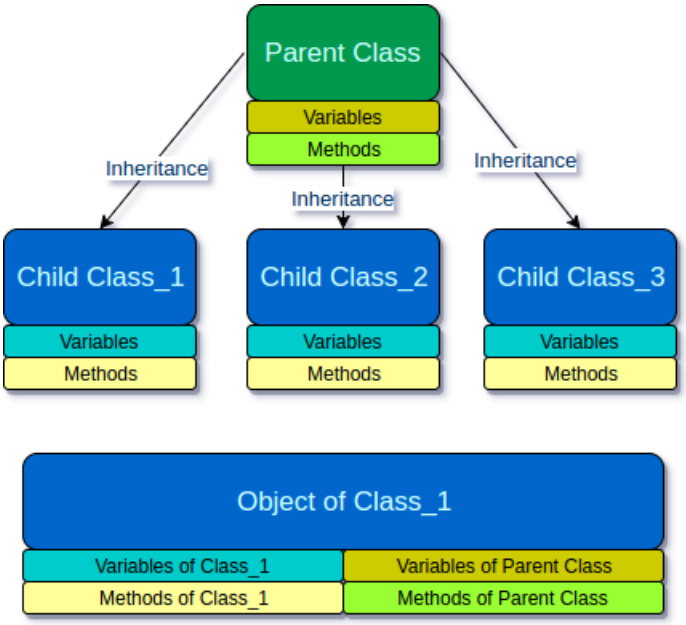
Inheritance in Java

Inheritance in Java Language

Inheritance is an Object Oriented Concept in Java. It allows an object of a class to own the variables and methods of another class. In Java, Inheritance is realized using the keyword **extends**.

In a parent-child analogy, child inherits parents variables(money, house, etc.,) and methods(behaviors from genetics). The same way, an object of a child class, which extends a Parent class, can access the variables and methods of Parent class as of its own.



Block diagram – Inheritance in Java

More about Inheritance in Java

Following are the list of points, one has to remember about the Java Inheritance concept.

- Inheritance is an Object Oriented Programming(OOP) concept.
- A Child class can inherit only one Parent class. (A child can have only one parent)
- Multiple (sub) classes can inherit a same (super) class. (A parent can have multiple children)
- Child class may use the methods and variables of the Parent class.
- A child class can inherit all methods of parent class except those which are priavte.

What happens when you call a method of Parent class from object of Child class?

When a Child class inherits a Parent class, compiler does not copy the methods of Parent class to Child class. But, the compiler makes a reference to the methods in the instance of Parent class.

Example – Java Inheritance

Usually in Java, **Parent class** is also called as **Super class** and **Child class** is called **Sub Class**.

In this example project, we shall create a Super Class, `MobilePhone.java` and a Sub Class `SmartPhone.java`.

Following is the parent class or super class.

MobilePhone.java

```
package com.tutorialkart.java;

/**
 * @author tutorialkart
 *
 */
public class MobilePhone {
    public int price;

    public void makeCall(){
        System.out.println("Calling...");
    }

    public void getCharge(){
        System.out.println("Charging...");
    }

    // private method is not visible to other classes
    private void check(){
        System.out.println("This is private to MobilePhone");
    }
}
```

Following is the child class or subclass.

SmartPhone.java

```
package com.tutorialkart.java;

/** This class inherits MobilePhone
 * @author tutorialkart
 */
public class SmartPhone extends MobilePhone {

    public String name;

    public static void main(String[] args) {
        SmartPhone sonyXZ = new SmartPhone();
        // variable of SmartPhone (Sub Class)
        sonyXZ.name = "Sony XZ";

        // variable of MobilePhone (Super Class)
        sonyXZ.price = 40500;

        // method of SmartPhone (SubClass)
        sonyXZ.playVideo();

        // methods of MobilePhone (Super Class)
        sonyXZ.makeCall();
        sonyXZ.getCharge();;
    }

    public void playVideo(){
        System.out.println("Playing video..");
    }
}
```

Run SmartPhone.java program, and the output to console should be as shown in the following.

Output

```
Playing video..
Calling...
Charging...
```

Conclusion

In this Java Tutorial, we learned what Inheritance mean in Java and how to realize it using extends keyword.

In our next tutorial, we shall learn about another Object Oriented Concept – Polymorphism in Java.

Java Tutorial