CSE 143

Object-Oriented Design

[Chapters 1, 8]

Design Methodology
Changes may result in lots of wasted work! How to minimize their impact?

Use a good design methodology
Procedure and structure by which a design is created

Top-Down Design, aka structured design

Focus on overall control flow rather than data.
Think of problem in terms of functions and algorithms and how they need to interact
Often have a layered or hierarchical approach: make successively more detailed refinements to design
Traditional design method for C and similar procedural

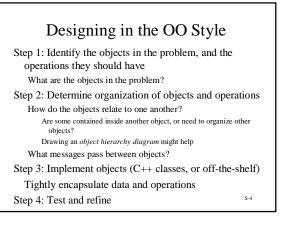
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Object-Oriented Design

- An alternate design philosophy.
- Instead of control flow and functions, concentrate on different *kinds* of entities ("objects") in the problem (*data-driven* approach)
- Object = Collection of data and operations on that data
- All phases of design are in terms of objects
- Often easier to prototype a design or adapt to changing conditions

S-3

S-1



Three Cornerstones of OO Programming

- Encapsulation
 - Packaging data and functions together as classes
 - Hiding implementation details from clients
- Inheritance
- · Overloading
 - polymorphic functions, dynamic dispatch, operator overloading

S-5

