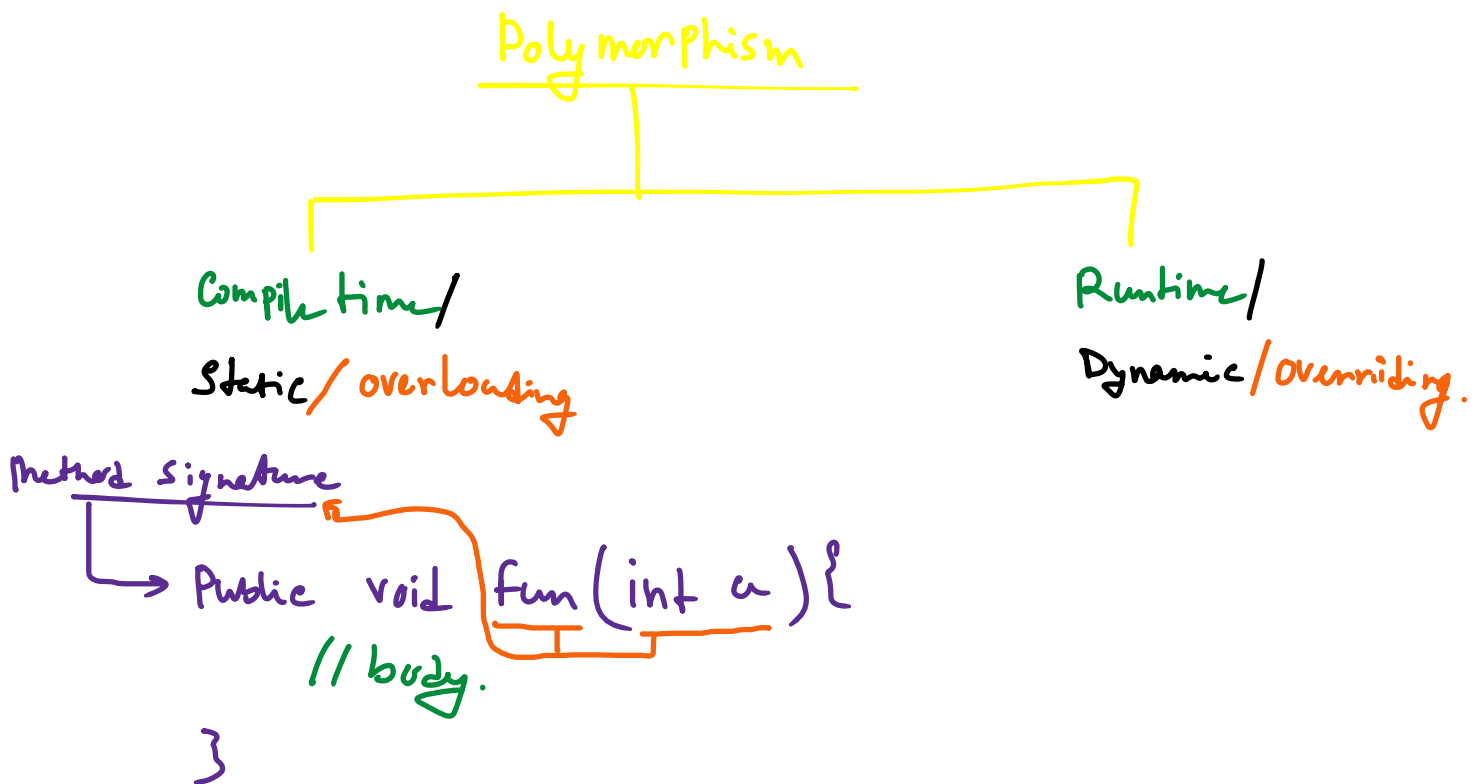# Polymorphism

What is Polymorphism in Java?

Polymorphism is considered one of the important features of Object-Oriented Programming. Polymorphism allows us to perform a single action in different ways. In other words, polymorphism allows you to define one interface and have multiple implementations. The word "poly" means many and "morphs" means forms, So it means many forms.

The word polymorphism is derived from Greek and means "having multiple forms." Apart from computer programming, the idea of polymorphism occurs in other real-world areas, including biology, chemistry and drug development. Polymorphism is one of the most important concepts in OOP.

Compile-Time Polymorphism in Java

It is also known as static polymorphism. This type of polymorphism is achieved by function overloading or operator overloading.

Overloading

Steps
1. function name should be same
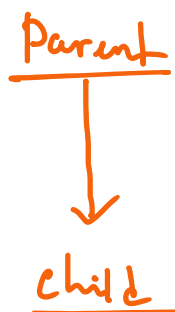
2. Param should be different.

Example

```
Public void fun(int a){ ———— }
```
✗ ~~Public void fun(int a){ ~~~~~~~~~~ }~~
```
Public void fun(double a){          }
Public void fun(int a, int b){      }
Public void fun(double a, int b){    }
```
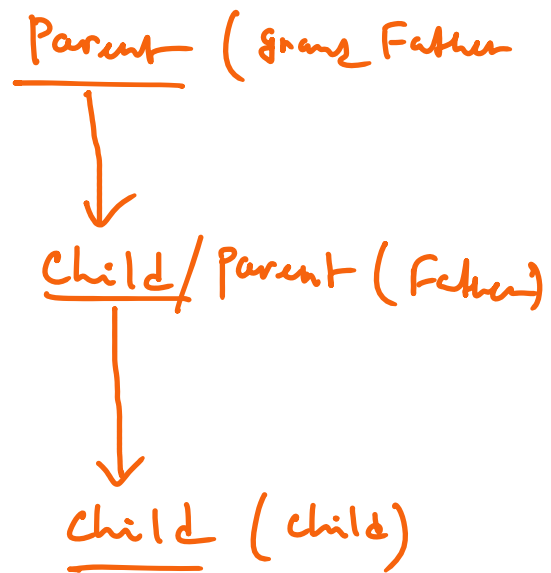
Inheritance (Relationship of class)

1. Single ✓
2. Multi level ✓
3. Multiple ✗ ⎤
              ⎥→ Can be support
4. Hybrid ✗   ⎦
5. Hierarchical ✓

1. Single

Parent
  ↓
child

2. Multi level

Parent (grans Father

↓

Child / Parent (Father)

↓

Child (child)

3. Hierarchical

Parent

├── child 1
└── child 2

4. Multiple

Parent ──┐   ┌── Parent
         └── Child ──┘

5. Hybrid

Parent
│
├── child / Parent
└── child / Parent
        │
      Child

Class A $\longrightarrow$ Class B
captures
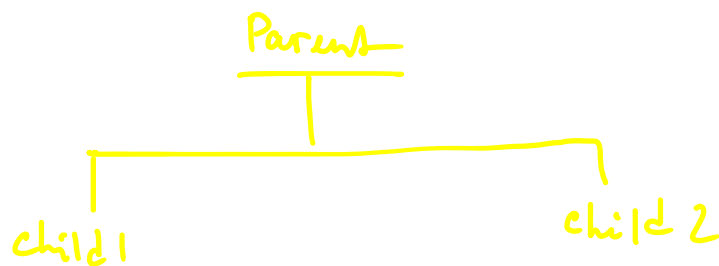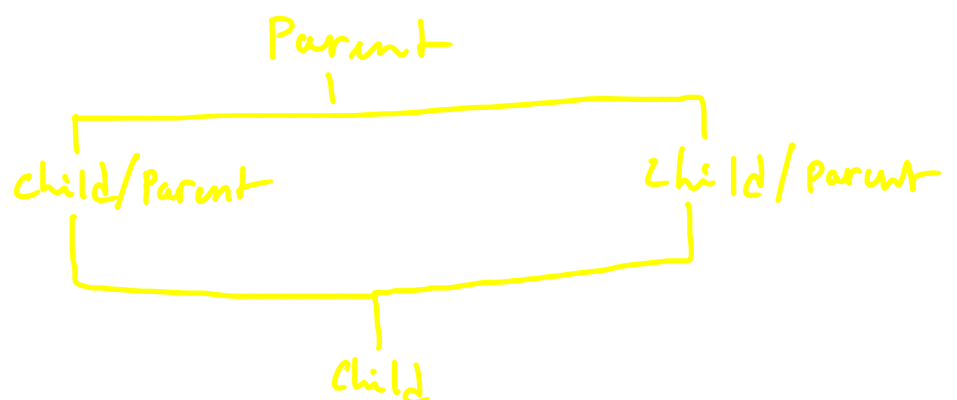
Constructor.

```
class name {
    int value = 100;
}
```

Constructor init the value;

How to Create?

```
Class Parent {
    Public Parent (    ) {
        // body.
    }
}
```

Final Keyword

Class/ Properties

Class/ Properties

$\rightarrow$ X (Inheritance)

Can't be inheritance