Design In Construction
Today’s topics

- Introducing Code Workshops
- Grading update
- Design in Construction
- Design example: Movie Info Parser
- Questions about A*

a) I have specific question
b) I don’t have”
Code Workshops

- **Goal:**
  - Review Java Usage (syntax and libraries)
  - Help develop the skills to finish programs faster

- **Consist of:**
  - Short presentation of review material
  - Work sheets of coding problems
  - Course staff to give you feedback / answer questions

- **When? Where?**
  - Thursdays 6-7pm. This week in Siebel 0216.

- **What if I can’t attend?**
  - We’ll try to video lecture portion, post handouts, answer questions in office hours
Grading update

- You should have scores for your code reviews in Compass
- Each assignment should have the points broken by rubric category

- If it is not clear to you why your lost points, ask moderator!

- If you think your score is unfair:
  - First talk to moderator, and if that doesn’t resolve it
  - Explain your reasons to: cs126sp17@gmail.com
  - (note: we’re tracking code review scores and taking steps to ensure grader equivalence.)
Good Design **Manages Complexity**

- “Seven plus or minus two” (Miller’s Law)
- The goal of all software-design techniques
  - Break complicated problems into simple problems
- Separation of concerns
  - Focus on one at a time
Design is hard

- Design is an art, not a science
- Large/infinite design space, not enumerable
- Requirements, constraints, trade-offs, and priorities
- You get better with practice / experience
Virtues of a good design

- Minimal complexity
- Ease of maintenance
- Loose coupling
- Reusability
- Standard techniques

Plus....
Virtues of a good design, cont.

(which does not belong)

A) Extensibility
B) High Fan-in
C) Leanness
D) Symmetry
E) Low-to-medium Fan-out
Keep Coupling Loose

- small interfaces (few methods, few arguments/method)
- obvious (interactions through parameter passing)
- flexible
Decomposition

- identify the objects and their attributes (methods and data)
- determine what can be done to each object
- determine what each object is allowed to do to other objects
- determine which parts of objects are visible to other objects
- define each object's public interface
Design Practices (tools for your toolbox)

- iterate
- divide-and-conquer
- top-down and bottom-up (decomposition vs. composition)
- experimental prototyping
- collaborative design/brainstorming
Best half paragraph of the book? (p. 119)

- Treat design as a wicked, sloppy, heuristic process.
- Don't settle for the first design that occurs to you. ← iterate
- Collaborate.
- Strive for simplicity.
- Prototype when you need to.
- Iterate, iterate, and iterate again.
- You'll be happy with your designs.
Example: Movie Info Parser
Questions about A*
To Dos for Monday

- Read Ch. 6 (Working Classes)