Java OOP - Phase 3: Inheritance

IMPORTANT NOTES: INHERITANCE IN JAVA

What is Inheritance?

- A mechanism in which one class (child/subclass) inherits fields and methods from another class (parent/superclass).

- Promotes code reuse and establishes an IS-A relationship.

Syntax:

```
class Parent {
// fields and methods
}
```

```
class Child extends Parent {
// additional fields and methods
}
```

Key Concepts:

1. extends Keyword: Used to inherit from a class.

2. Method Overriding: Child class redefines a method already present in the parent class.

3. super Keyword:

- Used to call the parent class constructor.

- Access the parent class methods or fields.

Types of Inheritance in Java:

- Single Inheritance: One class inherits from another.

- Multilevel Inheritance: A class inherits from a class which itself inherits from another class.

- Hierarchical Inheritance: Multiple classes inherit from one class.

(Java does not support multiple inheritance with classes to avoid ambiguity.)

Example:

```
class Vehicle {

String brand;

void start() {

System.out.println("Vehicle is starting");

}

}


class Car extends Vehicle {

String model;

@Override

void start() {

System.out.println("Car is starting: " + model);

}

}
```

Interview Tips:

- Be ready to write examples using 'extends', 'super', and method overriding.

- Understand real-life examples like Animal -> Dog, Cat etc.

- Know the difference between inheritance and composition.