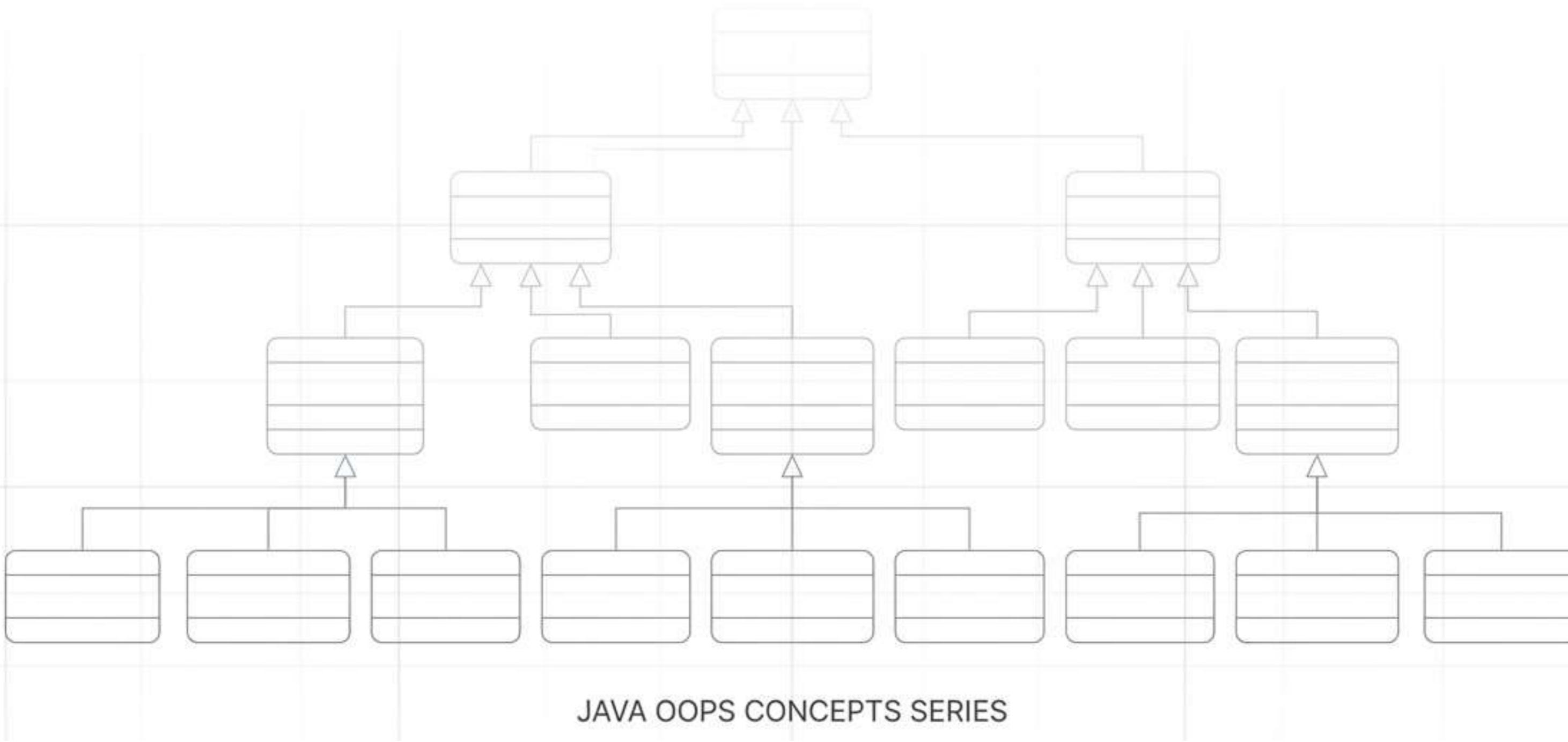


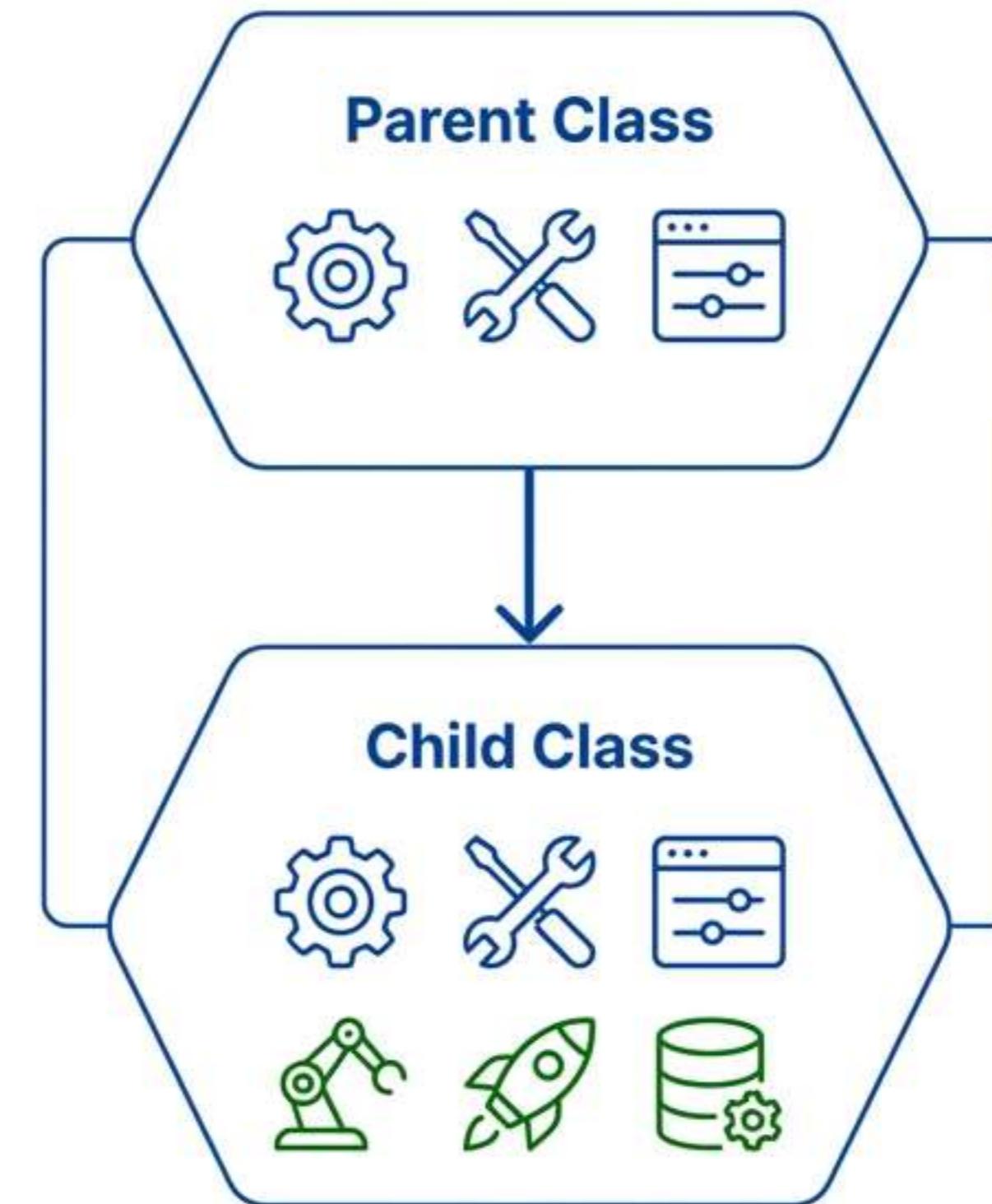
Mastering Inheritance in Selenium WebDriver

Object-Oriented Principles for Robust Test Automation



Inheritance is the Art of Building Relationships

Definition: The concept of building a relationship between two similar classes.



Mechanism: The child class acquires properties and behaviours from the parent.

Why We Inherit: Efficiency and Maintainability



Avoid Duplication

Write common logic once, use it everywhere.



Reduce Code Volume

Less code means fewer bugs and better readability.



Centralised Maintenance

Changes in the parent reflect instantly in all children.



Common Functions

Standard actions available to all subclasses.

The Java Syntax: The 'extends' Keyword

```
public class Child extends Parent {  
    // Child acquires Parent properties  
}
```

Class > Class

A Class extends another Class.

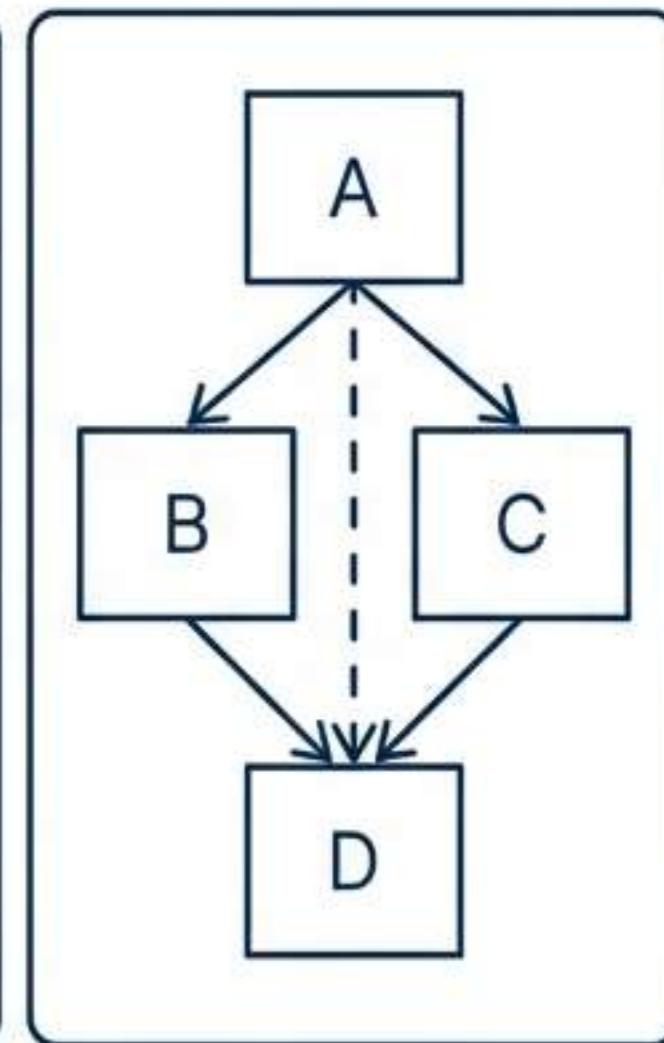
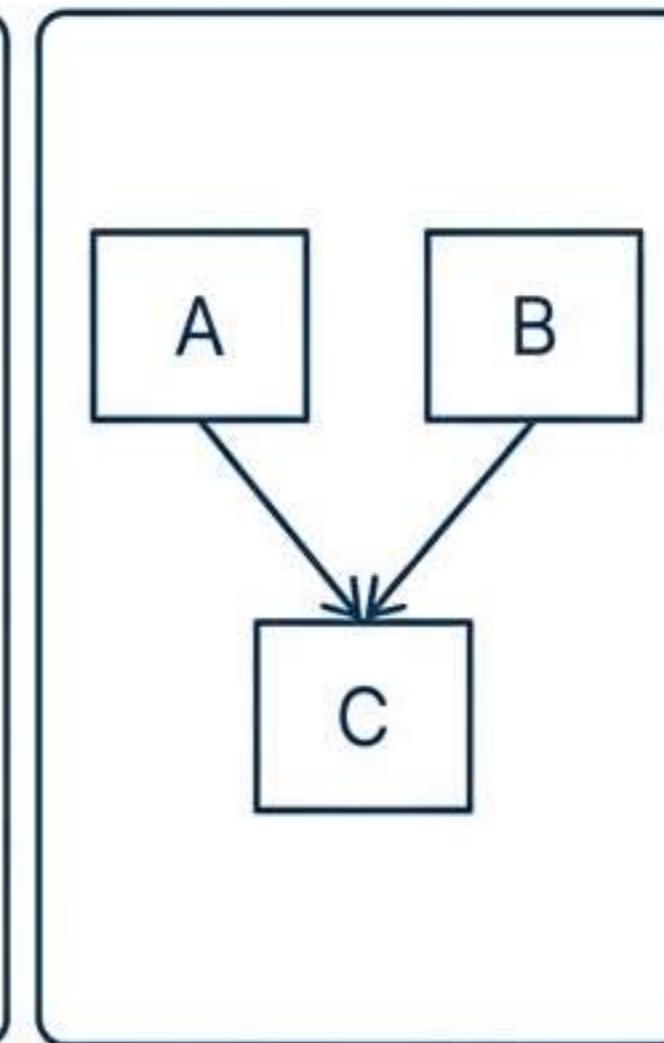
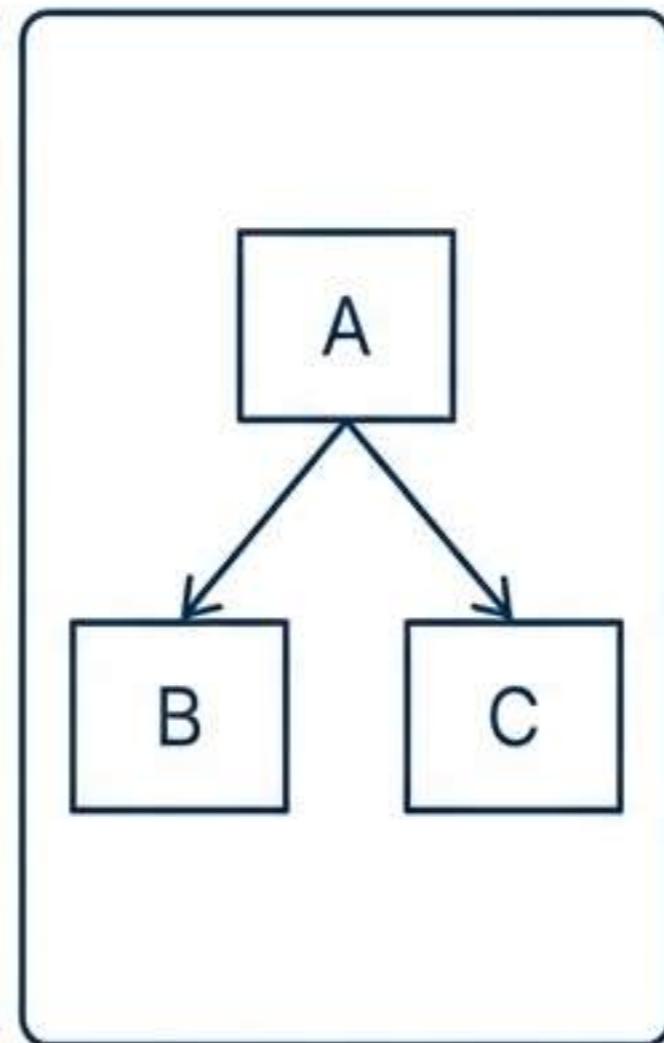
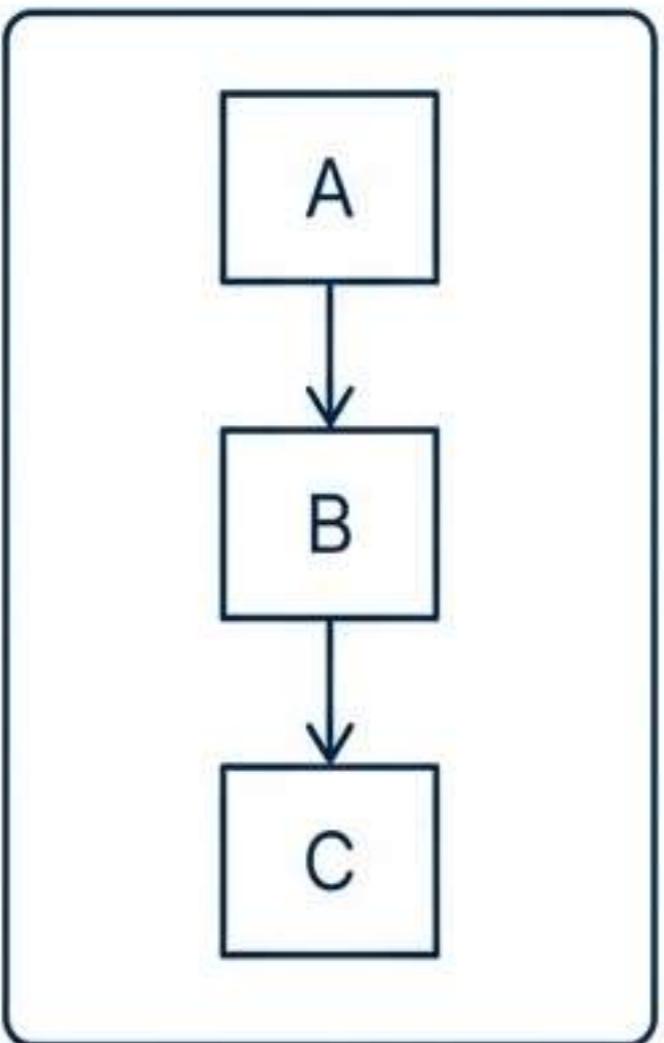
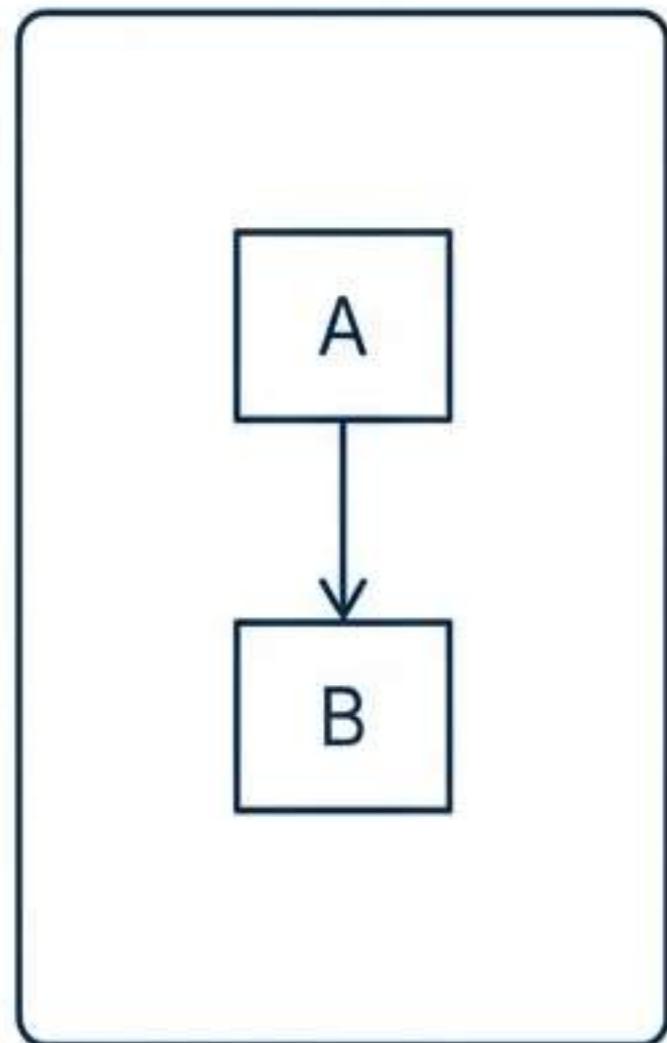
Interface > Interface

An Interface extends another Interface.



Important: A Class **IMPLEMENTS** an Interface, it does not extend it.

Mapping the Five Types of Inheritance



Single Inheritance

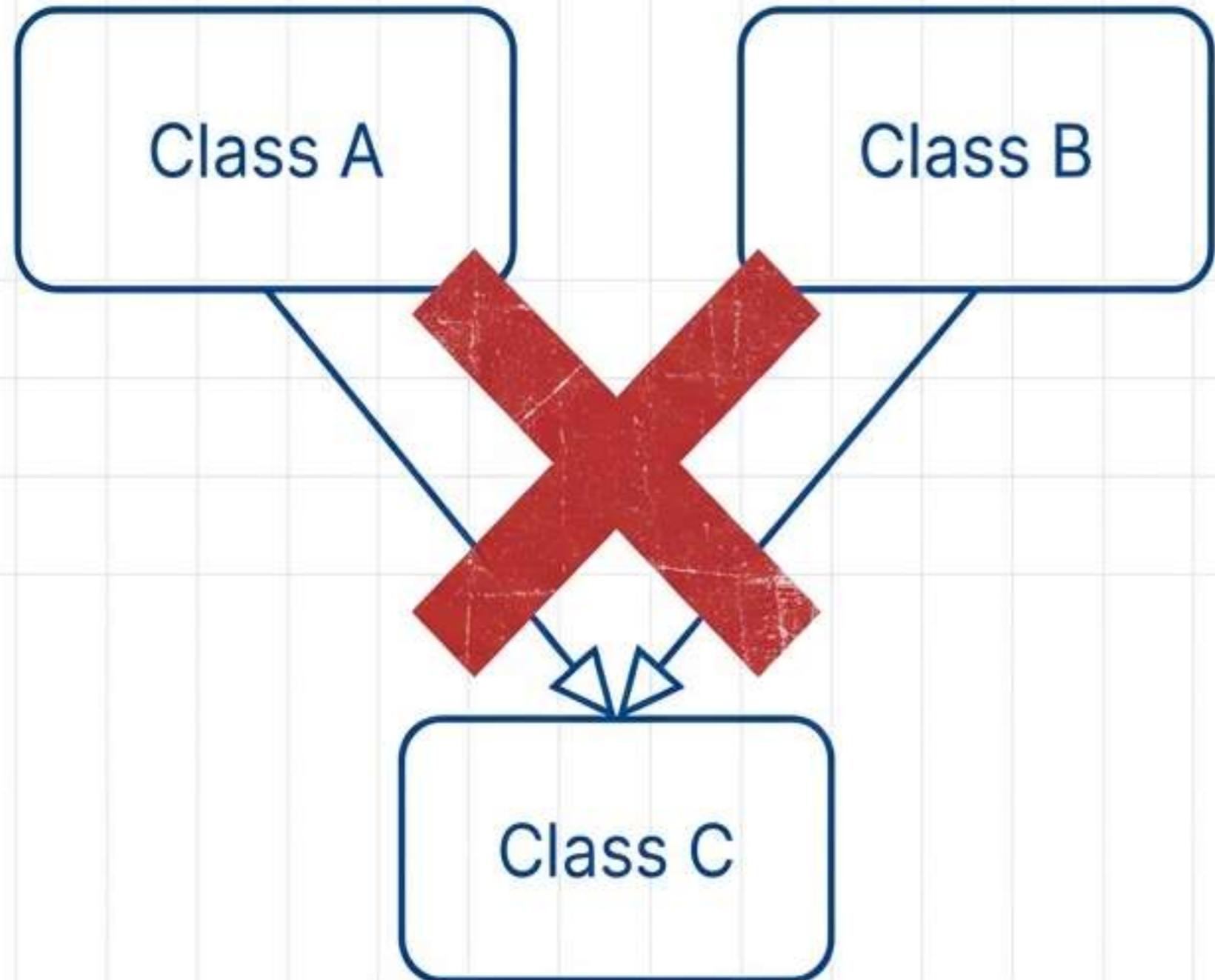
Multilevel Inheritance

Hierarchical
Inheritance

Multiple Inheritance
(Interfaces Only)

Hybrid Inheritance

The Java Constraint: Multiple Inheritance

**Rule:**

Java does NOT support Multiple Inheritance at the Class level.

Reason:

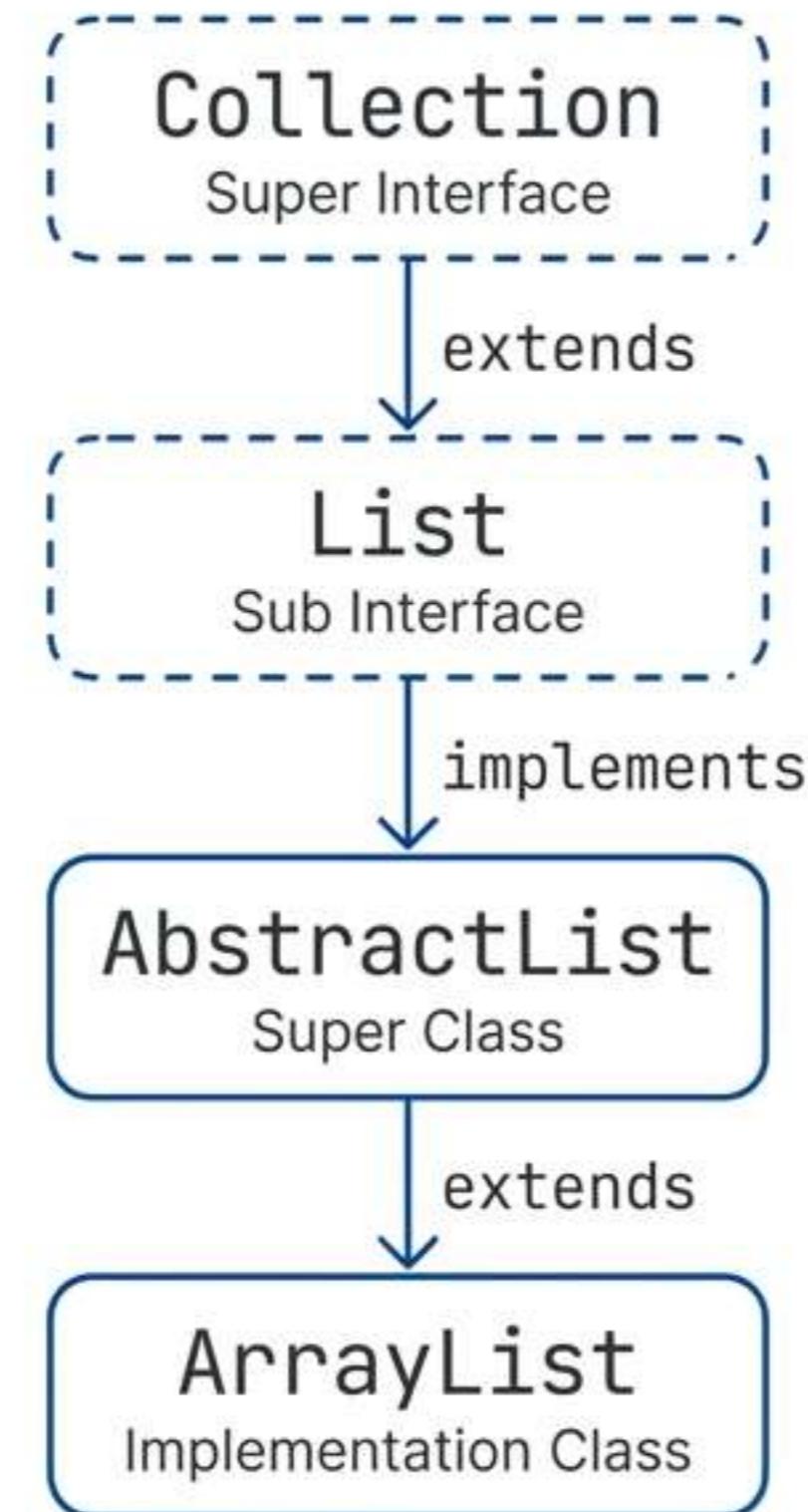
The Diamond Problem (Ambiguity in method execution).

Exception:

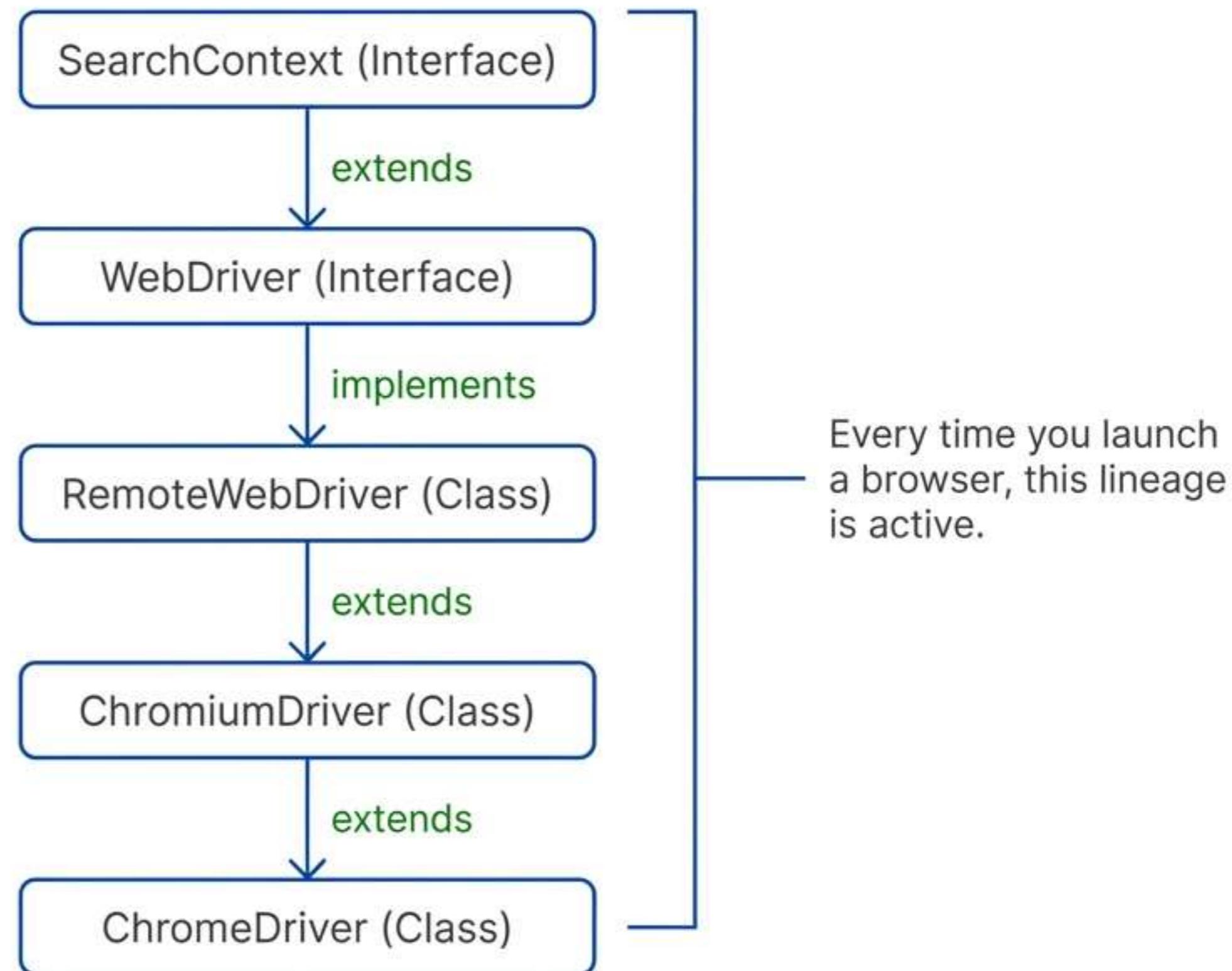
Multiple Inheritance IS supported for Interfaces.

Not Possible in Java at class level

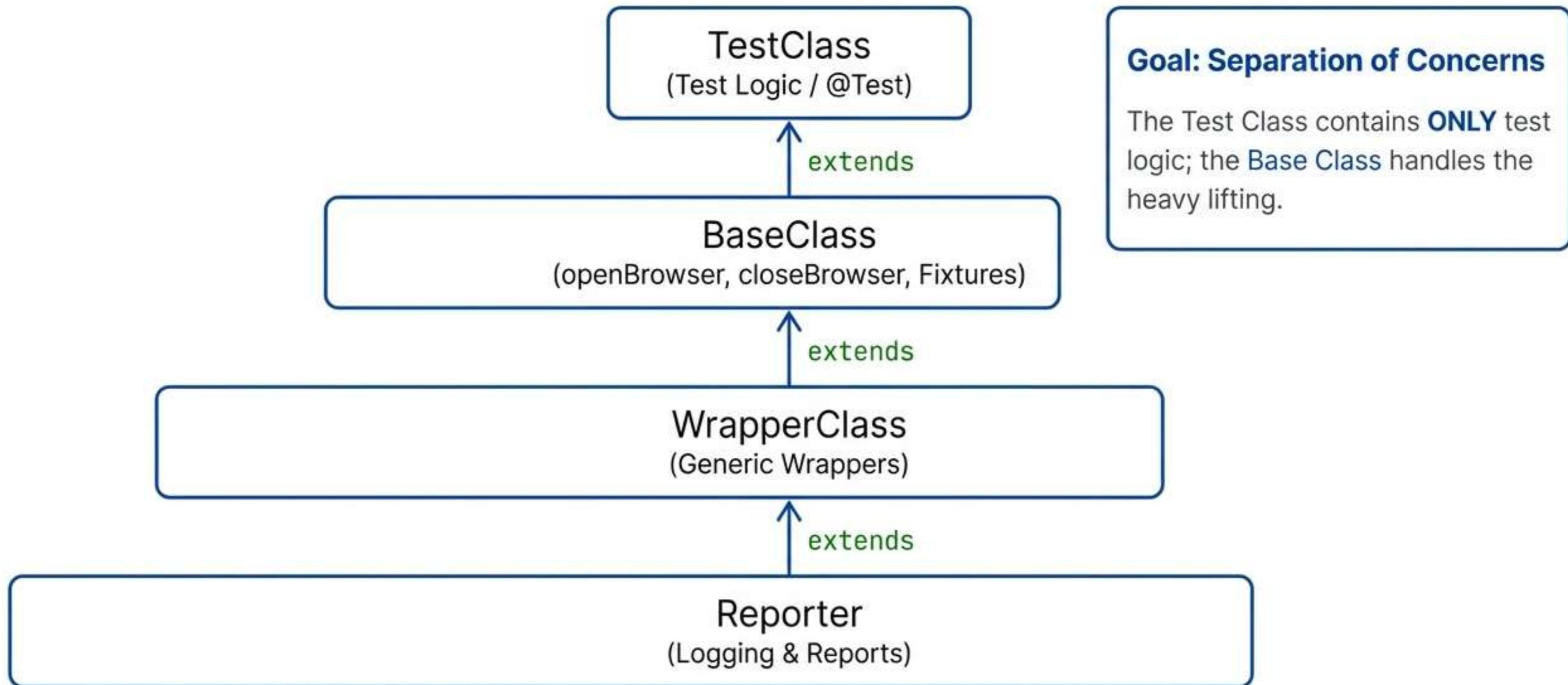
Inheritance in the Java Ecosystem: The Collections Hierarchy



The Selenium WebDriver Hierarchy



Designing an Automation Framework

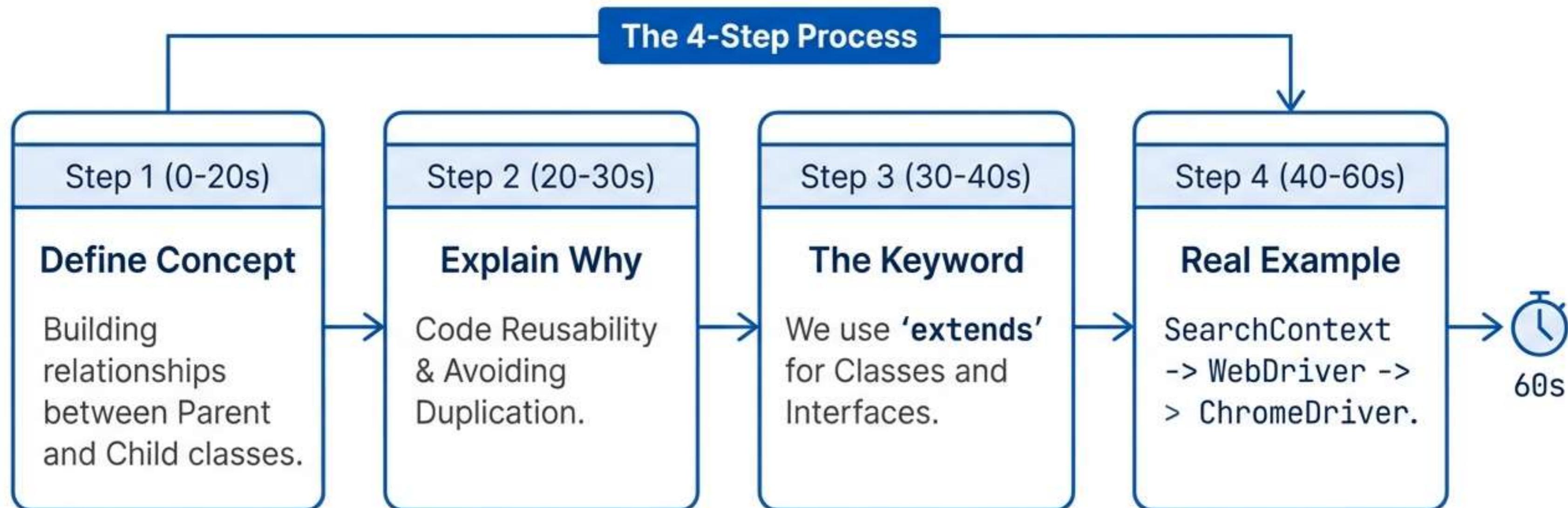


Separation of Concerns: BaseClass vs. TestClass

Base Class (Infrastructure)	Test Class (Business Logic)
 Handles heavy lifting	 Contains ONLY test logic
 Setup (openBrowser)	 Focuses on business requirements
 Teardown (closeBrowser)	 Uses @Test annotations
 Fixtures	

The 60-Second Interview Answer

Tell me about Inheritance?



Summary Mind Map

