shape {
```

```
    void findArea()
```

```
    {
```

```
        int e=10;
```

```
        int ar= e * e;
```

```
        System.out.println("Area of square=" + ar);
```

```
    }
```




```
void display ()  
{  
    System.out.println("This shape is a square");  
}
```

```
public class Rectangle extends Shape {
```

```
    void findArea () {  
        int l = 10;  
        int b = 5;  
        int ar = l * b;  
        System.out.println("Area of rectangle = " + ar);  
    }
```

```
    void display ()  
    {  
        System.out.println("This shape is a rectangle");  
    }  
}
```



```
public class Circle extends Shape {  
    void findArea () {  
        int r=10;  
        double ar= 3.14 * r * r;  
        System.out.println("Area of circle =" + ar);  
    }  
    void display () {  
        System.out.println("This shape is a circle");  
    }  
}
```




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

```
        Shape s;
```

```
        Square sq = new Square ();
```

```
        Rectangle re = new Rectangle ();
```

```
        Circle ci = new Circle ();
```

```
        s = sq;
```

```
        s.findArea ();
```

```
        s.display ();
```

```
        s = re;
```

```
        s.findArea ();
```

```
        s.display ();
```

```
        s = ci;
```

```
        s.findArea ();
```

```
        s.display ();
```

```
    }  
}
```



Output

Area of square = 100

This shape is a square

Area of rectangle = 50

This shape is a rectangle

Area of circle = 314.0

This shape is a circle

Benefits

1. Code Reduction
2. Code flexibility

