

Software

Architecture and Design I

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Introductions

- ✦ Name
- ✦ Major
- ✦ Large system experience:
 - ✦ Largest system you've done development on
 - ✦ Portion of system that you had to understand



<http://www.laquso.com/services/analysis/sourcecode.html>

Q1

What is design?

Design is directed toward human beings.
To design is to solve human problems by
identifying them and executing the best
solution.

Ivan Chermayeff

In most people's vocabularies, design means veneer. It's interior decorating. It's the fabric of the curtains of the sofa. But to me, nothing could be further from the meaning of design. Design is the fundamental soul of a human-made creation that ends up expressing itself in successive outer layers of the product or service.

Steve Jobs

Some architects have a preconceived notion of what a building should be — they design from the outside like the building is a piece of sculpture. I prefer to patiently search through extensive discovery until I find a seam somewhere, crack it open and discover the art inside of the process.

Curtis W. Fentress

There are two ways of constructing a software design: One way is to make it so simple that there are obviously no deficiencies, and the other way is to make it so complicated that there are no obvious deficiencies. The first method is far more difficult.

C.A.R. Hoare

Course Mechanics

Schedule, Syllabus, etc.

- ✦ Most things:
 - ✦ <http://www.rose-hulman.edu/class/csse/csse374-201020-02/>
- ✦ Grades and some assignments on ANGEL

Learning Outcomes

Work effectively with
a team of software
project
stakeholders...



<http://www.folklore.org/ProjectView.py?project=Macintosh&gallery=1>

Q3

Demonstrate object-oriented design basics...



<http://enterprisegeeks.com/blog/2009/07/>

Q3

Demonstrate a
working knowledge of
TDD and refactoring



<http://tshirts.codesmack.com/tshirts/programming>

Q3

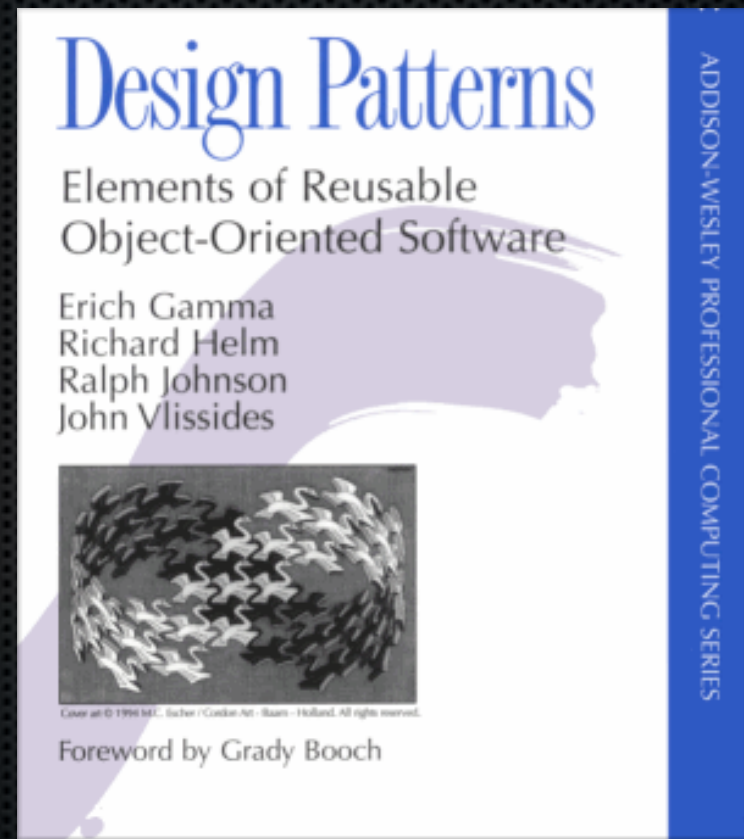
Recognize the
differences between
problems and
solutions...



http://www.geekologie.com/2007/02/rubiks_cube_for_the_lazy_perso.php

Q3

Use fundamental design principles, methods, patterns, and strategies...



<http://www.amazon.com/Design-Patterns-Elements-Reusable-Object-Oriented/dp/0201633612>

Q3

Identify criteria for the design of a software system and select patterns...



<http://www.autocult.com.au/NewsDetail.aspx?id=372>

Q3

Analyze and explain
the feasibility and
soundness of a
software design.



<http://en.wikipedia.org/wiki/File:Wrightfallingwater.jpg>

Q3

Reading

Q4

Electronic Distraction Policy

Grading

Mechanism	Weight
In-class quizzes	5%
Exams	30%
Homework assignments	20%
Team project deliverables	35%
Project meetings	10%

Late Days

- Initial credit of **two** late days
- Can spend **one** on any non-project assignment
- Can earn **one** per assignment
- Use survey on ANGEL
before the assignment deadline
to spend/earn late days

Rewarding Contributions

Principle:
Fairness

Principle:

Reward extraordinary
contributions

Principle:

Discourage freeloading

Mechanism:

Performance evaluations

Example

	Curt	Shawn	Sriram
Curt says:	10 ⁸	8	8
Shawn says:	8	9	8
Sriram says:	7	10	8
Individual avg.:	7.67	9.00	8.00
Team avg.:	8.22	8.22	8.22
Raw weight:	93%	109%	97%
Clamped weight:	93%	105%	100%

Schedule

Q5,6

Team Meetings