Inheritance

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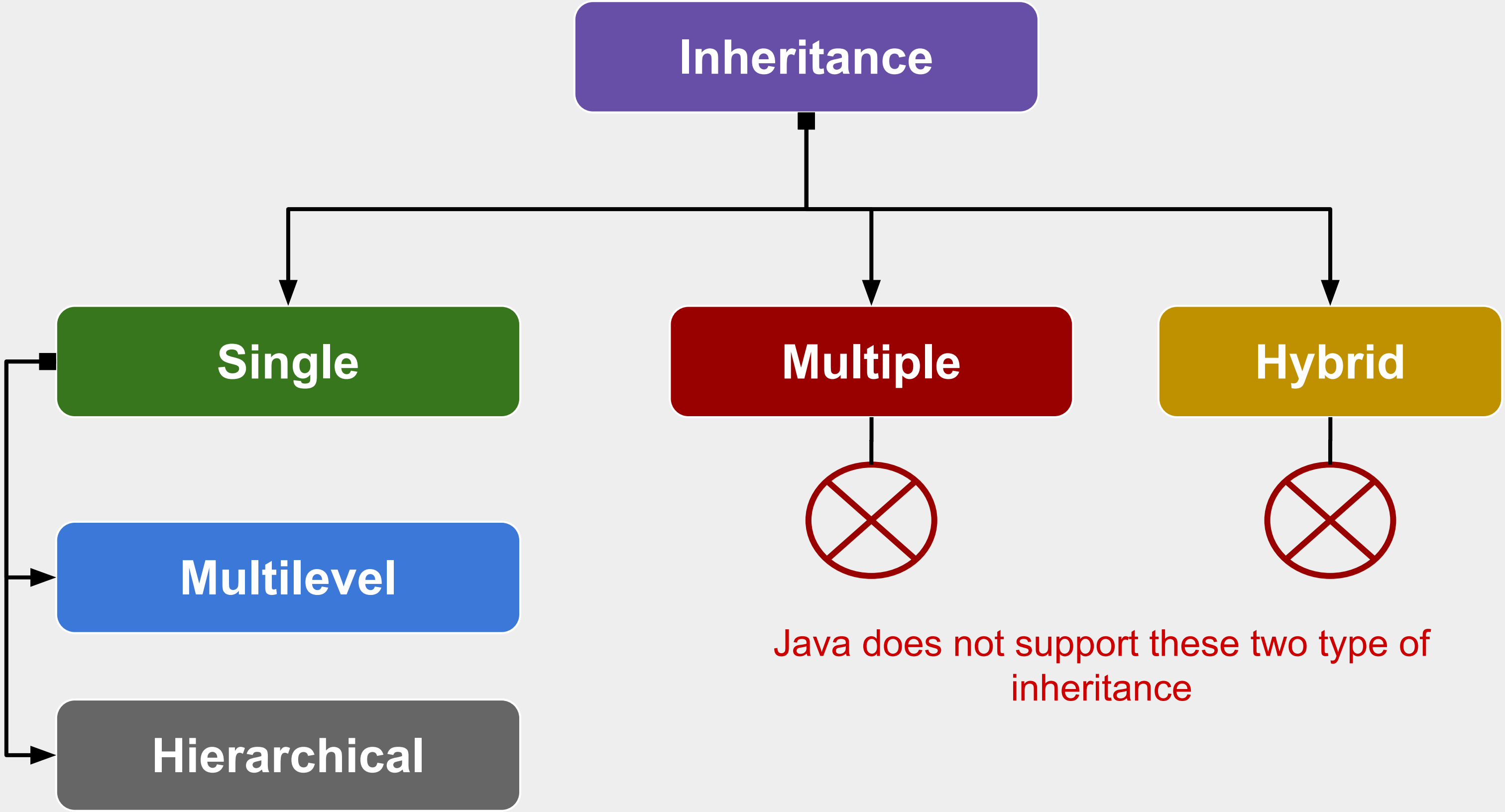
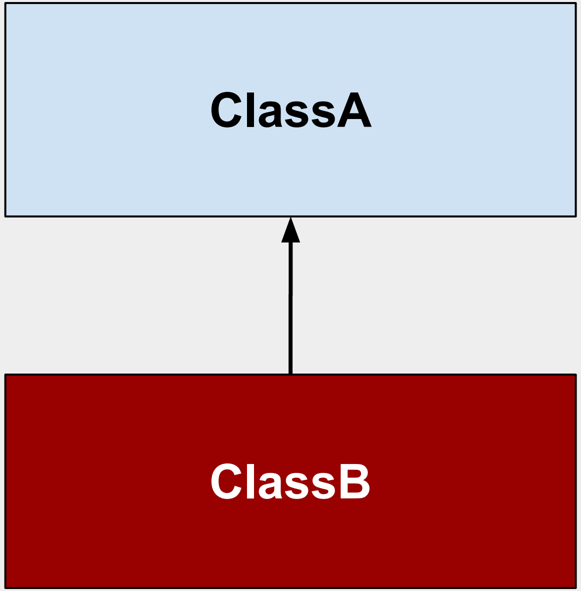
Inheritance is one of fundamental concept of object-oriented programming. The idea behind inheritance is that you can create new classes that are built on existing classes. When you inherit from an existing class, you reuse (or inherit) its methods, and you can add new methods and fields to adapt your new class to new situations. This technique is essential in Java programming.

Types of Inheritance in Java



Java does not support these two type of inheritance

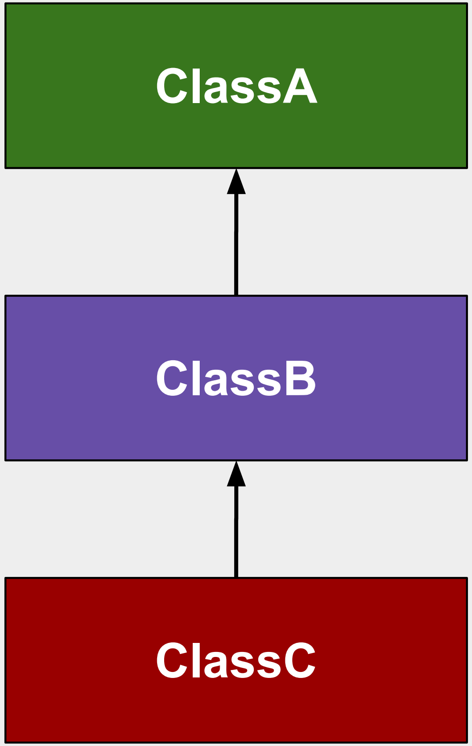
Single Inheritance



```
// Implementation in java
class A {

    ........................

}
class B extends A {
    ........................
}
```

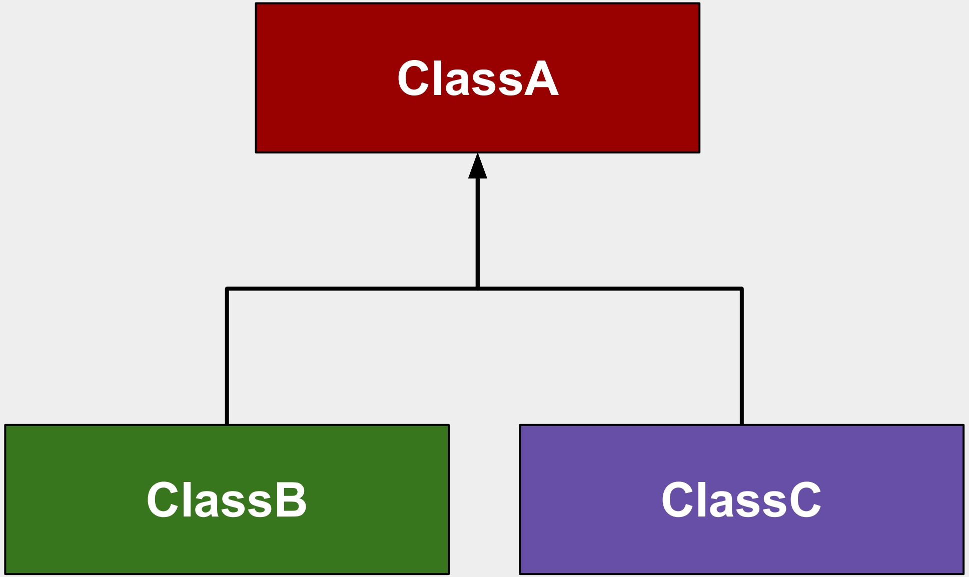
PDP ACADEMY

Multilevel Inheritance



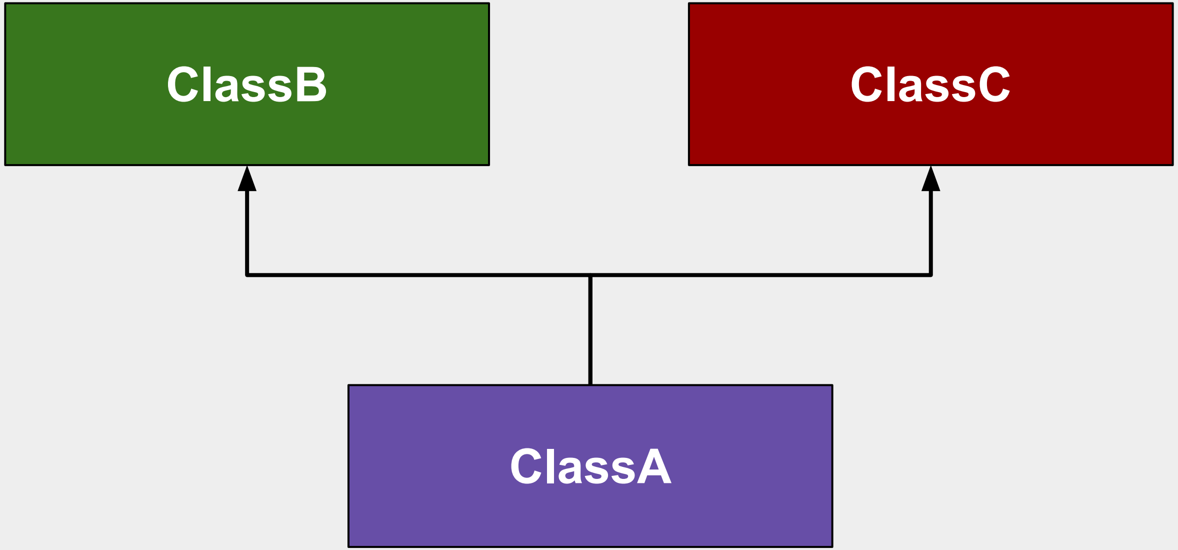
```
// Implementation in java

class A {
    ........................
}

class B extends A {
    ........................
}

class C extends B {
    ........................
}
```

Hierarchical Inheritance



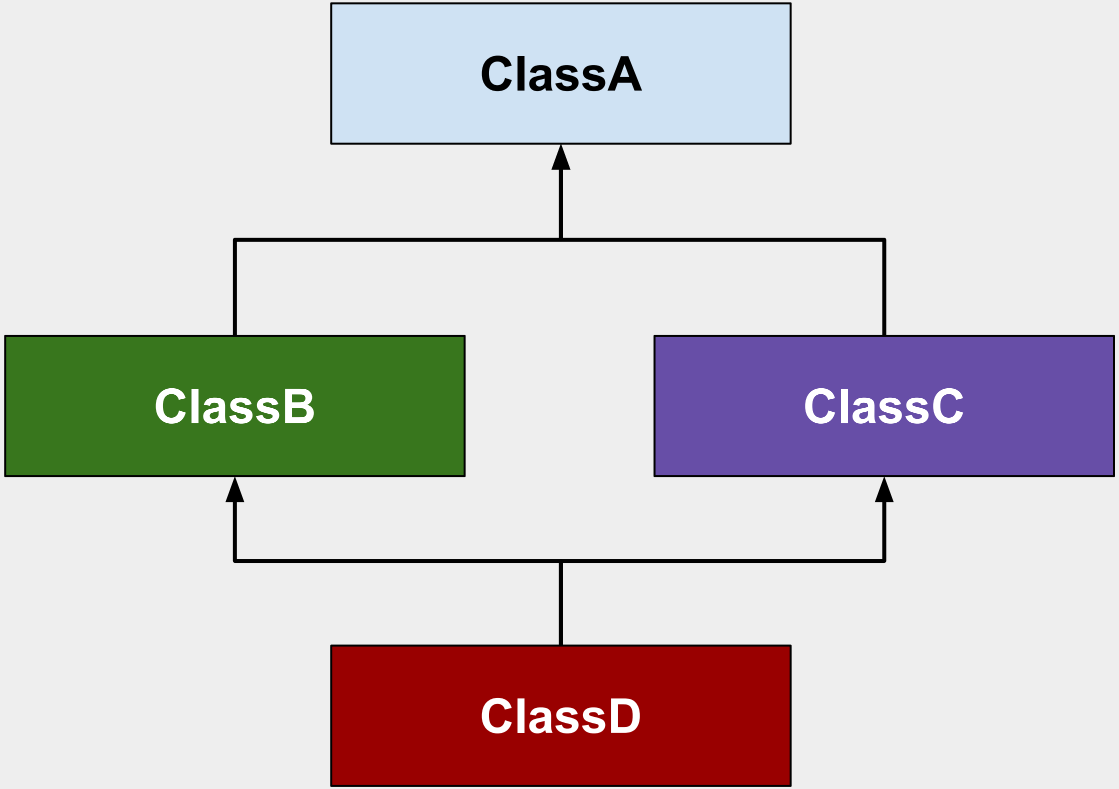
```
// Implementation in java

class A {
    ........................
}

class B extends A {
    ........................
}

class C extends A {
    ........................
}
```

Multiple Inheritance



Note: java does not support multiple inheritance

Hybrid Inheritance



Note: java does not support hybrid inheritance

Superclasses and Subclasses

The class from which the subclass is derived is called a superclass (also a base class or a parent class). Excepting Object , which has no superclass, every class has one and only one direct superclass (single inheritance).

A subclass is a class derived from the superclass. It inherits the properties of the superclass and also contains attributes of its own.

- Defining subclasses
- Overriding methods
- Subclass constructor
- Inheritance Hierarchies
- Understanding method calls
- Preventing Inheritance
- Casting

The Cosmic Superclass

- Pattern Matching
- The equals Method and equals method contract
  - reflexive
  - *symmetric*
  - *transitive*
  - *consistent*
  - *x.equals(null) should return false*
- The toString Method

Interview Questions