软件工程

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4.7

Polymorphism & Dynamic Binding

Polymorphism & Dynamic Binding

- **Structural paradigm**
  - **Must explicitly invoke correct version**

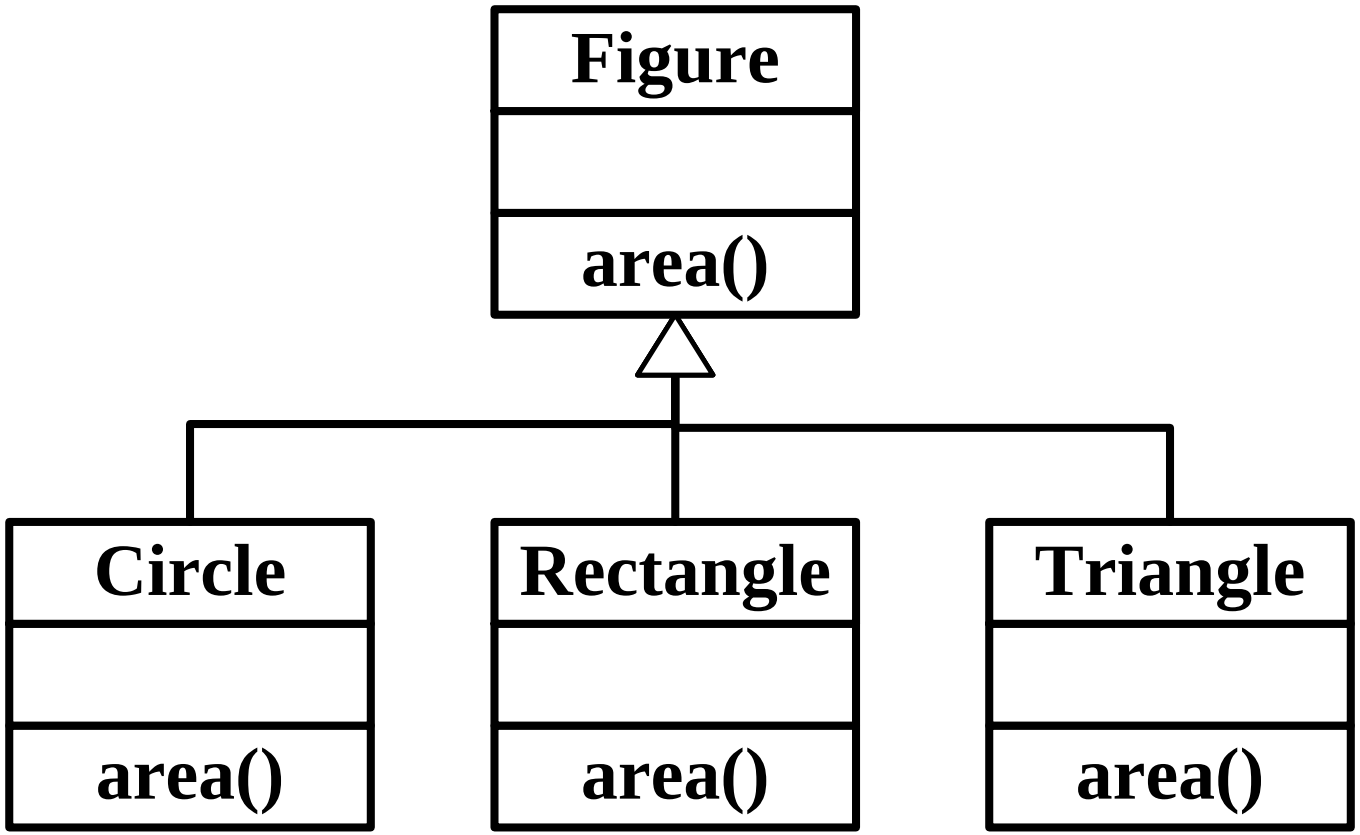
function area_circle()

function area_rectangle()

function area_triangle()

Polymorphism & Dynamic Binding

- **Object-Oriented Paradigm**



Polymorphism & Dynamic Binding

```
abstract class Figure{
      ......
      abstract double area();
}

class Circle extends Figure{
      double Radius;
      double area(){ ..... }
}

class Rectangle extends Figure{
      double Length, Width;
      double area(){ ..... }
}
```

```
class Test{

      ......

      method_1(){

            Figure aFigure;

            ......

            double area = aFigure.area();

            ......
      }
}
```

Polymorphism & Dynamic Binding

- **It is not necessary to determine which method to invoke to get area.**
- **Send only message *aFigure.area()***
  - **Correct method invoked at run-time (dynamically)**
  - **Dynamic binding**
- **Method *area()* can be applied to objects of different classes**
  - **Polymorphic**

Polymorphism & Dynamic Binding

- **Can have a negative impact on maintenance**
  - **Code is hard to understand if there are multiple possibilities for a specific method.**
- **Polymorphism and dynamic binding**
  - **Strength and weakness of the object-oriented paradigm**