

Design Patterns

CSC207 Winter 2015



Gang of Four

First codified by the Gang of Four in 1995

- Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides

Original Gang of Four book described 23 patterns

- More have been added
- Other authors have written books



Design Patterns

A **design pattern** is a general description of the solution to a well-established problem using an arrangement of classes and objects.

Patterns describe the shape of code rather than the details.

They're a means of communicating design ideas.

They are not specific to any one programming language.

You'll learn about lots of patterns in CSC301 (Introduction to Software Engineering) and CSC302 (Engineering Large Software Systems).

Book provides an overview of:

- **Name**
- **Problem:** when to use the pattern
 - motivation: sample application scenario
 - applicability: guidelines for when your code needs this pattern
- **Solution:**
 - structure: UML Class Diagram of generic solution
 - participants: description of the basic classes involved in generic solution
 - collaborations: describes the relationships and collaborations among the generic solution participants
 - sample code
- Consequences, Known Uses, Related Patterns, Anti-patterns