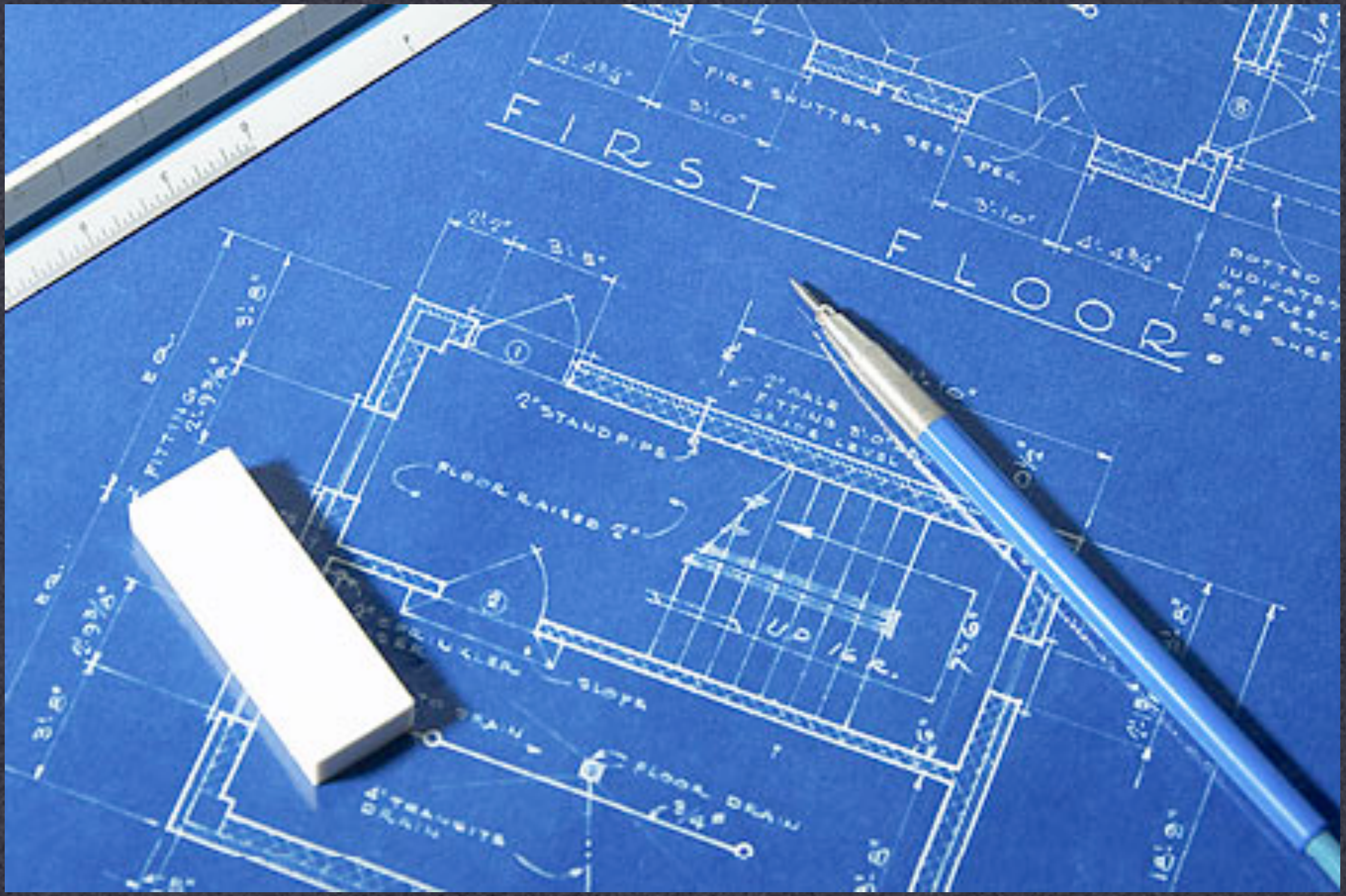
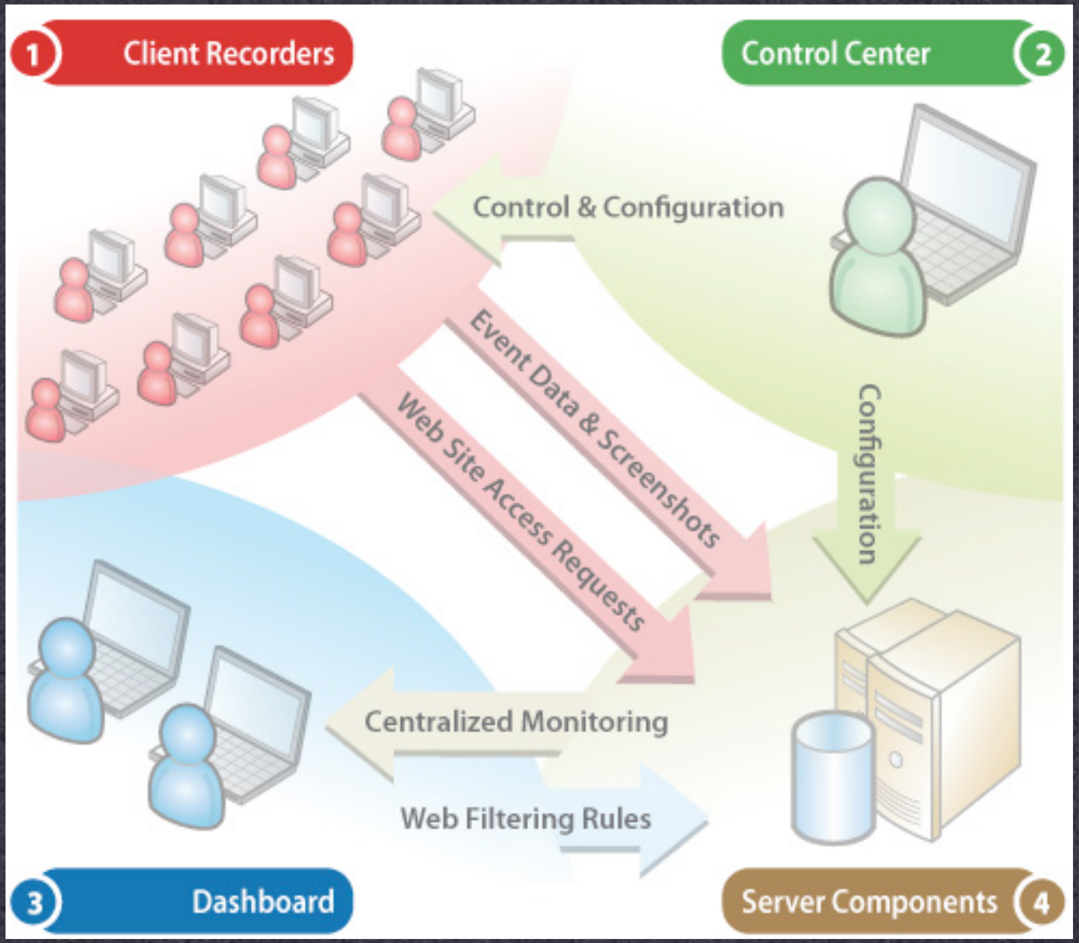




Software Design & Architecture

Mei Nagappan
(material adapted from Reid Holmes)

Lecture Summary

- Administrative details
- Expectations
- Project
- Assessment

Dates and Times

Lectures in MC 2035 M/W

Sec 001: 01:00-02:20

Sec 002: 02:30-03:50

Tutorials will _NOT_ be held this year

Office Hours will be by appointment at DC 3349

TA Office Hours:

Ivens: By Appointment (DC 2517)

Wenhan (Cosmos), Achyudh: By Appointment (DC 2555)

Aswin: By appointment for Android dev questions (DC 2555)

Directory

- Instructor: Dr. Mei Nagappan (Prof. Mei)

  Office: DC 3349 (by appointment)

  Email: mei.nagappan@uwaterloo.ca

  TA:Achyudh Ram Keshav Ram

  Email: achyudh.keshav.ram@uwaterloo.ca

  TA: Ivens Portugal

  Email: iportugal@uwaterloo.ca

  TA: Aswin Vayiravan

  Email: avannamalai@uwaterloo.ca

  TA: Wenhan Zhu (Cosmos)

  Email: cosmos.zhu@uwaterloo.ca

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

Key Information Source

https://learn.uwaterloo.ca/d2l/home/458228

https://cs.uwaterloo.ca/~m2nagapp/courses/CS446/1195/

Slide Availability

Slides are available online

- The course web page will be updated before class with latest set of slides.
- The slides will not be heavy on concrete examples as these will be covered in class.
- In-class activities will not be posted.

The slides cannot take the place of the lectures

You will need to attend the architecture and design activity classes to know the material as there will be a discussion on each.

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

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

talk to class or team mates if you are away

Participate

during discussions, activities, group project

Class Survey

Total students -

Have taken/will take SE1 (CS 445) -

Have taken/will take SE3 (CS 447) -

Coop -

Have worked in industry (outside of coop) -

Have encountered design -

Have encountered architecture -

Your Expectations?

Project

- Will be completed in teams of four and some cases three
- Select your own teams
- One team member must email me and the TAs:
  - The names of your teammates
  - The GitHub repo for the project.
  - Due Noon May 15 via email
- If you do not have a team by May 15 or your team is too small, we will sort it out in class
  - (you _will_ be assigned to a team, so please try to find one yourself/fill up your team)

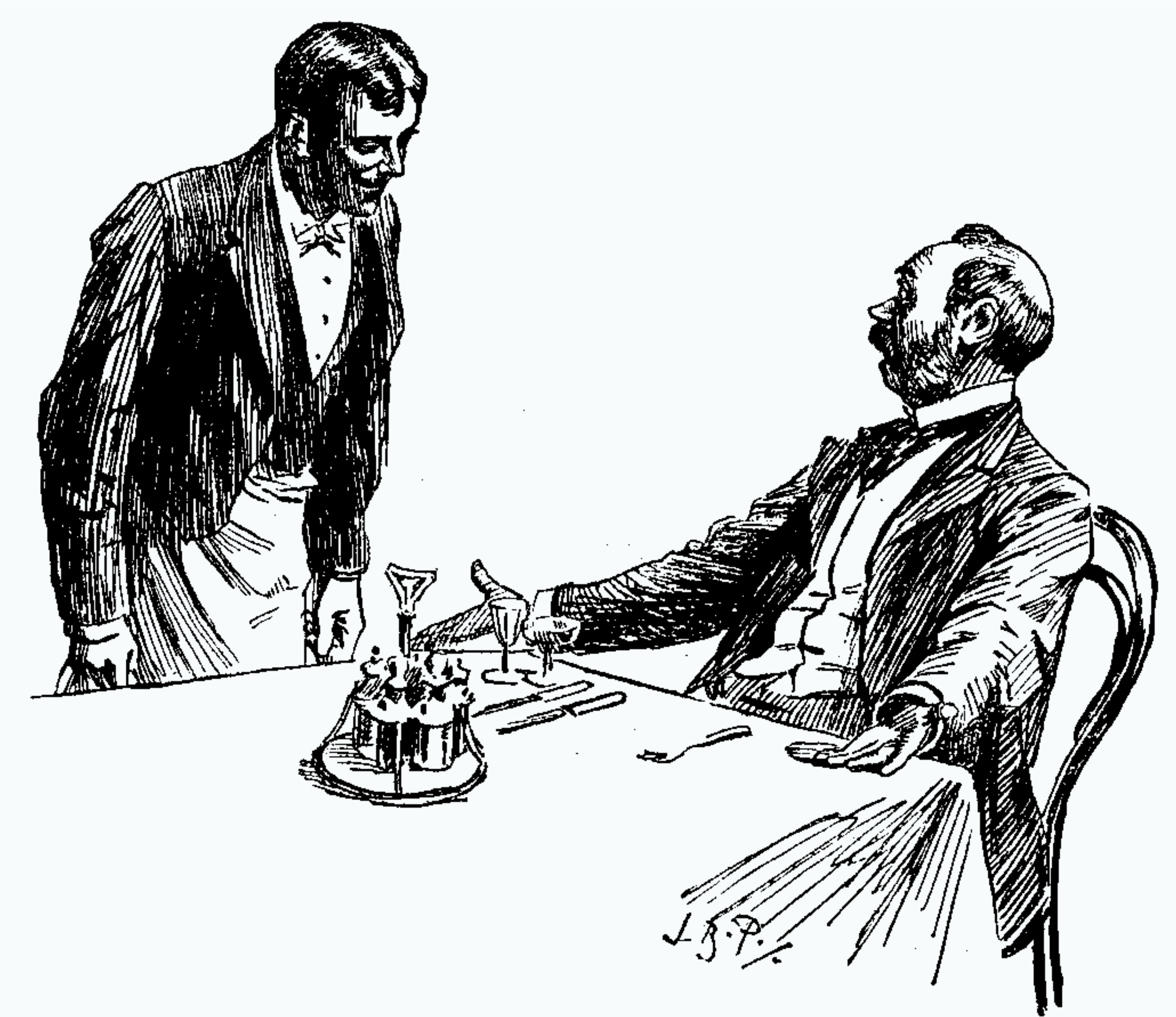
Project (Mobile Apps)

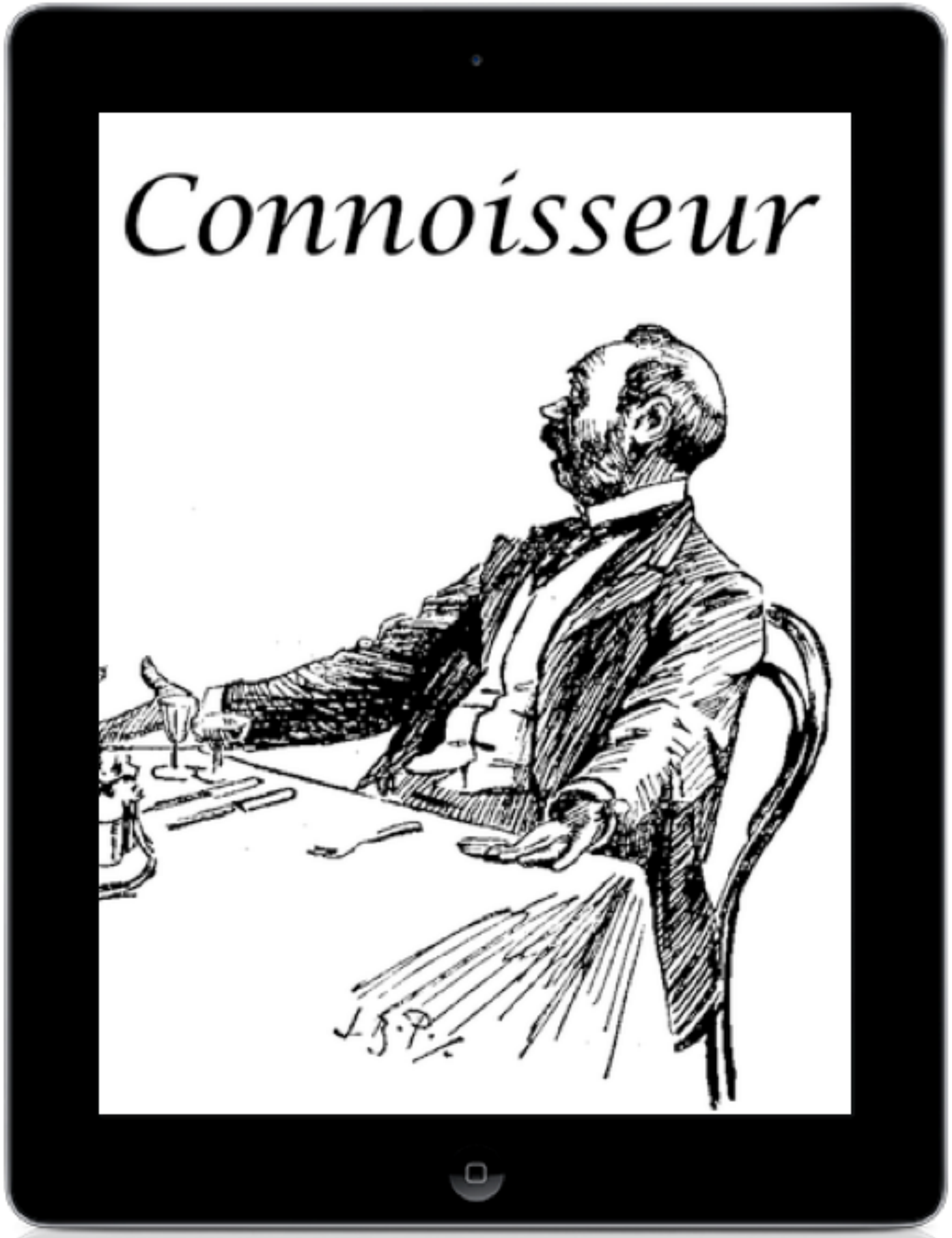
- Goal:
  - To make something *useful*
  - To learn something *new*
  - To leverage current *technology*
  - To have ***fun***
- Constraints:
  - Be useful, novel, and leverage technology
  - Cannot require crowd involvement

Project (Mobile Apps)

- Goal:
  - To make something *useful*
  - To learn something *new*
  - To leverage current *technology*
  - To have ***fun***
- Constraints:
  - Be useful, novel, and leverage technology
  - Cannot require crowd involvement
  - **MUST** work on Android

Connoisseur




Connoisseur

Projects from the Past

Deliverables

- Deliverable 0: Team and GitHub repo
- Deliverable 1: Project proposal (5%)
- Deliverable 1: Proposal presentations (Pass/Fail)
- Deliverable 3: Prototype document (5%)
- Deliverable 3: Prototype demo (Pass/Fail)
- Deliverable 5: Project arch + design document (10%)
- Deliverable 5: Project arch + design oral exam (10%)
- Deliverable 6: Project presentations (5%)
- Deliverable 6: Participation journal (5%)

Schedule

- Arch/Design activity

Assessment

- Project deliverables 40%
  - + 2% best proposal
  - +2% best prototype demo
  - +2% best final demo
  - +2% accepted to curated app store
- Arch/Design activity 10%
- Final Exam 50%
- Some project deliverables will be pass/fail
- MUST pass final exam and ALL pass/fail elements

Project Scaling

- Project deliverables: 40%
  - (project + bonus) * scale = final project grade
- Scale will range between 0.50 and 1.0
  - 10: completeness (compared to proposal)
  - 10: utility
  - 10: polish
  - 10: difficulty
  - 10: pivot
  - Points deducted for individual non participation in project

Academic Integrity

collaboration vs. plagiarism

collaboration vs. cheating

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