CS189A
Software Engineering: Concepts and Practices

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https://capstone.cs.ucsb.edu/cs189a/cs189a_sched.html
Today’s Plan

- Progress checking and upcoming deadlines
- Software engineering:
  Requirements specification, design, testing
- Presentations and demos on Dec 3
- Team meetings
  - I will meet with teams Pina Colada (Agmonitor), Segfault (WellHealth), Exceptional Null Pointer (Appofolio), and possibly others
Overall Plan @Week 9

- Four 2-week sprints
  - Oct 11-25 (PRD v1 – tools, technologies, design, terminology)
  - Oct 25-Nov 8 (use cases/user studies, prototyping, PRD v1, PRD v2)
  - Nov 8-22 (design, prototyping, testing, PRD v2)
  - Nov 22-Dec 3 (prototype demo/pres prep, prototyping and testing)
- Fall presentations and demos: Dec 3, 3:30-5:30 (Girvetz 1004)

- Specify what the product will do
  - Vision statement
  - Product Requirements Document (PRD) (due Oct 29 and Nov 26/29)
  - Design tools, brainstorming, coding (tests and implementation)

- Build and test an initial prototype
  - Typically teams iterate on these activities until they converge to a working prototype!
This Week’s Plan

- Team activities
  - Scrum: Sprint 4, PRDv2, prototyping and testing
- Section: TA meetings

Upcoming deadlines:
- Nov 29: PRDv2 due
- Dec 3: Sprint 4 ends
- Dec 3: Fall presentations and demos
Sprint 4

- Finish PRD v2 (due Friday), incl. remaining user stories w/ acceptance tests
- Demo prep and presentation practice
  - Demo presentations: last Friday before the finals week (8 mins max; check that your laptop works)
  - Final discussion section is for sprint 4 retro and planning
- Break into tasks
  - Estimate/discuss timings (1/2 day – 1 day each)
  - Demo/prototyping plan
  - Total up to have timing per story
- Planning Poker (choose tasks until filled)
PRDv2 in Sprint 4

- Evolve/improve
  - architecture/system diagram
  - in depth writeup: problem, innovation, science, core technical advance; project specifics, team goals/objectives, background, & assumptions
  - Add links (to trello and to github commits) for completed tasks

- More detailed system diagram + detailed design

- 10 additional stories/use cases, 5+ additional implementations/tests
  - Final PRD: 20 stories/use cases, 10+ partially implemented with tests/git commits

- 3+ sequence diagrams

- 3+ UI interaction/sequence diagrams + mockups

- PRDv2 due Nov 26 (end of week 9), Nov 29 acceptable
PRDv2: Your Living Requirements Document: A Shared Google Doc

- Authors, Team, Project Title
- Intro: problem, innovation, science, core technical advance (3+ pages)
  - Define project specifics, team goals/objectives, background, and assumptions

- System architecture overview
  - High level diagram (1 page)
  - User interaction and design (1+ pages) – ie detailed design

- Requirements (functional and non-functional)
  - User stories or use cases (links) → 20+ for PRDv2 prioritized w/acc. tests
  - Prototyping code, tests, metrics (10+ user stories): github commits/issues

- System models (1+ pages)
  - Contexts, interactions, structural, behavioral (UML)
  - Use cases, sequencing, event response, system state, classes/objects

- Appendices - Technologies employed
Your Project Design: PRDv2

- **Architecture (hardware/software)**
  - Evolve your overview picture from PRDv1 to provide significantly more detail and any updates or changes

- **Detailed design**
  - UML diagrams of **primary data structures** that comprise the system architecture connected via their associations (if any)
    - Ensure that each "class" is balanced in terms of cohesion & coupling
    - Annotate with pre/post conditions when appropriate
  - Sequence diagrams
    - Synchronous and asynchronous for key interactions between classes
      - At least 3 different interactions
    - User interactions with the system
      - At least 3 different interactions
      - Can be a human user or a machine user (API) interaction
        - Event response, updated application state
      - If you have a user interface: **Provide mockups for primary UIs**
PRDv2 User Stories / Use Cases

- Revise spec to add detail to the functional specification to match your design

- Add user stories and break up the stories you have into finer grained stories
  - Provide UML, sequence diagrams, dataflow diagrams
  - Goal: a CS senior should be able to take your doc and implement the project

- For each fine-grained story, provide a description and acceptance test
  - Provide time estimates (1 person-hours) for each story implementation
    - Ensure you can finish the implementation in the time you have (this/next quarter)
  - Prioritize tasks to have a complete prototype by the end of this quarter
    - Focus on the externally facing interfaces, mock out what you cannot get to
  - Write unit tests to implement tasks for mandatory tasks
    - Document these tasks (autogen the documentation/usage)
  - Add trello/pivotal task links (titles must match) to PRDv2 for each story

- Prototype designed mandatory tasks; add github commit ID/link to PRDv2
  - Github must have unit tests, documentation (for anything without unit tests), and prototyping implementations for each story in Sprint

- If you have a user interface
  - Provide mockups that are tied to the functionality described in 1+ components
Completing the Fall Quarter

- **Nov 22**: Potpurri Presentation/demo details looking ahead (break & Winter)
  - Meetings with 3+ teams (AgMonitor, WellHealh, Appfolio)
- **Nov 29** short class
- **Dec 3, 3:30-5:30:**
  - Project presentations with demo
    - Will be recorded: Check with your mentor if concerns
    - All mentors are invited:
      Team leads—please invite your mentors
Dec 3 Presentation & Demo Schedule

- 3:30 Introduction (Jianwen Su)
- 3:35 Team 404: Team Name Not Found
- 3:44 Team SegFault
- 3:53 Team #Koki's Kookies
- 4:02 Team The Exceptional Null Pointers
- 4:11 Team So Far, So Good
- 4:20 Team MAN^2
- 4:29 Team Sea++
- 4:38 Team Pina Colada
- 4:47 Team Inspector Royale
- 4:56 Team Panda Team
- 5:05 End
Logistics

- The presenting team will be on stage
- Stage lights will be on
- Wired microphone to be passed to speakers
- Zoom meeting, screen sharing, demos, ?
  - Option 1: recorded, just a ppt: using the computer on stage
  - Option 2: live demo, your own laptop
Instructions for Presentations (Demos)

- Will be evaluated!
- Presentations worth a significant portion of grade
  - Order of teams is on the class schedule website
  - 8 mins max (points for getting the timing right!)
  - Laptop must work! Points deducted if it doesn’t, so test in advance
  - Will be recorded
- Outline (~1 slide each) – all members of team should speak
  - Introduce team and give team name and company
  - Introduce the problem
  - Overview and demo how you solve it: use pictures, demo recording OK
  - Provide some technical details, novelty and challenges (2 slides max)
  - Next steps (plan for what is left / CS189B)
Tips and Advices

- Practice, practice∞
  - Time yourselves to that you get as close to 8 minutes as possible without going over

- Test that your laptop works; have a backup laptop and usb w/presentation

- Live demo OK but record it also so that you have a fallback

- CS189A presentation is not anything like what your final presentation (CS189B) will be like. Different format, duration, level of preparation, purpose
  - Purpose: state clearly your problem/solution and innovation
    - As a hand off to cs189B instructor; not open to the public

- CS189B – identify/implement advanced features, get feedback from users/others, extensively test (make it bulletproof!), public presentation & demo prep
Wrapping up the Fall

- Course grades: all “I” (incomplete) for this quarter
  - Letter grades at the end of Winter quarter
- Course evaluations:
  - Both the instructor and TA
  - Deadline for submission: Dec 3
- Enroll codes for Winter: already sent

- Planning ahead
  - Holiday break
  - Winter