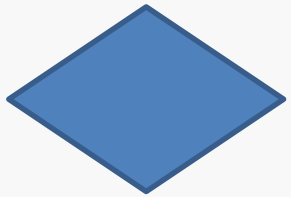
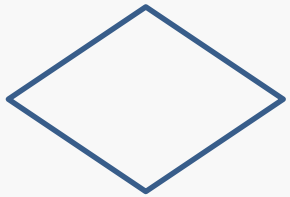
SWEN 383 Software Design Principles & Patterns

The Composite Pattern

But first…



VS.



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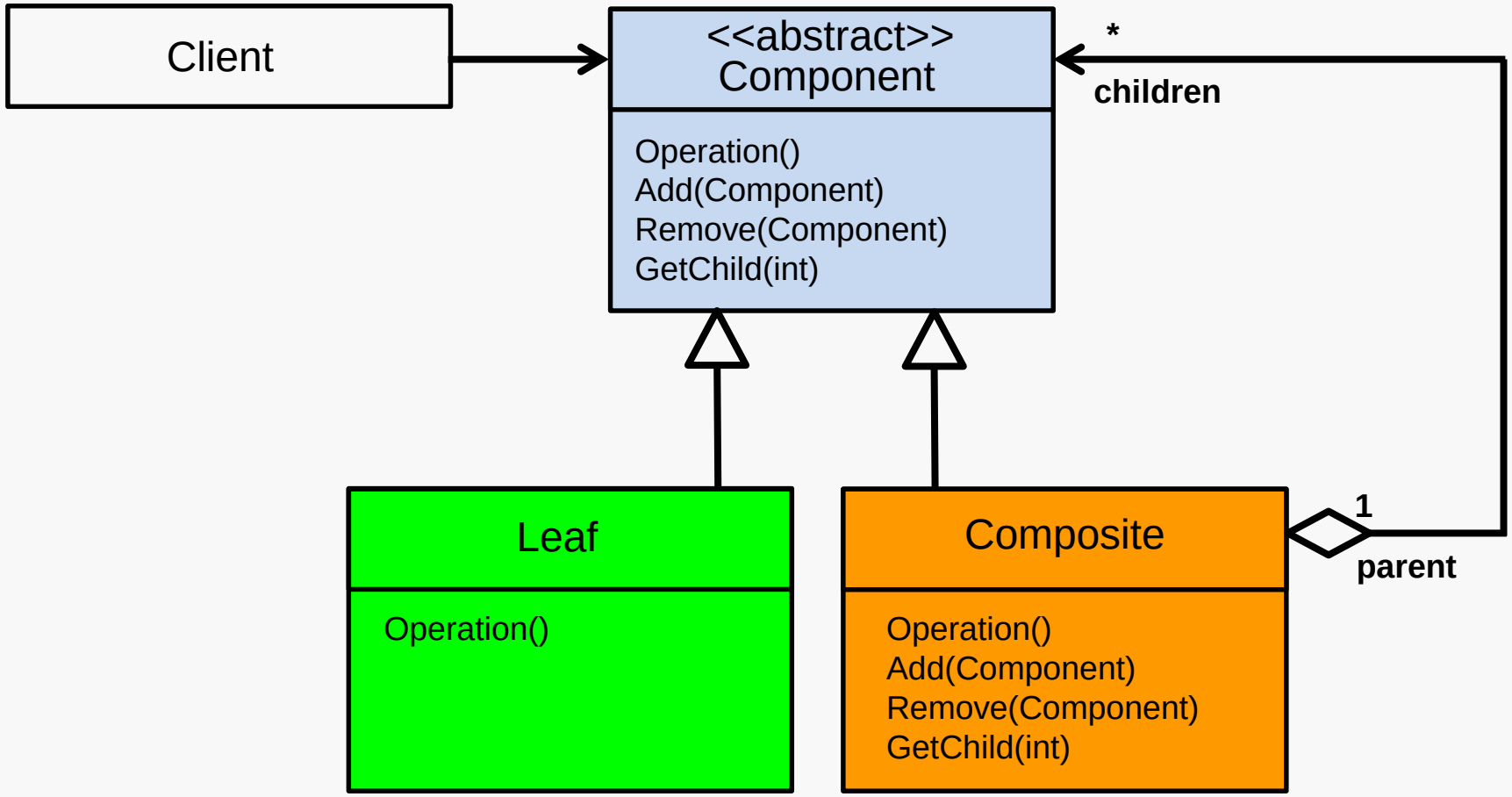
The Composite Pattern



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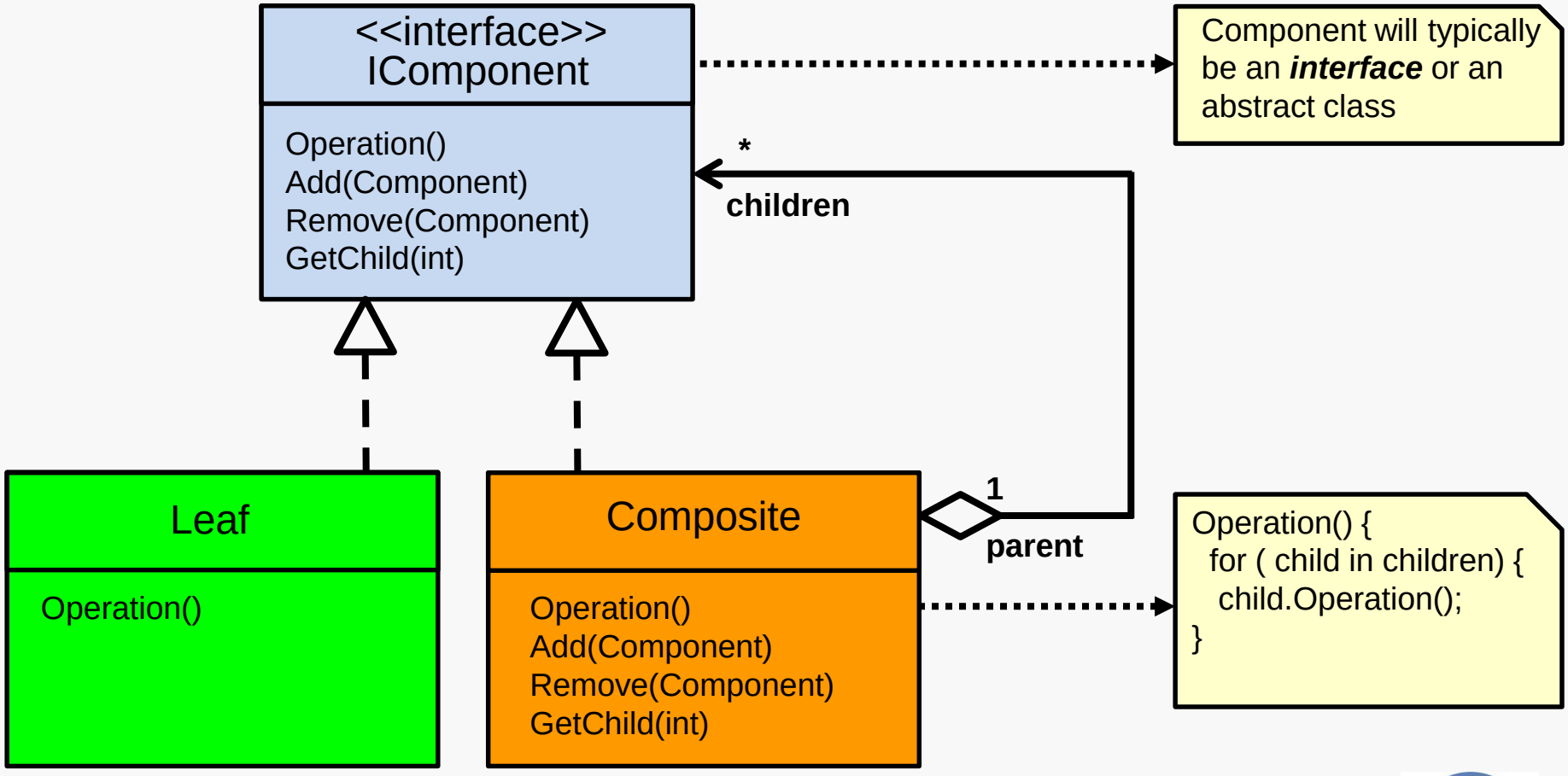
The Composite Pattern



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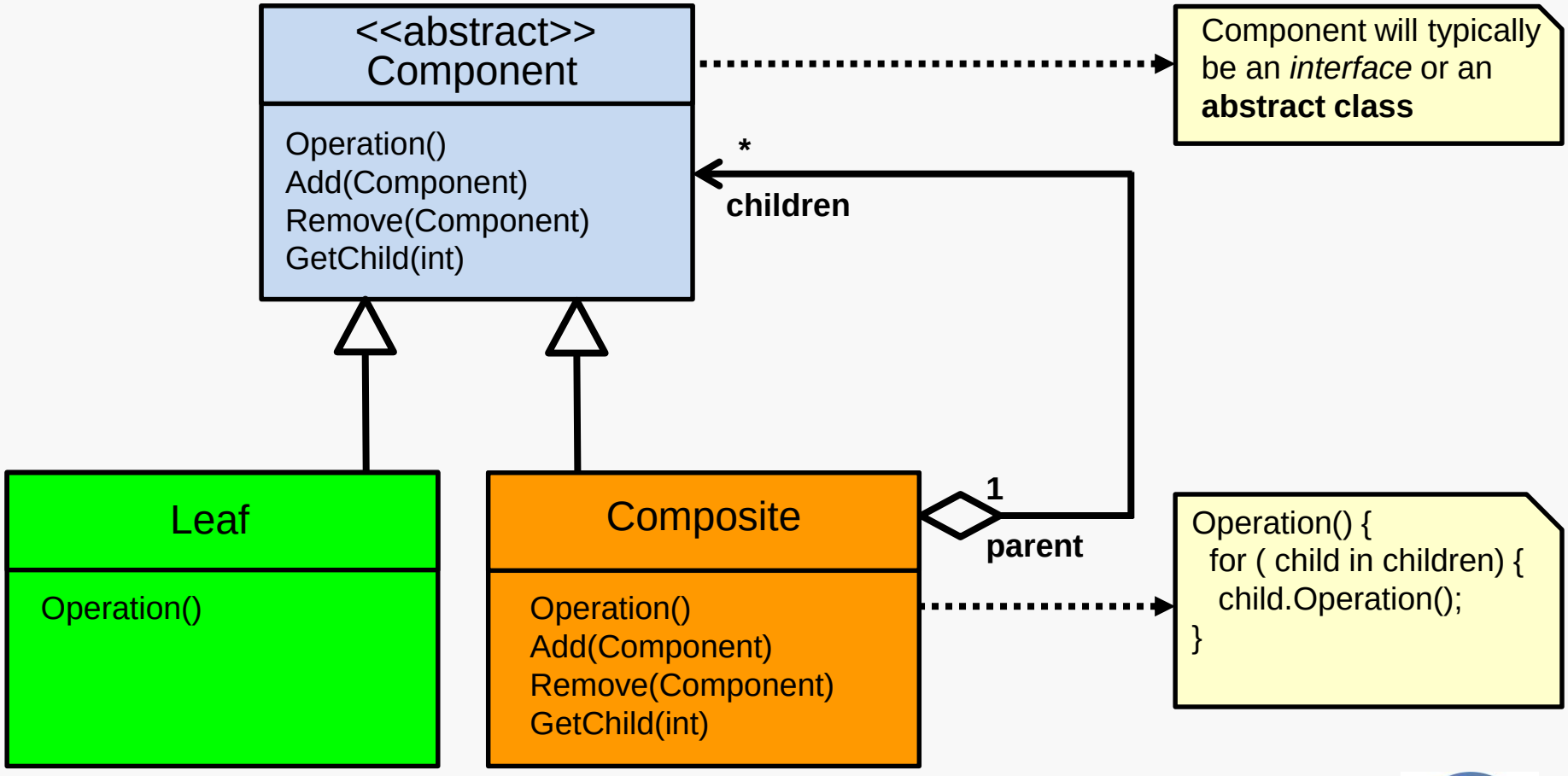
The Composite Pattern



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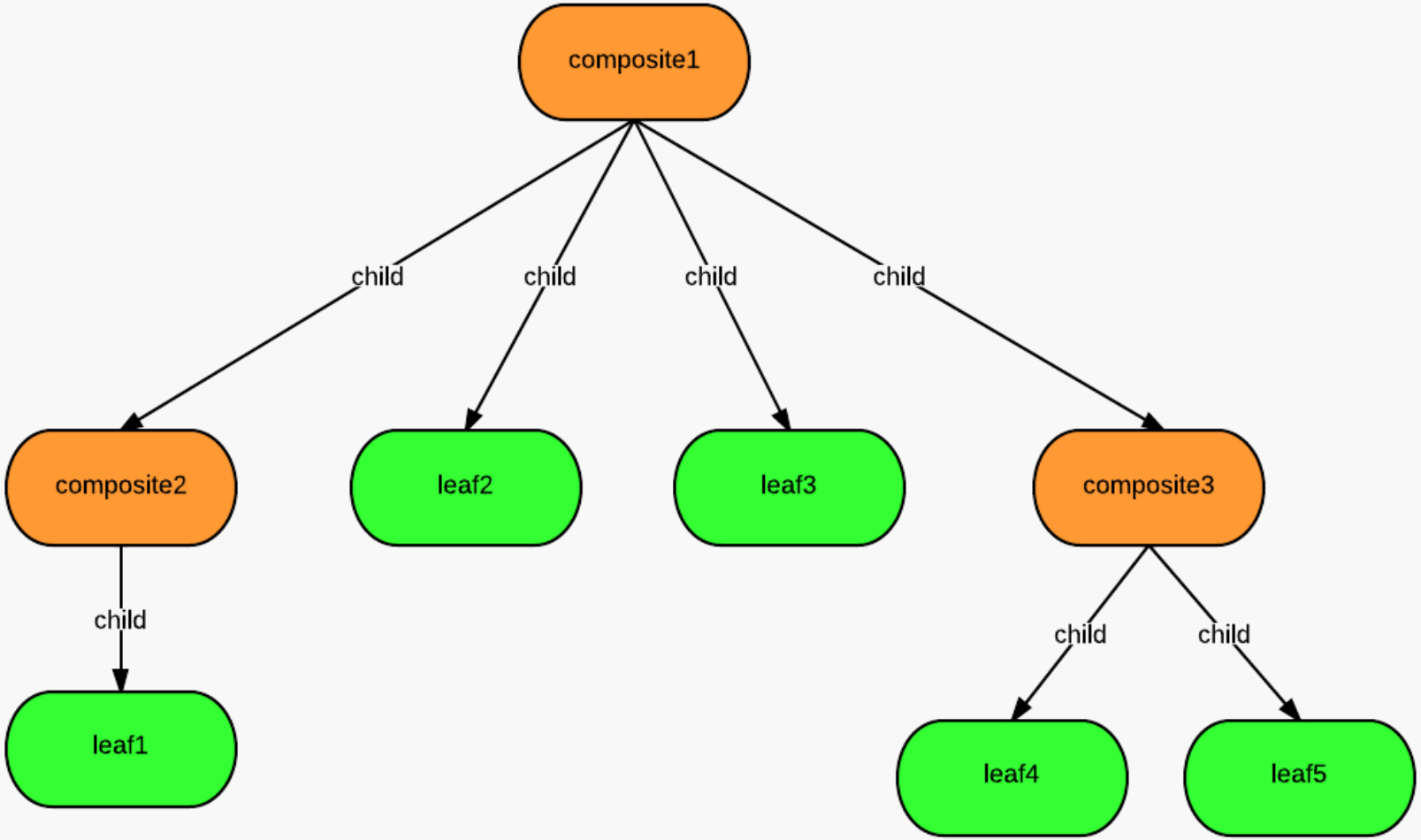
Composite Object Diagram



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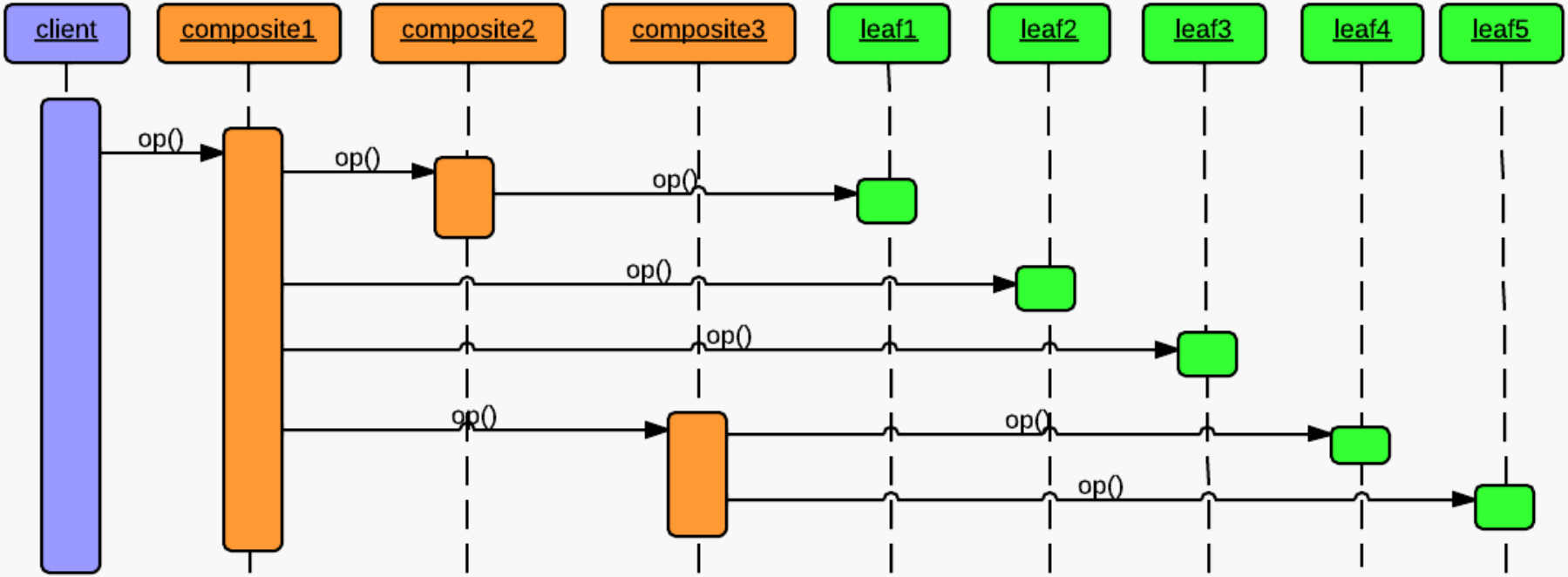
Composite Sequence Diagram



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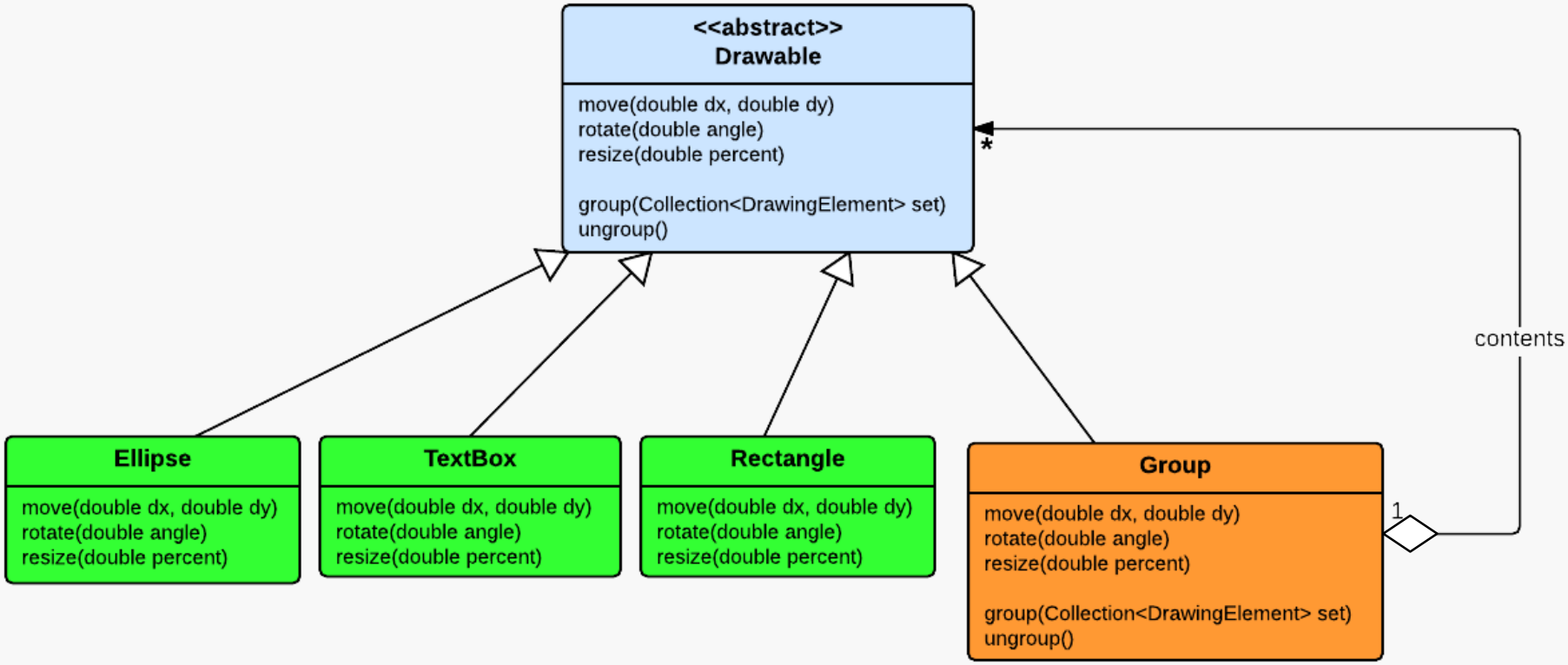
Composite Class Example



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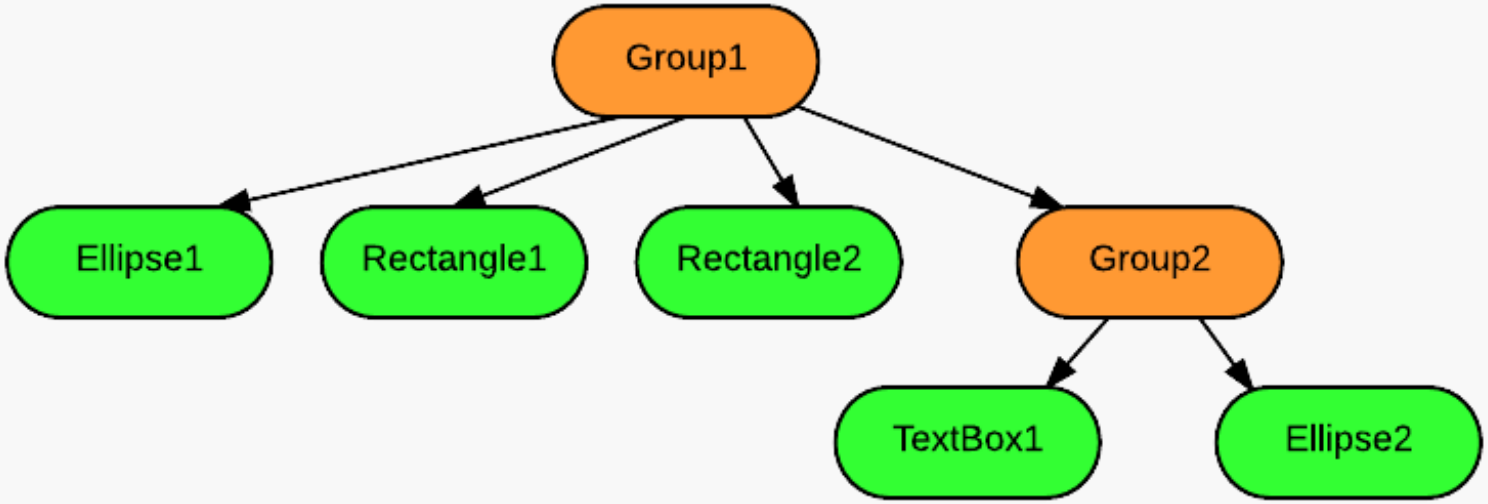
Composite Object Example



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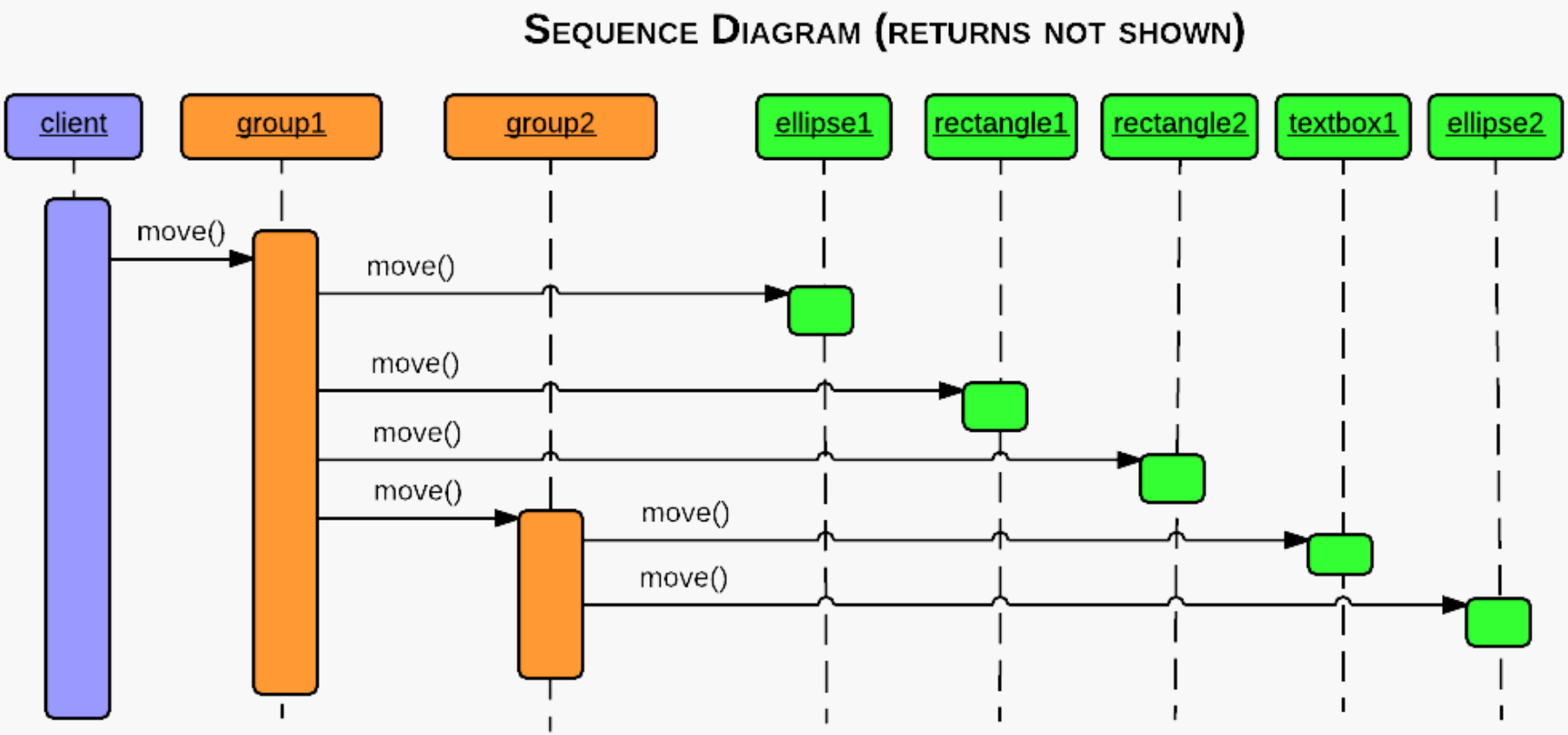
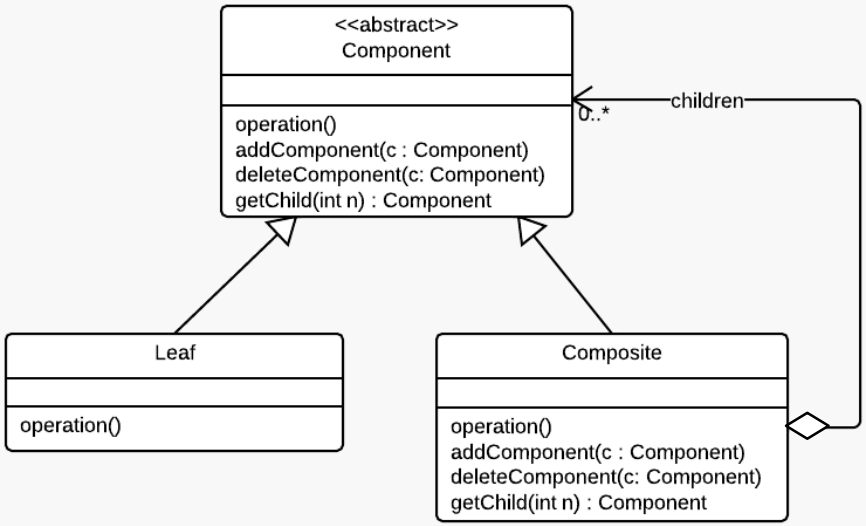
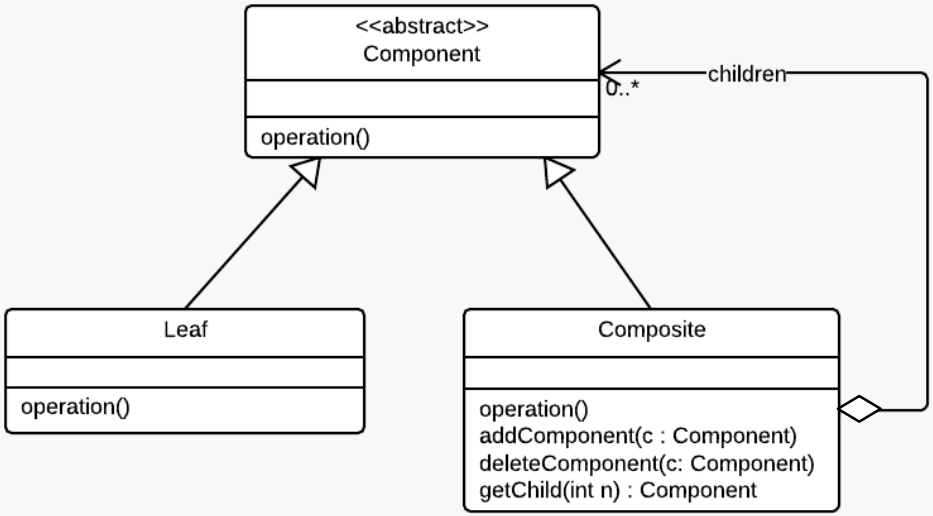
Composite Sequence Example



Discussion Questions (1 of 2)

Consider the two variants on the Composite pattern below:





What are the relative advantages and disadvantages of each approach?

Composite isComposite**() {…}**
- returns **null** for anything but Composites
- returns **this** for Composites

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Discussion Questions (2 of 2)

- Suppose we have several Composites.
  - What would be the advantages and disadvantages of allowing Composites to share children?
  - How might this complicate implementation?
- How might Composite be used create an internal object representation of an HTML page?
- In the Composite designs we've shown so far, navigation is unidirectional (from Composite to the Components it contains).
  - What would be an advantage and a disadvantage to having a reference to the containing Composite in each Component?
  - What about the case where Composites can share Components?