

# Inheritance

## Exploring Polymorphism

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# Lectures and Labs

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- This weeks lectures and labs are based on examples in:
  - **Objects First with Java** - A Practical Introduction using BlueJ, © David J. Barnes, Michael Kölling (<https://www.bluej.org/objects-first/>)

# Topic List

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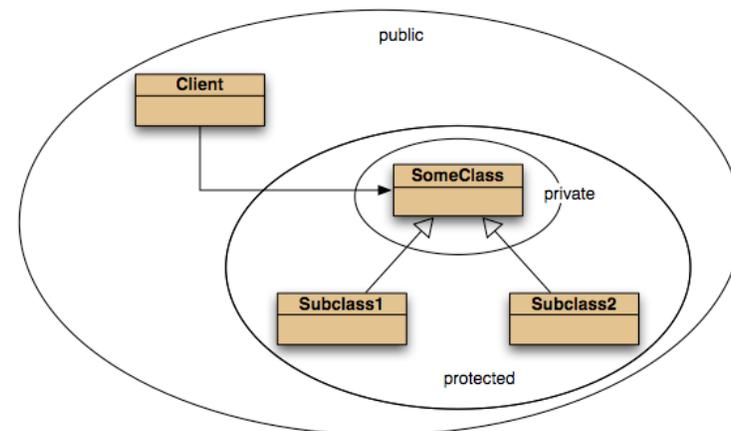
1. Method polymorphism
  - display()
2. Static and dynamic type
3. Overriding
4. Dynamic method lookup
5. **Protected access**

# Protected access

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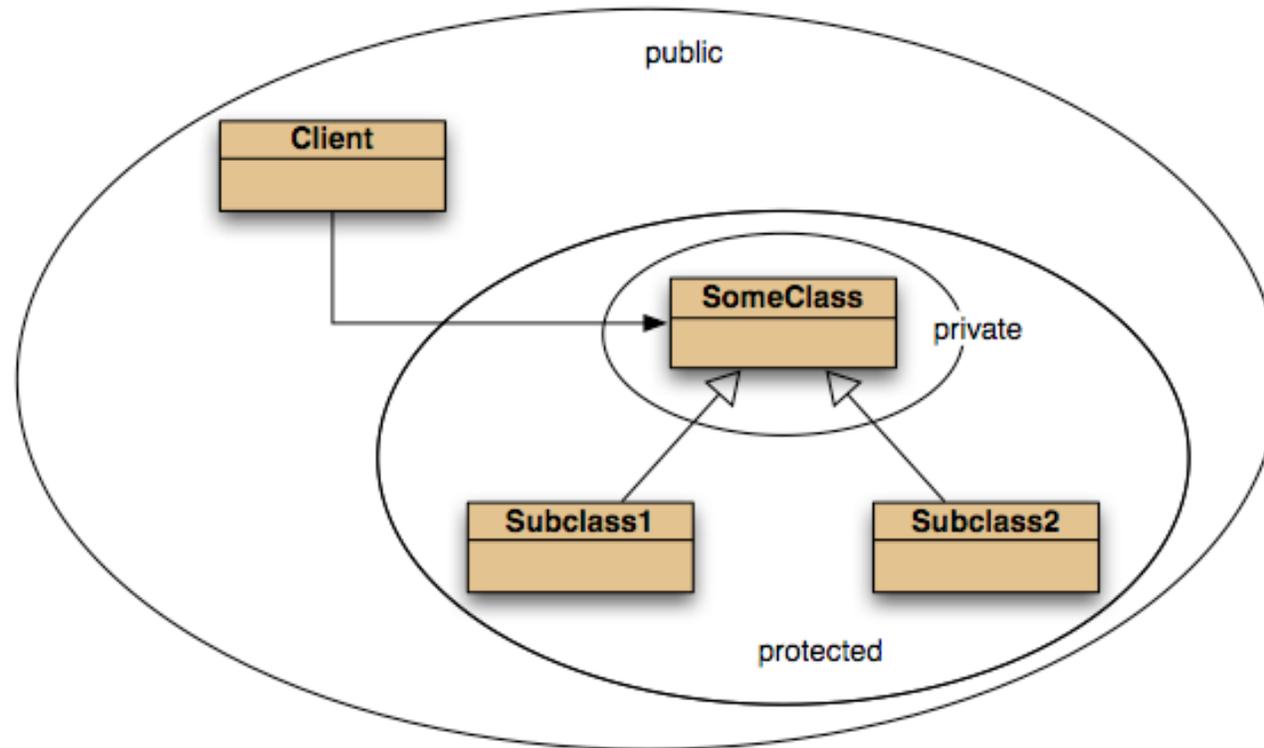
- **Private** access in the superclass
  - may be too restrictive for a subclass
    - Only methods of the class can access the fields.
    - Subclass methods can't
- **Inheritance** is supported by **protected** access.
  - Subclass methods can access the fields of the class they inherit from

- **Protected** access is
  - more restricted than **public** access.



# Access levels

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**public** – all methods in all classes have access

**private** – only methods in that class have access

**protected** – only methods in that class, and subclasses have access

# Review

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- The declared type of a variable is its **static type**.
  - Compilers check static types.
- The type of an object is its **dynamic type**.
  - Dynamic types are used at runtime.
- Methods may be **overridden** in a subclass.
- Method lookup starts with the **dynamic type**.
- **Protected** access supports inheritance.

**Any  
Questions?**

