MICHIGAN STATE UNIVERSITY

01/22: Schedule and Teamwork

The Capstone Experience

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From Students…
…to Professionals

Announcements

- Project Plan Presentation Conflicts
  - Request from TAs and Dr. D.
  - Ask now!
- Capstone Lab
  - Fridge and Water Cooler Do NOT Have Drains
  - Take out the garbage.
  - Keep the lab clean.
  - Check the PowerPoint on the LCD TV.
    Email me if it's hung or busted.
- Issues? Problems? Questions?

Schedule and Teamwork

- Schedule
- Teamwork

Where do you start?

- Project Plan
- Prioritized Risks
- Feature Set(s)
- Fixed Milestones
  - Course
  - Client

Tradeoffs...

Features

vs.

Time

Are there fixed milestones in the "real" world?

Schedules

- Schedules > All-Hands Meeting
- Schedules > Major Milestones
  - ~~01/17: Status Report Presentations~~
  - 01/29: Project Plan Presentations
  - 02/19: Alpha Presentations
  - 04/02: Beta Presentations
  - 04/23: Project Videos
  - 04/24: All Deliverables
  - 04/25: Design Day Setup
  - 04/26: Design Day
  - 05/02: Project Videos

Hint: Plan for your Alpha Presentation in your schedule.

Project Parts

- Break Down Project
  - Main Parts
  - Sub-Parts
  - Sub-Sub-Parts
  - Etc…
- Categorize
  - Risks
  - Dependencies (Particularly Risk Dependencies)
  - Priorities
- Worry About
  - Interfaces Between Parts
  - Integration of Parts

Building A Project Schedule

- Start With Fixed Course Milestones
- Estimate Times for Tasks for Parts
  - Building
  - Integrating
  - Testing
- Assign Tasks to Team Members
- Must Keep Everyone Busy All the Time
- Use “Short” Deadlines (E.g., 2-3 Days) Why?
- Document and Track
  - Microsoft Project?
  - Collaboration Tool?

Estimating Time for Tasks

- Rough Estimate
  - Intuition
  - Experience
- Refined Estimate
  - Prototype or Partial Build
  - Extrapolation
  - E.g., 2 Days to Build 1 → 6 Days to Build 3
- Keys
  - Be Realistic
  - Include Buffer Time if Unsure
- Adjust Schedule Accordingly

Typical Build Cycle

Until Project Done Do

1. Divide Next Big Task Into Little Tasks
2. Assign Little Tasks to Team Members
3. Complete Little Tasks
   a. Implement
   b. Test
4. Integrate Little Tasks Into Big Task
5. Test Big Task

Very Important

High Priority Risks Get High Priority Scheduling

Version Control

- Versioning
  - Discrete “Internal” Versions (States)
  - May Correspond to Builds
- Version Control Systems
  - Check Code In and Out
  - Mark Specific States as Versions
- Motivation
  - Build Breaks System
  - Revert to Earlier Build
  - Avoid Bridge Burning
- Examples
  - GitHub
  - Visual SourceSafe

Can Be Serious Problem

Living Schedule

- Schedule Is Dynamic
  - Unforeseen Problems
  - Added Features (Avoid Feature Creep)
  - Etc..
- Track Your Progress
  - Microsoft Project?
  - Collaboration Tool?
- Revisit Schedule Often
  - Weekly Team Meetings
  - Weekly Triage Meetings with TAs
  - Identify Slippage
  - Hold Each Other Accountable (or Contact TAs or Dr. D.)
  - Set Corrective Action
  - Adjust Schedule

Schedule and Teamwork

✓Schedule

➢Teamwork

Team Organization

- Up to Each Team
- Organize into Roles
  - Client Contact
  - Program Manager
  - Developer
  - Tester
  - Systems Administrator
  - Etc…
- Everyone must make technical contributions.

Team Dynamics

- Key to Success
- Significant Component of Course Grade
- Address Problems Immediately
  - Within Team
  - With Dr. D. and/or TAs
- Be Ready to Discuss During Interviews

Grading

- Team (70%)
  - Project Plan Document & Presentation 10
  - Alpha Presentation 10
  - Beta Presentation 10
  - Project Video 10
  - Project Software & Documentation 25
  - Design Day 05
  - Total 70
- Individual (30%)
  - Technical Contribution 10
  - Team Contribution 10
  - Team Evaluation 05
  - Meeting Attendance 05
  - Total 30

Grading

- Final Grade Sum Of…
  - Individual Total
  - % of Team Total Based on Team Contribution
- Grand Total =

  (Individual Total)

  +

  (Team Total) * (Team Contribution) / 10.0
- *Nota Bene*: Your Team Contribution will have a very significant effect on your final grade.

Grading

[3 of 6]

Effect of Team Contribution					
Technical Contribution	Team Contribution	Team Evaluation	Meeting Attendance	Team Total	Grand Total
10	10	5	5	70	100
10	9	5	5	70	92
10	8	5	5	70	84
10	7	5	5	70	76
10	6	5	5	70	68
10	5	5	5	70	60
10	4	5	5	70	52
10	3	5	5	70	44
10	2	5	5	70	36
10	1	5	5	70	28
10	0	5	5	70	20
Nota Bene: Assumes Perfect Score In Every Other Category					

Grading

Spring Grade Distribution Goal	
Grade	Number
4.0	141
3.5	0
3.0	0
2.5	0
2.0	0
1.5	0
1.0	0
0.0	0

Grading

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Unacceptable Excuses for Not Contributing

- They never asked me to do anything.
- They never let me do anything.
- I wrote 1000's of lines of code but they weren't included in the project.
- My features were not included in the project.
- I work 40 hours per week at my job.
- I live 60 minutes from MSU.
- I didn't want to work on this project team.
- I ranked this project 20 out of 20.
- I did a lot of research about stuff we never used.
- I was busy interviewing.
- Etc…

Grading

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- We reserve the right to make changes with sufficient notice.
- No special consideration will be given for final grades including but not limited to
  - status in any academic program including CSE,
  - financial aid,
  - rank in the armed forces,
  - job while a student at MSU,
  - job after anticipated graduation from MSU,
  - commute to MSU,
  - graduation,
  - mortgage,
  - wedding,
  - visa status,
  - ability to enroll in CSE498 next semester,
  - or anything else.

Team of Peers

Effective Team Members

- Relate as Equals
- Have Specific Roles and Responsibilities
- Respect Specific Roles and Responsibilities
- Empowers Individuals in Their Roles
- Have Specific Skills
- Hold Each Other Accountable
- Drive Consensus-Based Decision-Making
- Give All Members a Stake in the Project

Potential Problems

Over and/or Under

- Bearing
- Qualified
- Achiever
- Etc…

Team Evaluation Form

- 5% of Final Grade
- Rate Each Team Member

1. Describe the technical contributions (or lack thereof) of each team member, starting with you. That is, describe what each team member contributed as a software developer to your project. Be specific. Contributions may include things like architecture, design, algorithms, and code. Include comments about the quality of their work.
2. Describe the team contributions (or lack thereof) of each team member, starting with you. That is, describe what each team members contributed as a team member to your team. Be specific. Include comments about attendance at meetings, timeliness of completing work, commitment to the project, reliability, and effort put forth.
3. Whom do you feel did the best (either in effort or overall contribution to the team)? Why? Be specific.
4. Whom do you feel did the worst (either in effort or overall contribution to the team)? Why? Be specific.

Team Problems

- Can Be
  - Really Hard
  - Awkward
  - Frustrating
- Addressing Problems
  - ASAP
  - Directly
  - Respectfully
  - Maturely
- Resolving Problems
  - Internally First
  - See Dr. D. and/or TAs Next but ASAP (Don't Wait)
- "Bad" Team Not an Acceptable Excuse
- Dr. D. and TAs
  - Can Help
  - Have Limited Experience with Time Travel

Potential For Bad Effect on 70% of Your Grade

Schedule and Teamwork

✓Schedule

✓Teamwork

What's ahead?

[1 of 3]

All-Hands Meetings

- ~~01/08: Capstone Overview~~
- ~~01/10: Capstone Overview / Project Plan~~
- ~~01/15: Risks and Prototypes~~
- ~~01/17: Team Status Report Presentations~~
- ~~01/22: Schedule and Teamwork~~
- 01/24: Garret Gaw, Amazon
- 01/29: Team Project Plan Presentations
- 01/31: Team Project Plan Presentations
- 02/05: Team Project Plan Presentations
- 02/07: Team Photos
- 02/12: Resume Writing and Interviewing
- 02/14: Creating and Giving Presentations
- 02/19: Team Alpha Presentations ← **Start Planning For This Now**

What's ahead?

[2 of 3]

Project Plan Documents and Presentations

- PowerPoint Template
  - Download Now
  - Read the Read Me Slides (Over and Over and Over…)
- Submission
  - Both Project Plan Document and PowerPoint Slide Deck
  - Due 12:01 a.m., Tuesday, January 29 (Think Monday night.) ← **Get on this now!**
  - See Submission Instructions in Template
- Presenting
  - 4-5 Teams Per Meeting Over 3 Meetings
  - Split Into Two Rooms (See Next Slide)
  - Schedule Posted Monday Evening
  - Strict 14 Minute Time Limit
  - Use Team Member Laptop
    - Bring Power Cord
    - Test In Meeting Room (in Advance)
  - Rehearse
  - 5% of Final Grade
  - Business Casual Dress ← **Nota Bene!**

What's ahead?

[3 of 3]

Project Plan Documents and Presentations

- Half-Hands Presentation Meetings
  - Must Accommodate 26 Teams
  - Presenting in Two Rooms
  - Split Teams by TA
    - James' Teams: Engineering 2400
    - Ryan's Team: Anthony 1279
  - Just for Three Major Team Presentations
- Schedule Conflicts
  - Unavoidable Interview Trips Only
  - Notify Dr. D. and your TA well in advance.
- Alumni Distinguished Scholar Candidates
  - High School Students and Parents
  - Friday, January 25 and Friday, February 1, 2:00 p.m. – 4:00 p.m.
  - Capstone Lab
- Formal Team Photos
  - Thursday, February 7
  - 3:00 p.m. – 7:00 p.m.
  - In Engineering 3540
  - Dress Business Casual **← Take note!**