Software Design & Architecture

Reid Holmes

Lecture Summary

Administrivia

Expectations

Quick Assignment

Discussion

Dates and Times

Lectures in MC 4063 T/Th @ 1600 - 1720.

Should have one short break in the middle

Will be interactive

I will be available before but not after

Tutorials in MC 4063, 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: Sarah Nadi

   Office: DC 3334 (by appointment)

   Email: snadi@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://bit.ly/uw_se2

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.

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

39 total students.

35 want to be here.

9 have taken SE1 (CS 445) [4 will take in future]

6 have taken SE3 (CS 447) [6 will take in future]

30 are in coop.

34 have worked in industry.

    12 have encountered design.

    10 have encountered architecture.

31 want to design and build software as a career.

27 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 <u>enhance</u> and <u>degrade</u> functional-and non-functional properties.

Generate and justify and architecture and/or design given a collection of requirements.

Produce and present <u>concise</u> and <u>unambiguous</u> architecture and design descriptions.

Create and implement an architecture and design, <u>refining</u> 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

▸ Goal:

  ▸ To make something *useful*.

  ▸ To learn something *new*.

  ▸ To leverage current *technology*.

  ▸ To have ***fun***.

▸ Constraints:

  ▸ GWT (quick intro <u>video</u>)

  ▸ Work on a mobile device.

  ▸ 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:

   ‣ Team name (does not need to relate to your project).

   ‣ The names of your teammates.

   ‣ Due 0800 Thursday.

‣ If you do not have a team by Thursday or your team is too small, email me by 0800 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: System architecture

▸ Deliverable 3: Prototype

▸ Deliverable 4: Detailed design

▸ Deliverable 5: Final implementation

▸ Deliverable 6: Final demonstration

▸ Deliverable 7: Team assessment

Schedule

‣ Deliverable 1: Sept 21 @ 0800

‣ Deliverable 2: Oct 5 @ 0800

‣ Deliverable 3: Oct 26 In Class

‣ Mid-Term: Nov 2 In Class

‣ Deliverable 4: Nov 9 @ 0800

‣ Deliverable 5: Nov 30 @ 0800

‣ Deliverable 6: Nov 30 / Dec 2 In Class

‣ Deliverable 7: Dec 3 @ 0800

‣ Final: TBD by the registrar (find out ~Oct 20)

Assessment

‣ Deliverables 0, 1, 3   Pass/Fail

‣ Deliverable 2, 4, 5, 6   10% each

‣ Deliverable 7   Scales 2,4,5,6 (25% max penalty)

‣ Mid-term   10%

‣ Final Exam   50%

‣ MUST pass final exam and ALL pass/fail elements

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 in five minutes.

Intermission

▸ Stretch. Discussion in 5 minutes.

Arch / Design Discussion

Upcoming Deadlines

▸ Form project groups.

    ▸ Send to rth.se2@gmail by 0800 Sept 16:

        ▸ Team name.

        ▸ Team member names, quest id's, student #s.

    ▸ If your group is too small or you don't have a group: email anyways and I'll take care of it.