Design Patterns

Adapter

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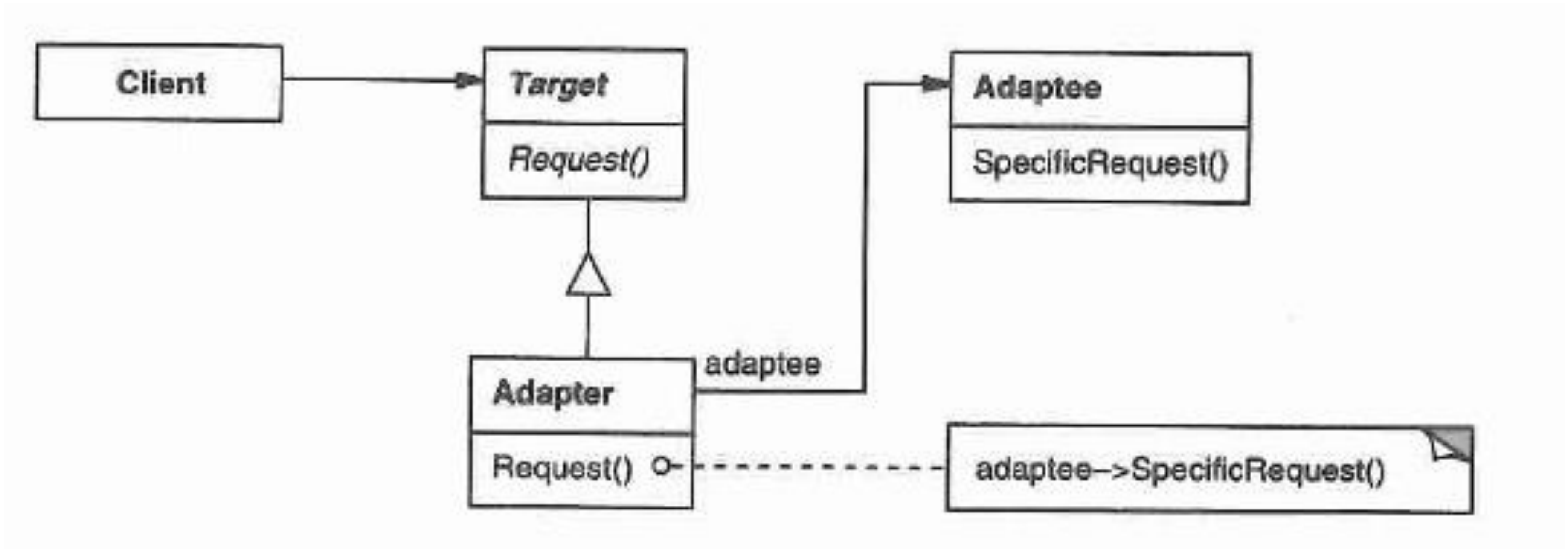
Design pattern: Adapter

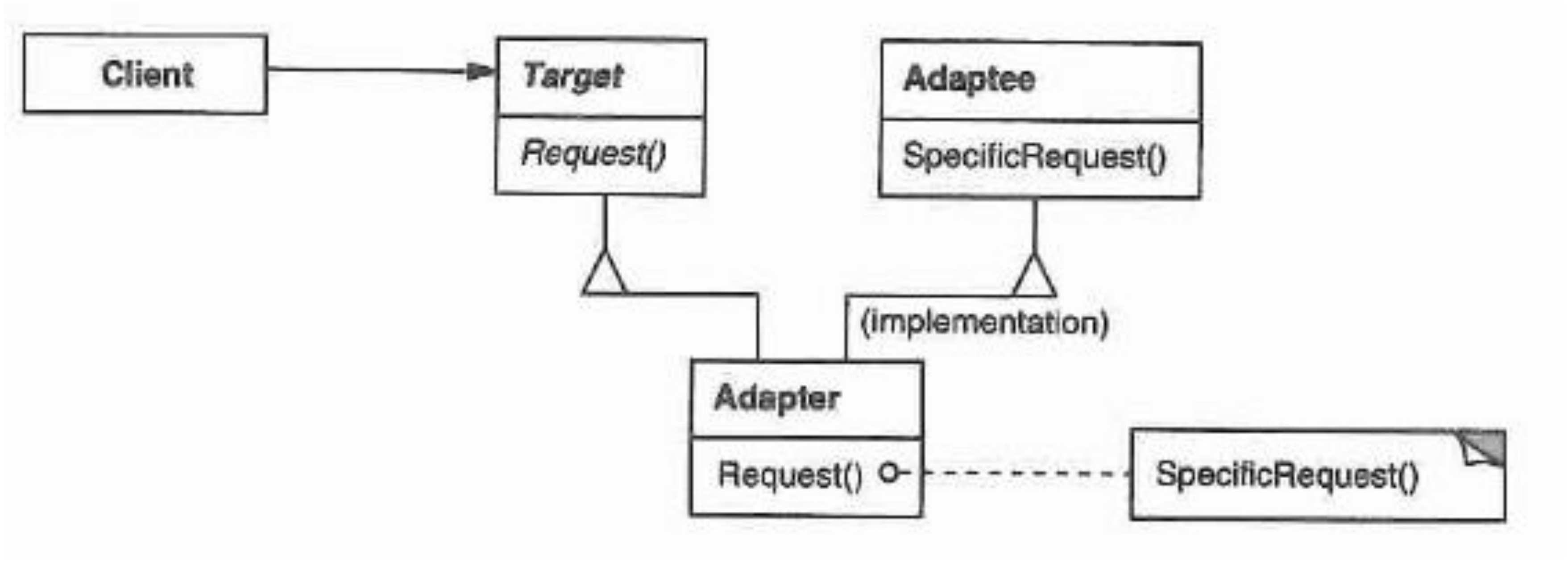
- Structural pattern
- Motivation:
    - Toolkit (often 3rd party) isn't reusable only because interface doesn't match domain specific interface
    - Interact with one language encapsulate interaction with different type of language code related to that component is contained
- Example:
    - Wrapping C++ library for calling from Java
    - Wrapping System calls to appear like normal method calls

Object Adapter UML – object composition



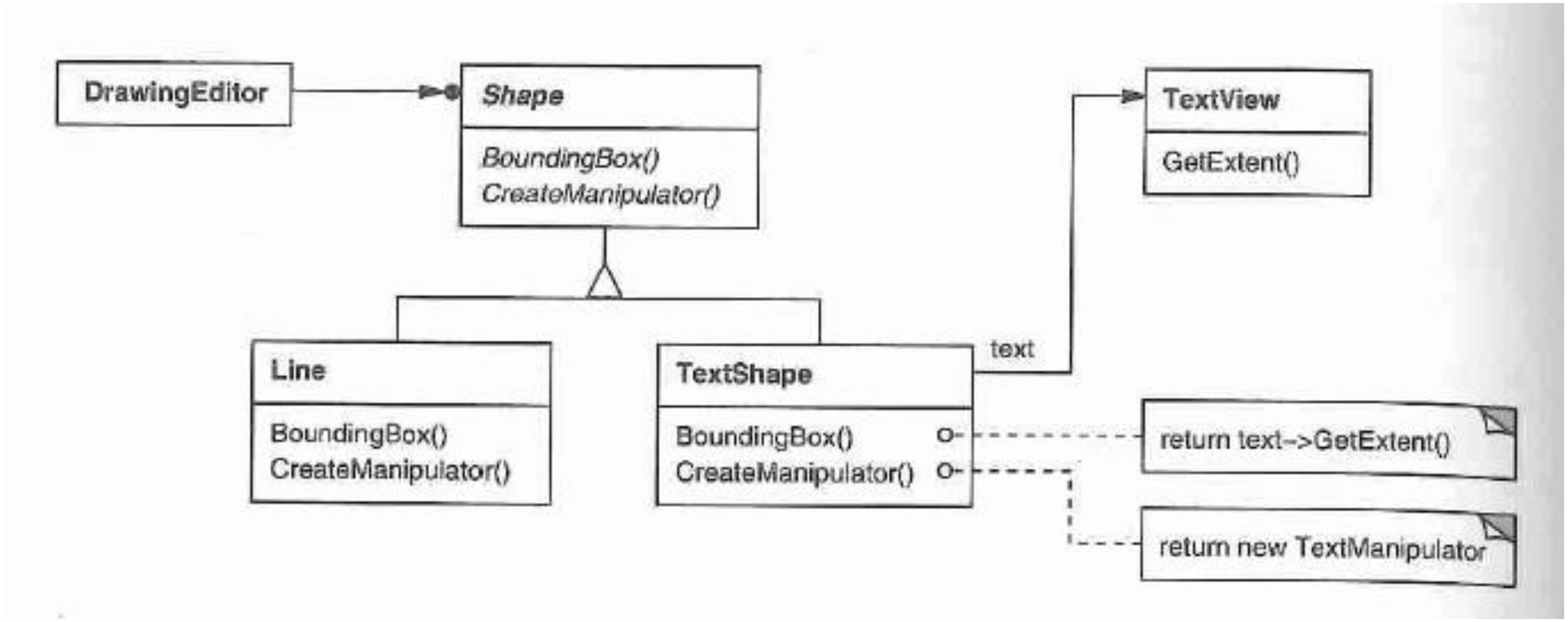
Typical for calls to outside languages or targets (system), adapter translates how to call Adaptee

Class Adapter UML



Requires Adapter to extend Adaptee and provide common interface

Sample structure



Considerations

- Class Adapter
  - Commits to concrete Adaptee class, as a consequence a class adapter won't work when want to adapt a class AND all of its subclasses
  - Easy to override just some behavior
- Object adapter
  - Lets single Adapter potentially work with multiple Adaptees (Adaptee and all subclasses)
  - Makes it harder to override Adaptee behavior

Relevant patterns

- Bridge – separate intent, separate interface from implementation
- Decorator – enhance object without changing interface
- Proxy – Defines representative or surrogate for another object and does not change its interface