

## Chapter 10 - Inheritance

Inheritance is used to borrow properties & methods from an existing class

Phone → SmartPhone

SuperClass → SubClass      Subclass extends SuperClass

Declaring Inheritance in Java

Inheritance in Java is declared using extends keyword

Superclass



Subclass

⇒ Subclass extends the superclass

More Examples

Vehicle



Car

Animal



Dog

Animal



Cat

Vehicle



Truck

When a class inherits from a superclass, it inherits parts of superclass methods and fields.

Java doesn't support multiple inheritance i.e. two classes cannot be super classes for a subclass.

Code Example

Inheritance in Java is declared using extends keyword

```
public class Dog extends Animal {  
    // Code  
}
```

⇒ Inheriting Dog from Animal class!!!

Quick Quiz: Create a class Animal and Derive another class Dog from it.

### Constructors in Inheritance

When a Derived class is extended from the Base class, the constructor of the Base class is executed first followed by the constructor of the derived class.

For the following Inheritance hierarchy, the constructors are executed in the order ① → ② → ③

C<sub>1</sub> → Parent

↓  
C<sub>2</sub> → child

↓  
C<sub>3</sub> → Grandchild

↓ constructors execute in top to bottom order!

### Constructors during Constructor Overloading

When there are multiple constructors in the parent class, the constructor without any parameters is called from the child class.

If we want to call the constructor with parameters from the parent class, we can use Super keyword

Super(a, b); → calls the constructor from the parent class which takes 2 variables

### this keyword

this is a way for us to reference an object of the class which is being created/referenced.

this.area = 2 → this is a reference to current object



### Super Keyword

A reference variable used to refer immediate parent class object

- Can be used to refer immediate parent class instance variable
- Can be used to invoke parent class methods.
- Can be used to invoke parent class constructors.

### Method Overriding

If the child class implements the same method present in the parent class again, it is known as method overriding