Software Design & Architecture
Reid Holmes
Lecture Summary

Administrivia
Expectations
Quick Assignment
Discussion
Dates and Times

**Lectures** in MC 1056 T/Th @ 1600 - 1720
- Will be interactive
- I will be available before but not after

**Tutorials** in DC 3351, F @ 1400 - 1450
- Will not run every week
- Friday’s schedule will be announced Tuesday
- When not a tutorial, TAs will hold office hours
Directory

- **Instructor**: Dr. Reid Holmes
  - Office: DC 3351 (by appointment)
  - Email: rth.se2@gmail (ensures best response)

- **TA**: Kevin Shelley
  - Office: DC 3334 (by appointment)
  - Email: karshell@cs.uwaterloo

- **TA**: Wei Wang
  - Office: DC 3334 (by appointment)
  - Email: w65wang@cs.uwaterloo

IMPORTANT: Please do not leave your messages to the last minute or expect a response time of less than 24h.
Key Information Source

http://www.cs.uwaterloo.ca/~rtholmes/
http://twitter.com/cs446

Renders on your mobile device
Updated within 24h of class
Slide Availability

I will mostly work on the chalk boards

Slides will be available online

  Slides will be posted (just) before class
  Slides will be incomplete, lectures fill in the gaps
  Slides may be updated after class

The notes cannot take the place of the lectures
Textbooks

- No textbooks are required
- These may be helpful:
  - Software Architecture: Foundations, Theory, and Practice
  - Essential Software Architecture
    - Freely available to students in digital form
  - Design of Design
  - Mythical Man Month
- Links are provided on the web page along with slides for SA and ESA
Class Survey

XXX total students
XXX want to be here
XXX have taken SE1 (CS 445) [XXX will take in future]
XXX have taken SE3 (CS 447) [XXX will take in future]
XXX are in coop
XXX have worked in industry
  XXX have encountered design
  XXX have encountered architecture
XXX want to design and build software as a career
XXX are graduating this year
Intended Learning Outcomes

By the end of the course you should be able to:

- **Critique** an existing architecture or design.
- **Differentiate** how various architectural styles and design patterns **enhance** and **degrade** a system’s functional-and non-functional properties.
- **Generate** and **justify** and architecture and/or design given a collection of requirements.
- **Produce** and **present** **concise** and **unambiguous** architecture and design descriptions.
- **Create** and **implement** an architecture and design, **refining** it into a complete system.
My Expectations

Be professional

questions in class, email, interacting with TAs

Attend lectures and tutorials

talk to class or team mates if you are away

Participate

discussions, activities, tutorials

contributing to your group
Your Expectations?
Project (Tablet apps)

- **Goal:**
  - To make something *useful*
  - To learn something *new*
  - To leverage current *technology*
  - To have *fun*

- **Constraints:**
  - GWT (quick intro *video*)
  - Work on at least two mobile platforms
  - Be useful, novel, and leverage technology
Project

- Will be completed in teams of three or four
- Select your own teams
- One team member must email me your:
  - The names of your teammates
  - Due 0800 Thursday
- If you do not have a team by Thursday or your team is too small, we will sort it out in class Thursday
Academic Integrity

collaboration vs. plagiarism

collaboration vs. cheating

This is important. The project will have team and individual components.
Deliverables

- Deliverable 0: Arch/design impressions
- Deliverable 1: Project proposal
- Deliverable 2: Project architecture & design goals
- Deliverable 3: Project prototype demonstration
- Deliverable 4: Project architecture & design
- Deliverable 5: Project implementation
- Deliverable 6: Project presentation
- Deliverable 7: Project technical tutorial
Schedule

- Proposal: Sept 20 @ 0800
- Arch & design properties: Oct 13 @ 0800
- Prototype demo: Oct 25 In Class
- Mid-Term: Nov 1 In Class
- Arch & design: Nov 10 @ 0800
- Source code: Nov 29 @ 0800
- Presentations: Nov 29 / Dec 1 In Class
- Deliverable 7: Dec 5 @ 0800 (or anytime before)
- Final: TBD by the registrar (find out ~Oct 19)
Assessment

- Project deliverables 60%
- Mid-term 10%
- Final Exam 30%

- Some project deliverables will be pass/fail
- MUST pass final exam and ALL pass/fail elements
Is CS Grad Studies @ Waterloo for you? Come find out! Get some food.

CS Grad Studies Info Session
Wed., Sept. 21st, 12 - 1 pm, DC 1302

New! Master of Health Informatics Info Session
Wed., Oct. 5th, 12 - 1 pm, DC 1304
Deliverable 0

- Write, or send me a two paragraph email:
  - First paragraph:
    - Your name and a high level overview of development experience. Include a sentence about what you would like from this course.
  - Second paragraph:
    - A description of how you have encountered “architecture” and/or “design” in your experience.
- Due in 15 minutes; deliverable is Pass/Fail
- Have a stretch; discussion after completion
Arch / Design Discussion
Upcoming Deadlines

- Form project groups

- Send to rth.se2@gmail by 0800 Sept 15:
  - Team member names, quest id’s, student #s
  - This is important

- Deliverable #1: Project proposal

  - Send to rth.se2@gmail by 0800 Sept 20
  - Short presentation in class
  - Pass/Fail but bonus marks available
  - Start thinking about this now!