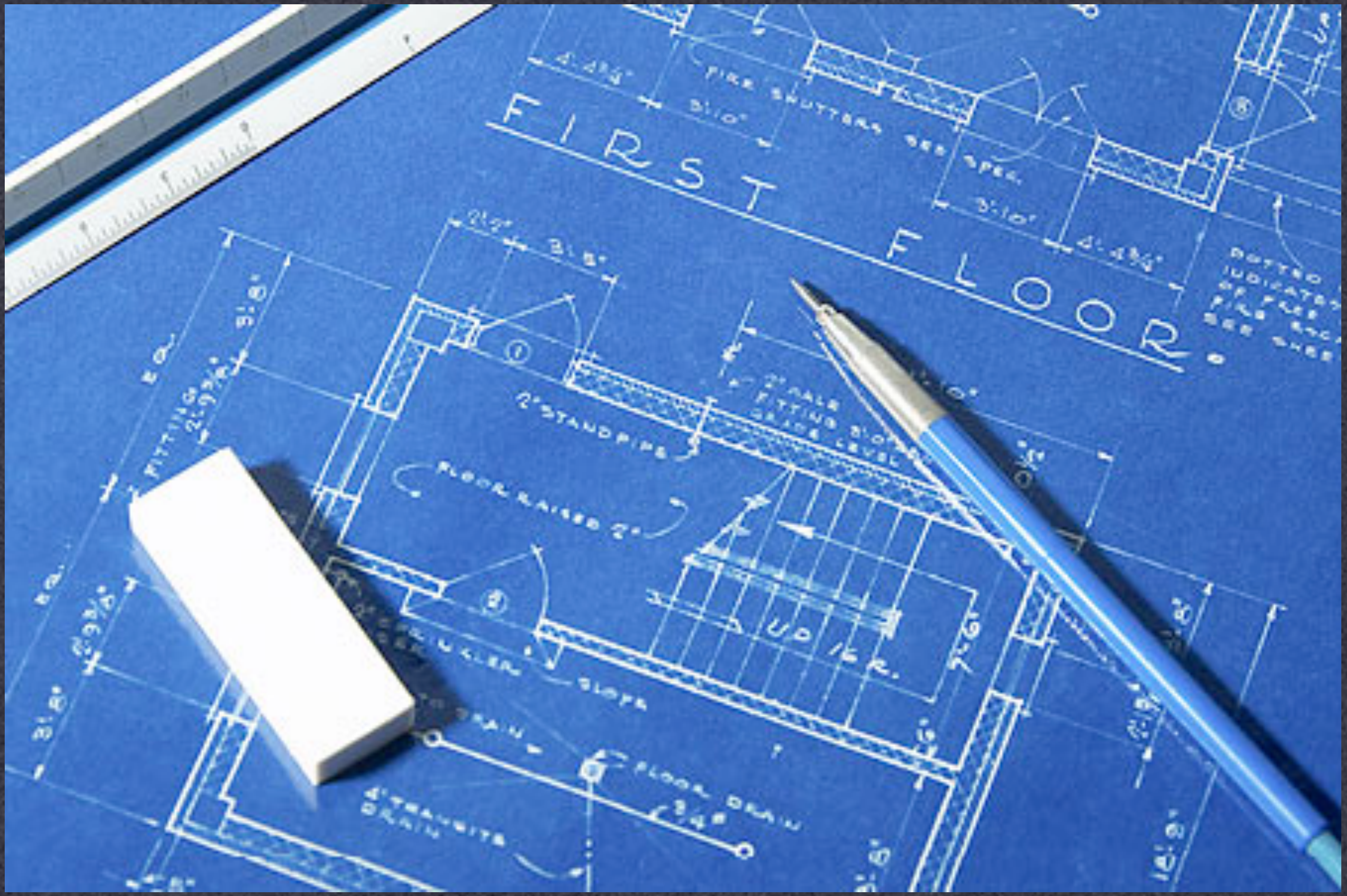

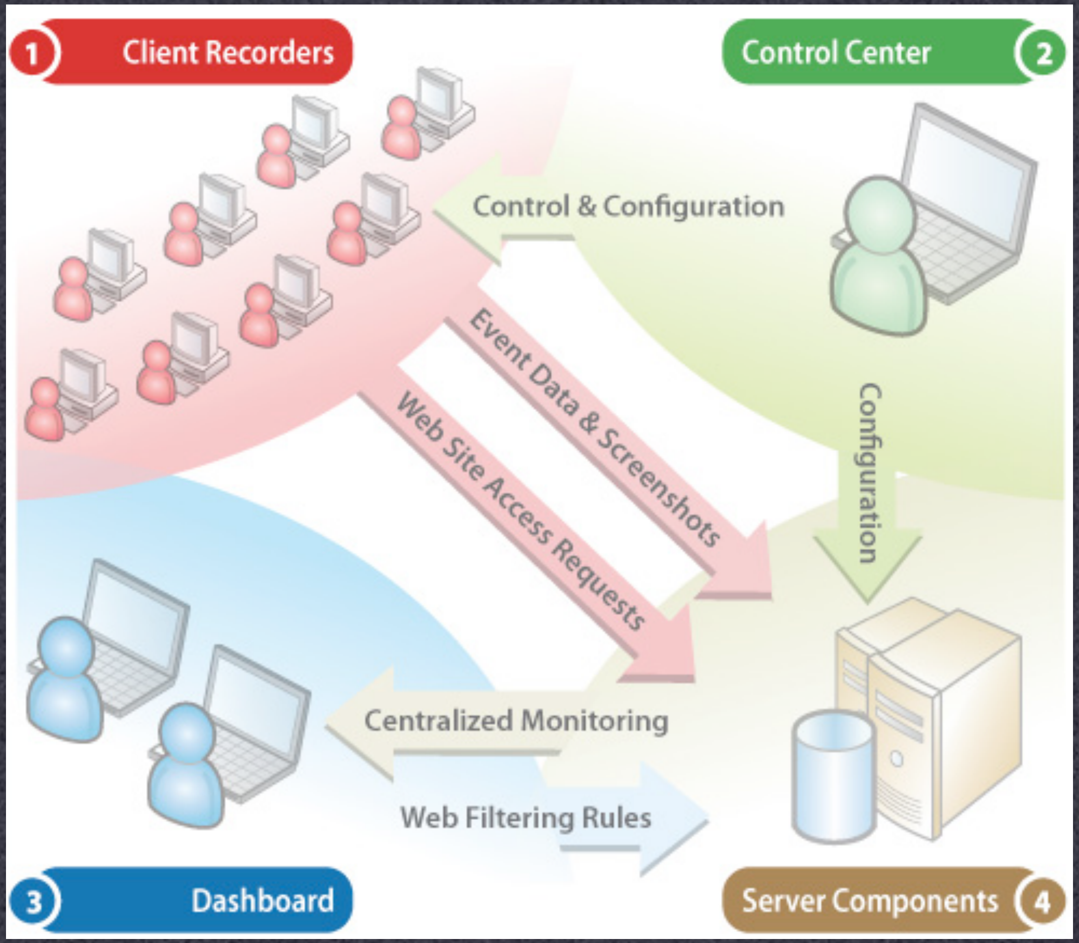

Software Design & Architecture

Mei Nagappan
(material adapted from Reid Holmes)

Lecture Summary

- Administrative details
- Expectations
- Project
- Assessment

Dates and Times

Lectures in MC 2038 T/Th @ 1600 - 1720

I will be available after but not before

Tutorials will _NOT_ be held this year

Office Hours will be by appointment at DC 2332

TA Office Hours: Mo 1500 - 1600, Th 1000 - 1100

Directory

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

  Office: DC 2332 (by appointment)

  Email: mei.nagappan@uwaterloo.ca

  TA: Aaron Sarson

  Office Hours: Th 1000 - 1100 DC 3334

  Email: asarson@uwaterloo.ca

  TA: Sahba Ezami

  Office: Mo 1500 - 1600 DC 3334

  Email: sezami@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://www.student.cs.uwaterloo.ca/~cs446/1171/

Slide Availability

Slides will be available online

- The course web page will be updated before class.
- 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

Your Expectations?

Project

- Will be completed in teams of four
- 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 Jan 12 via email
- If you do not have a team by Jan 12 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

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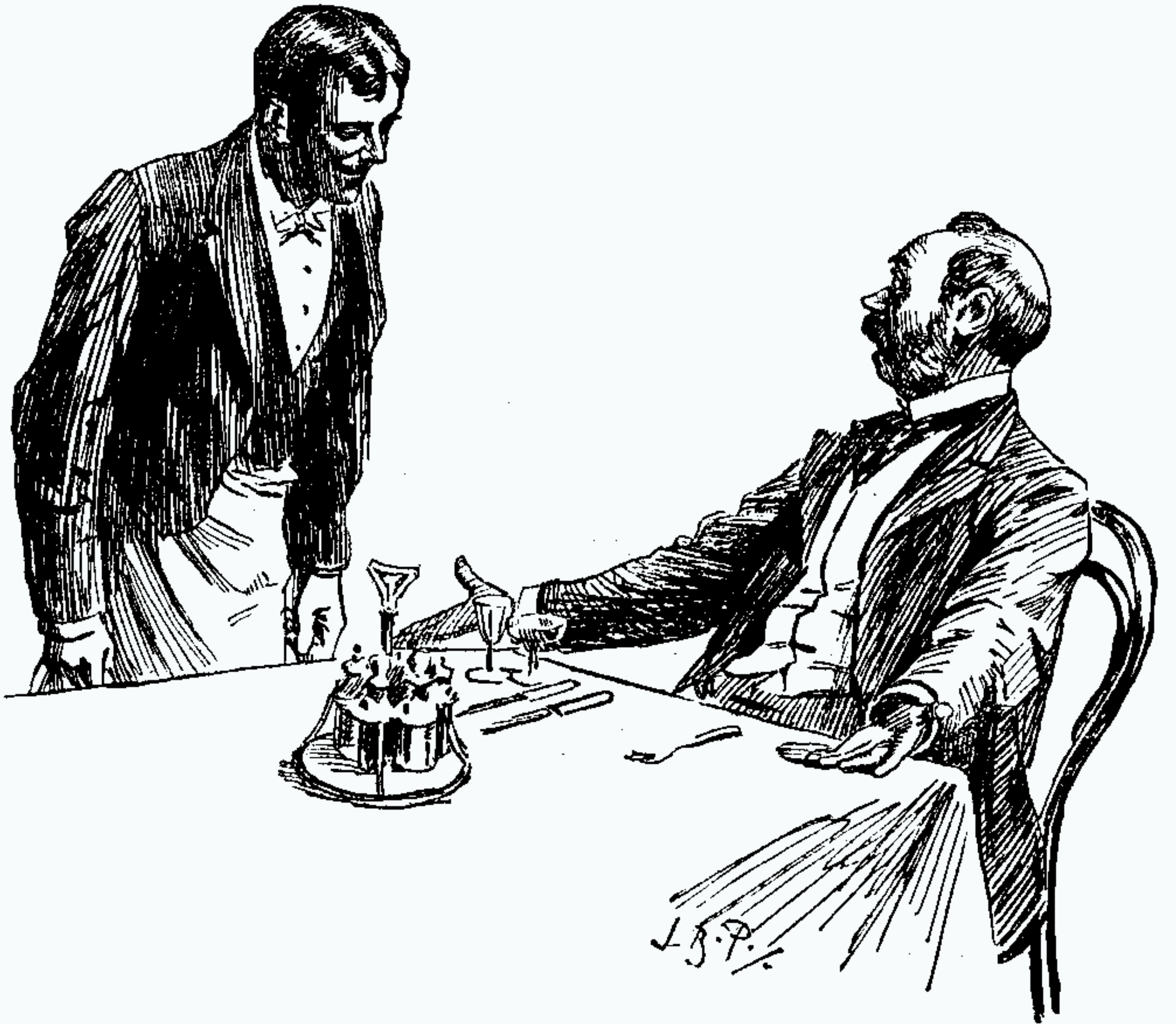
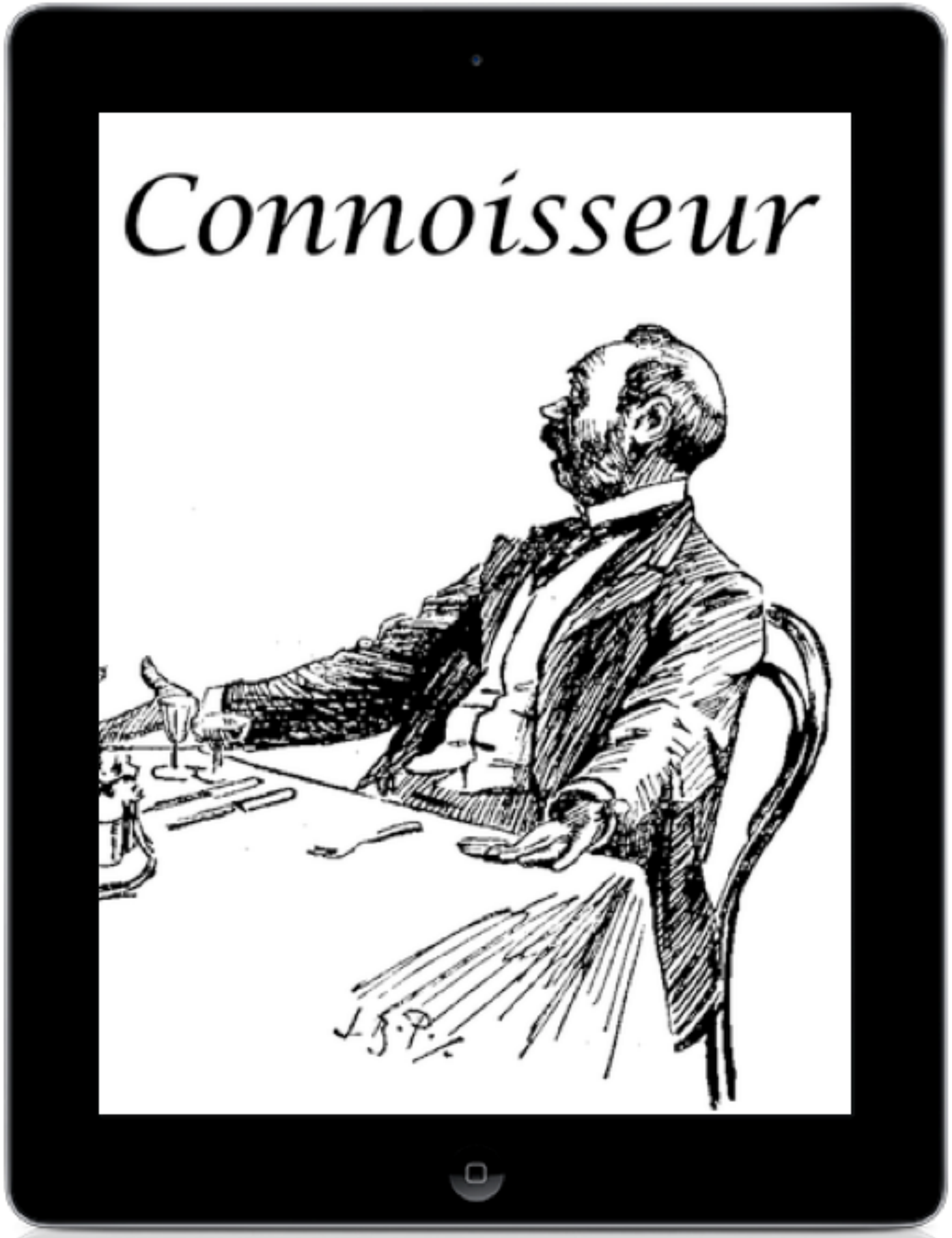
- Constraints:
  - Be useful, novel, and leverage technology
  - Cannot require crowd involvement
  - **MUST** work on iOS and Android at least

Cross-platform

- Must be demoed on at least iOS and Android:
- App should conform to the platform (e.g., support hardware back button if available while hiding on-screen navigation controls).
- Integrate with appropriate platform services

Connoisseur





Connoisseur

Projects from the Past

Deliverables

- Deliverable 0: Team and GitHub repo
- Deliverable 1: Project proposal (5%)
- Deliverable 2: 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

- Proposal: Jan 23 @ Noon
  - Presentation: Jan 24/26
- Prototype document: Feb 27 @ Noon
  - Demo: Feb 28/Mar 2 in class
- Architecture + design: Mar 20 @ Noon
  - 30 min Oral exam that week
- Presentations: Mar 27 @ Noon
  - 7 minute presentation in class Mar 28/30

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 0.75 and 1.0 (25 points)
  - 5: completeness (compared to proposal)
  - 5: utility
  - 5: polish
  - 5: difficulty
  - 5: pivot

Academic Integrity

collaboration vs. plagiarism

collaboration vs. cheating

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