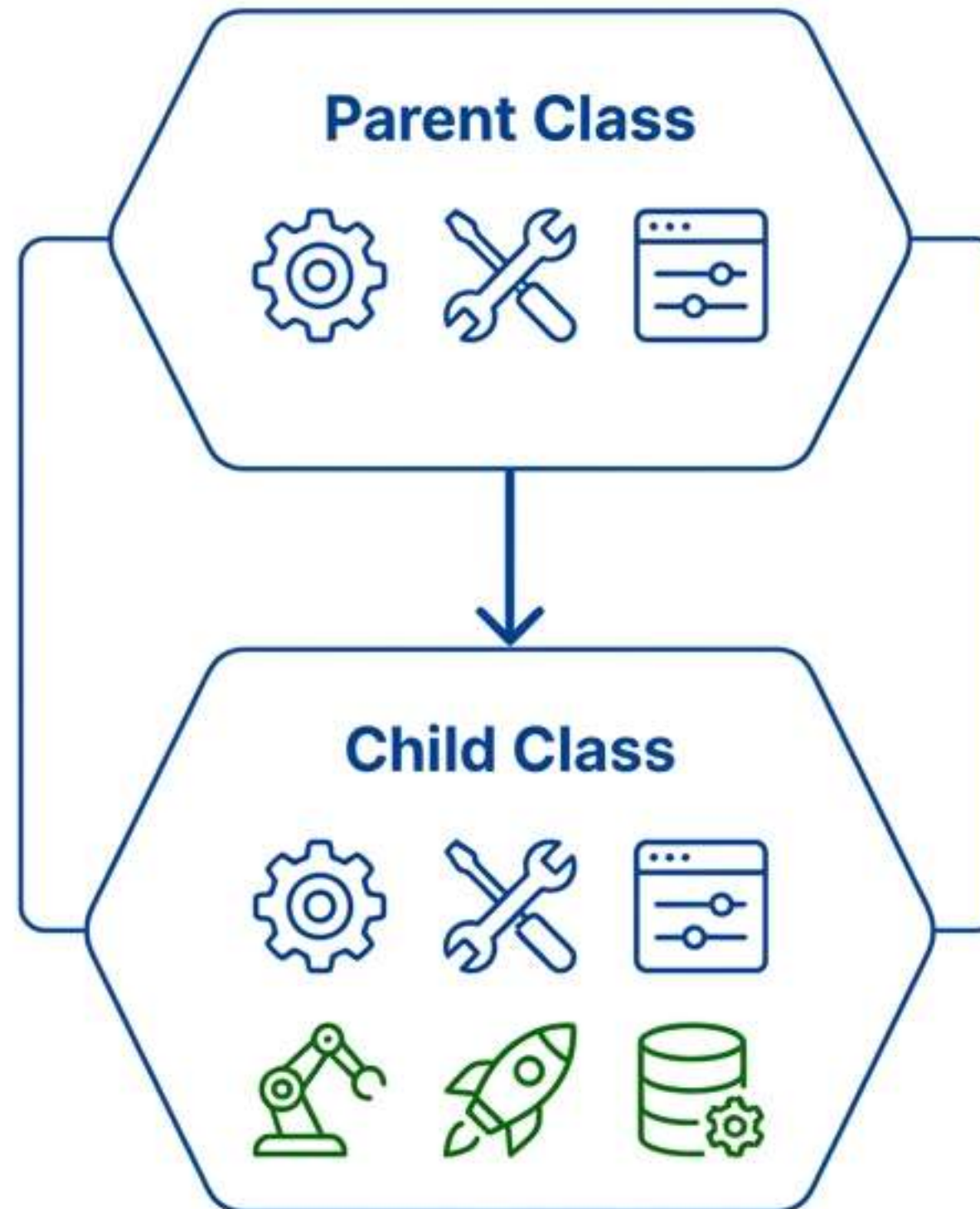




# Inheritance is the Art of Building Relationships

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.

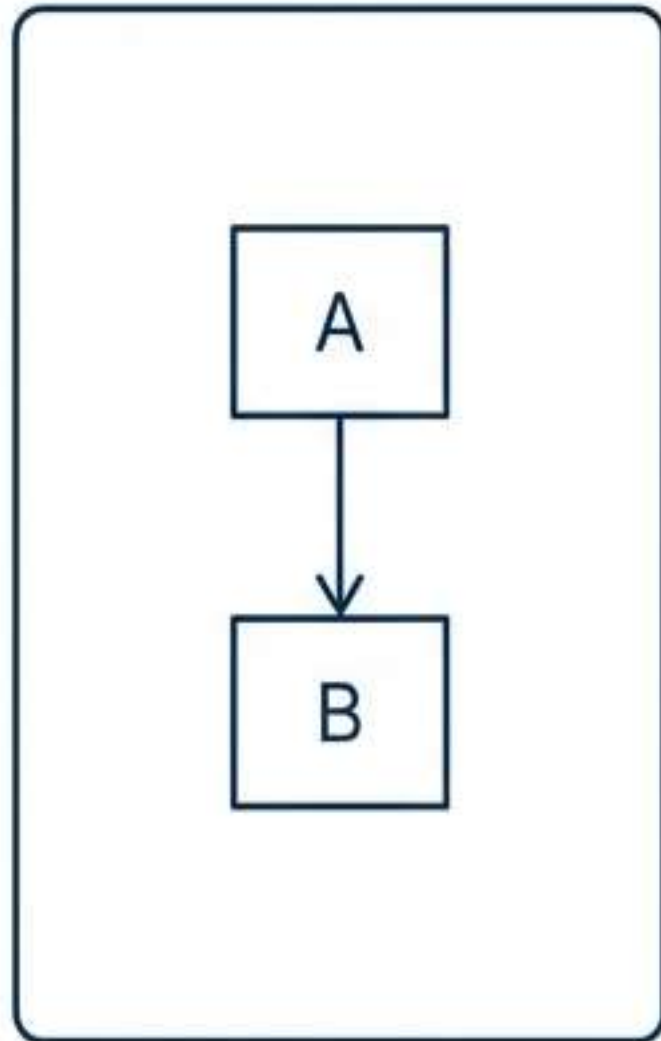
## **Interface > Interface**

An Interface extends  
another Interface.

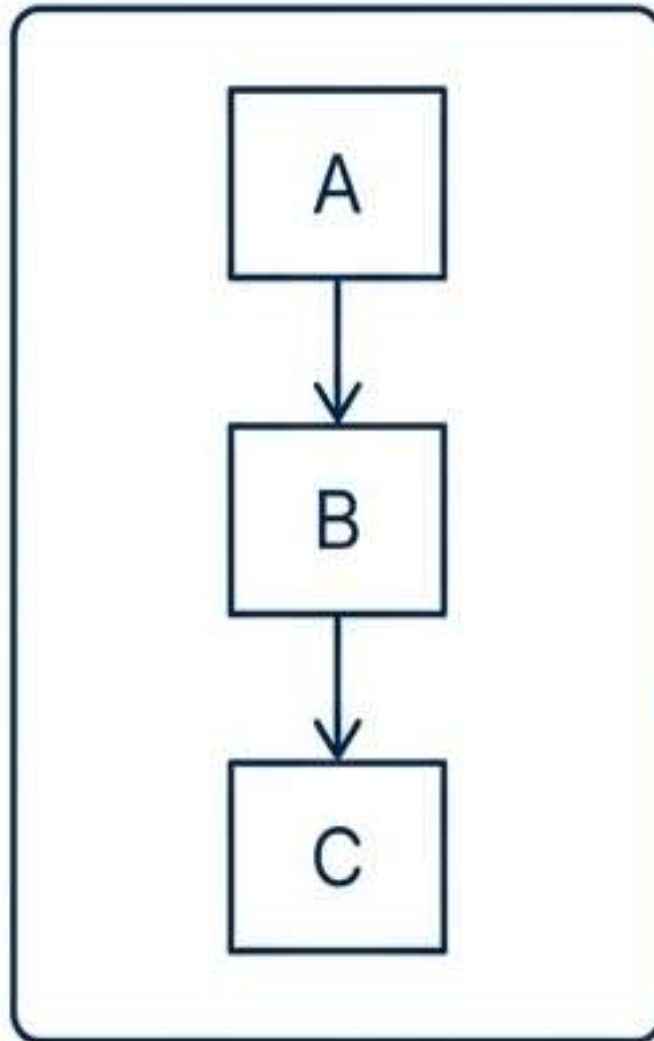


Important: A Class IMPLEMENTS an Interface, it does not extend it.

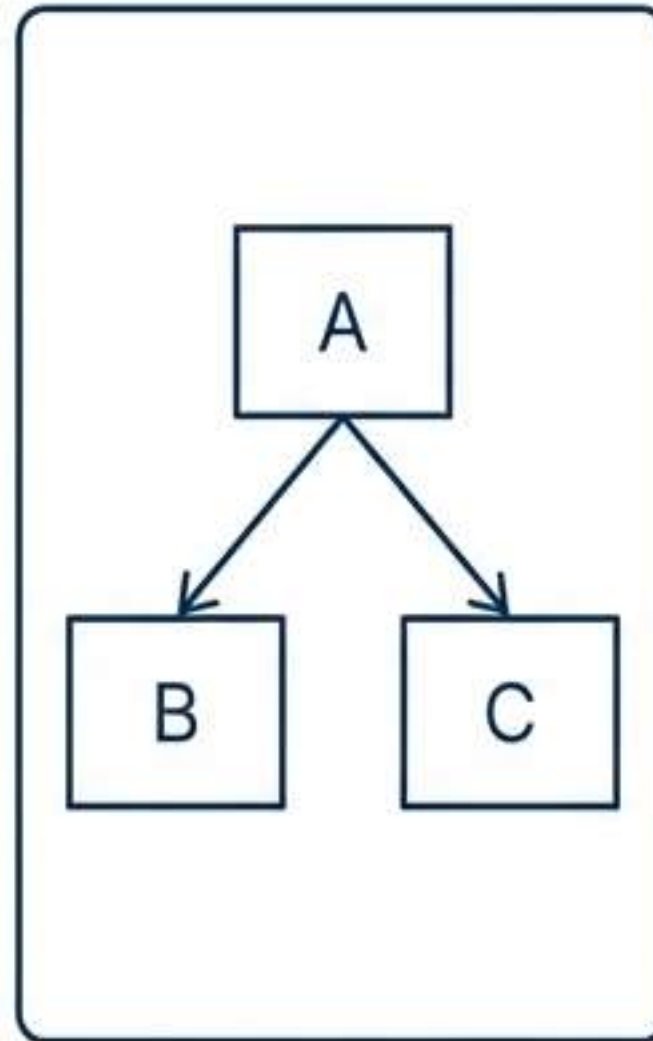
# Mapping the Five Types of Inheritance



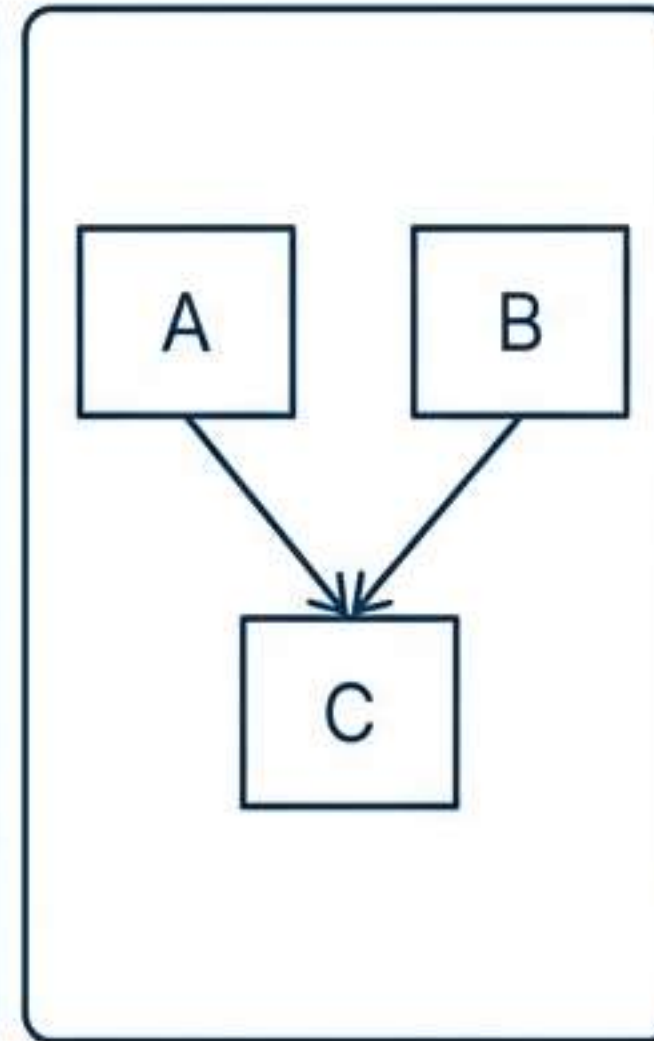
Single Inheritance



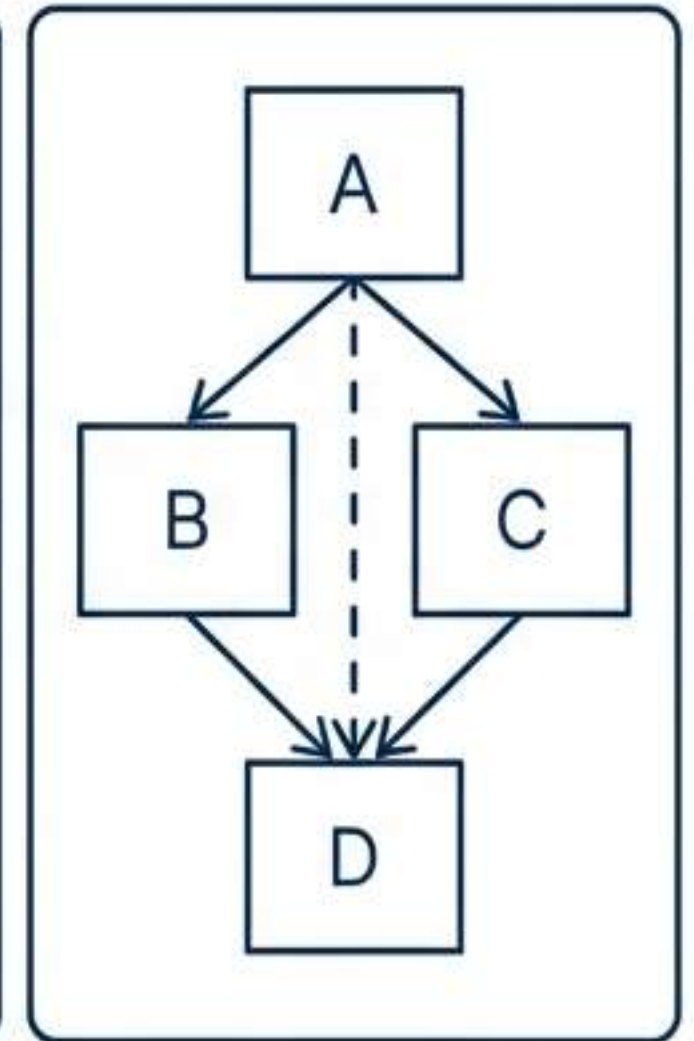
Multilevel Inheritance



Hierarchical Inheritance



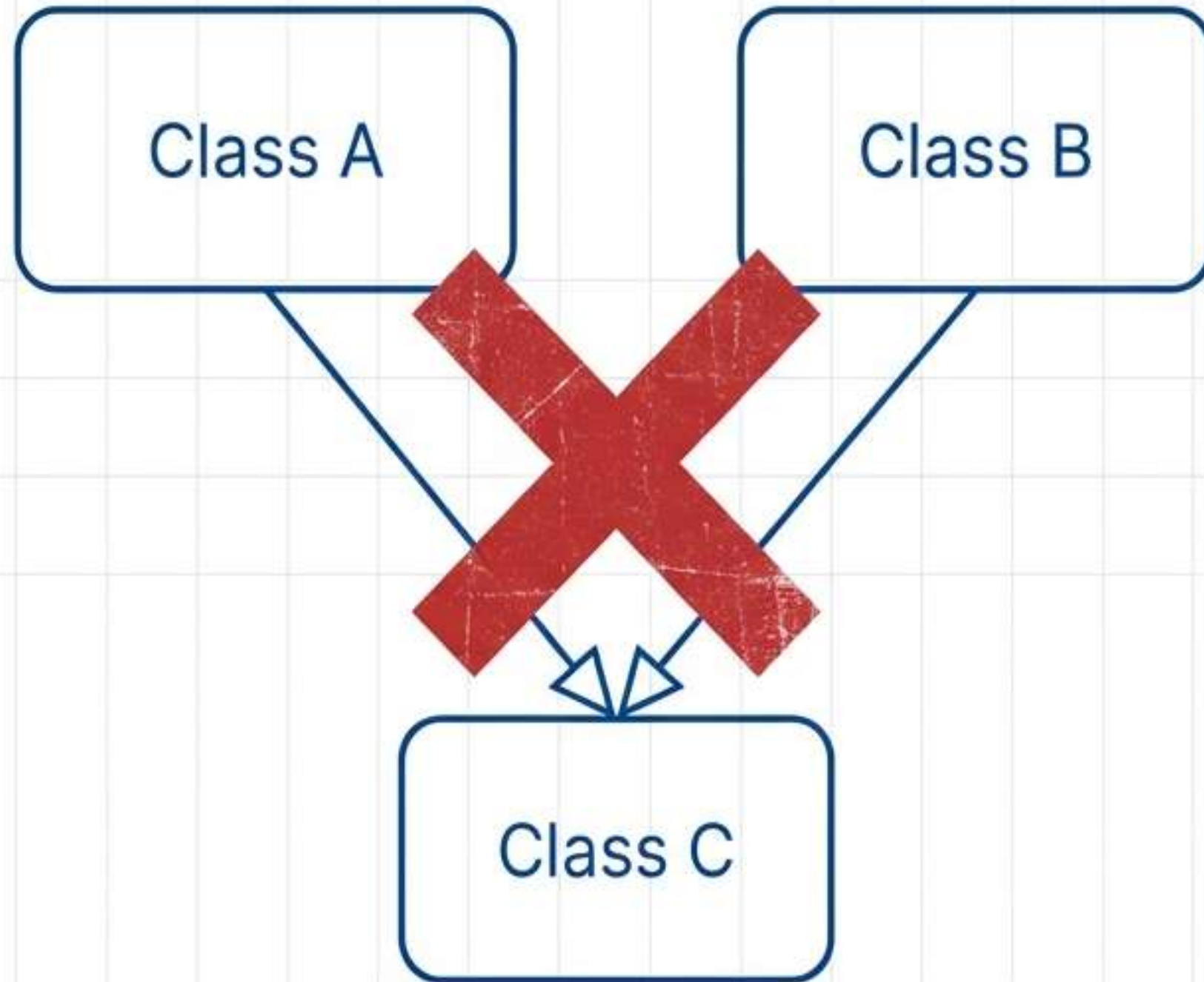
Multiple Inheritance  
(Interfaces Only)



Hybrid Inheritance



# The Java Constraint: Multiple Inheritance



Not Possible in Java at class level

## Rule:

Java does NOT support Multiple Inheritance at the Class level.

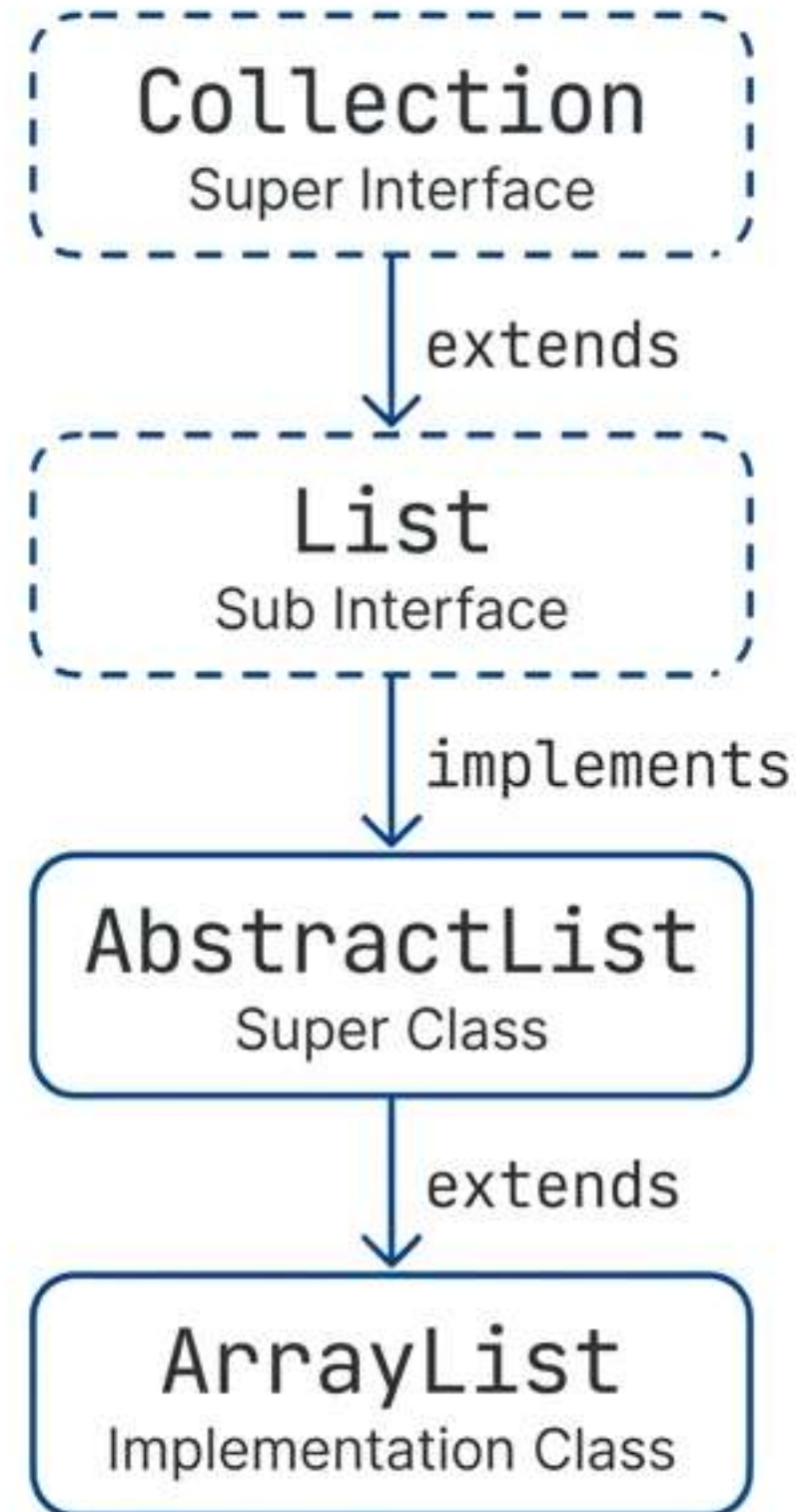
## Reason:

The Diamond Problem (Ambiguity in method execution).

## Exception:

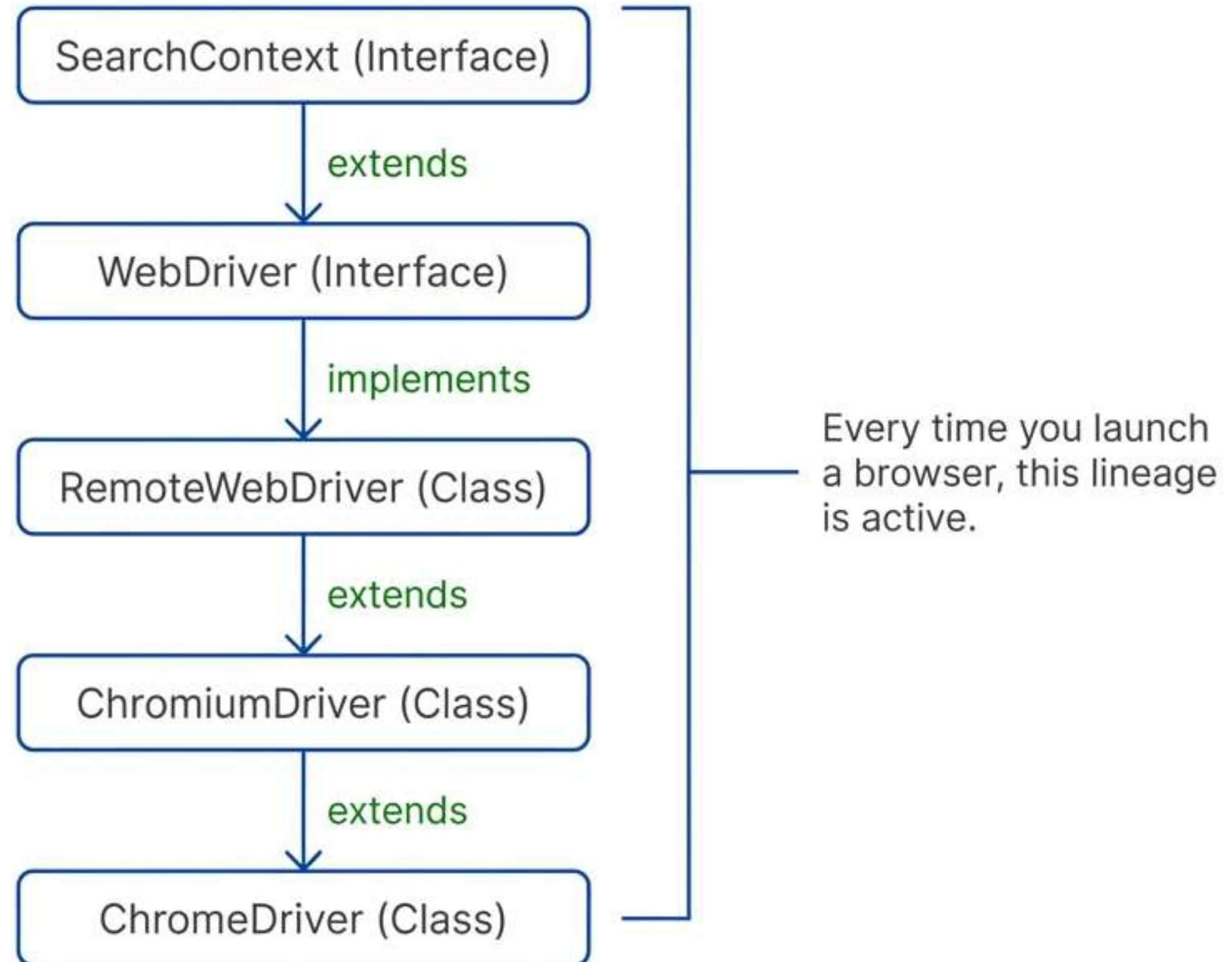
Multiple Inheritance IS supported for Interfaces.

# Inheritance in the Java Ecosystem: The Collections Hierarchy



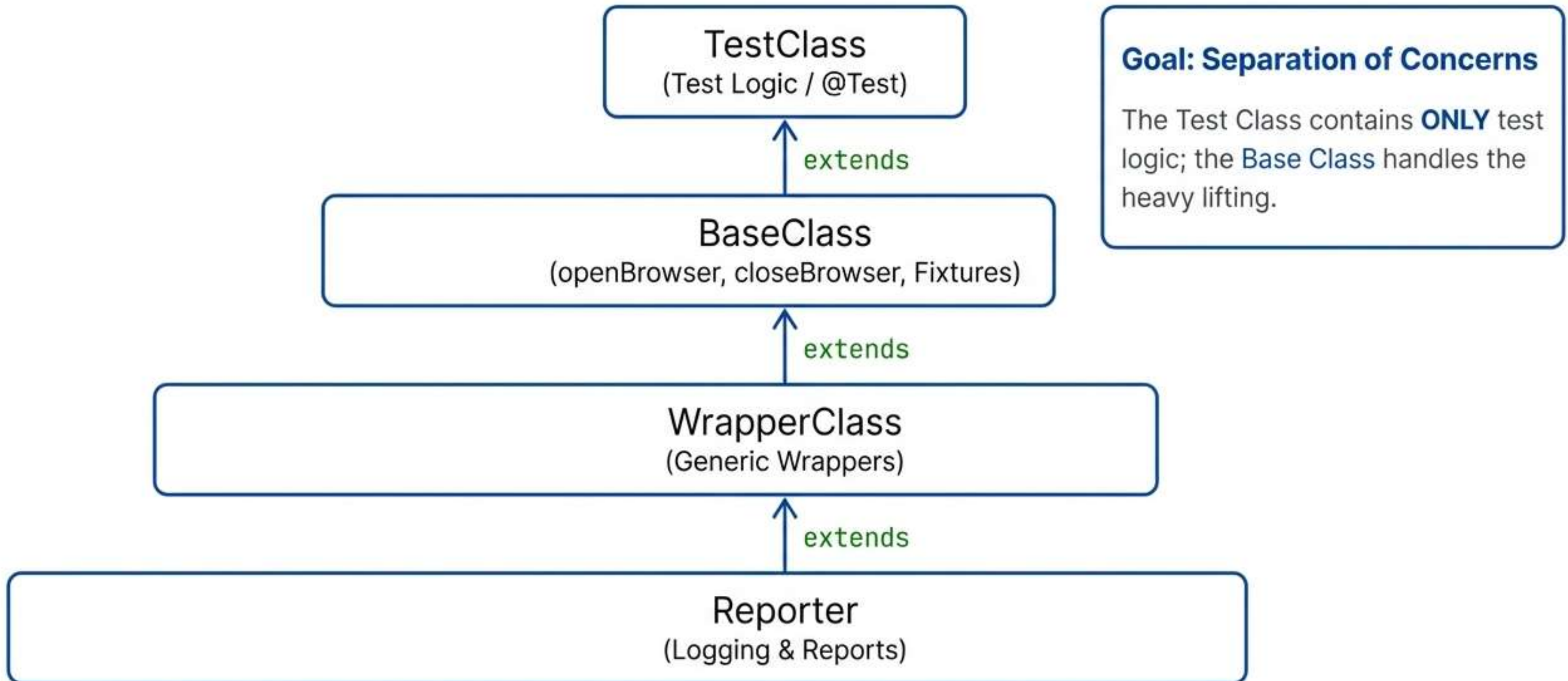


# The Selenium WebDriver Hierarchy





# Designing an Automation Framework



# Separation of Concerns: BaseClass vs. TestClass

## Base Class (Infrastructure)

- ⚙️ Handles heavy lifting
- ⚙️ Setup (openBrowser)
- ⚙️ Teardown (closeBrowser)
- ⚙️ Fixtures

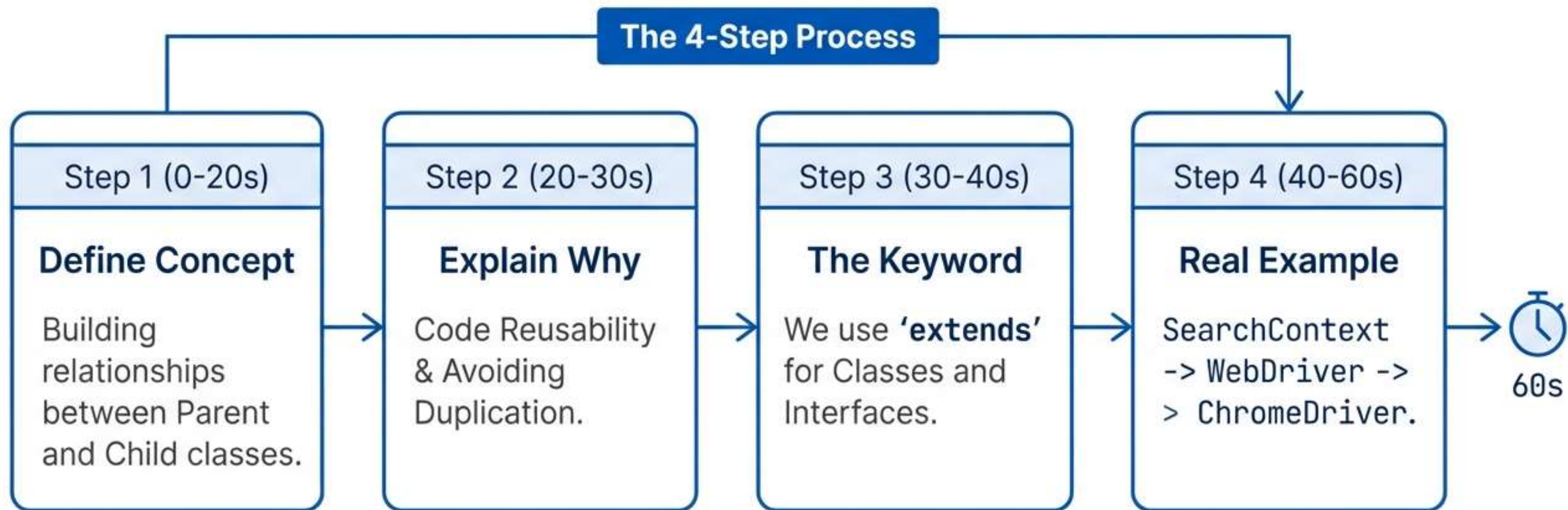
## Test Class (Business Logic)

- ✅ Contains ONLY test logic
- ✅ Focuses on business requirements
- ✅ Uses @Test annotations



# The 60-Second Interview Answer

Tell me about Inheritance?



# Summary Mind Map

