MICHIGAN STATE UNIVERSITY

09/19: Schedule and Teamwork

The Capstone Experience

Dr. Wayne Dyksen

Department of Computer Science and Engineering Michigan State University

Fall 2018

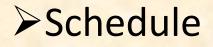


From Students... ...to Professionals

Announcements

- Project Plan Presentation Conflicts
 - Request from TAs and Dr. D.
 - Ask now!
- Capstone Lab
 - Fridge Does NOT Have Drain
 - Take out the garbage.
 - Keep the lab clean.
 - Check the PowerPoint on the LCD TV. Email me if busted.
- Issues? Problems? Questions?

Schedule and 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
 - = 09/17: Status Report Presentations
 - 09/24: Project Plan Presentations
 - 10/15: <u>Alpha Presentations</u>
 - 11/12: <u>Beta Presentations</u>
 - 12/03: Project Videos
 - 12/05: <u>All Deliverables</u>
 - 12/06: Design Day Setup
 - 12/07: <u>Design Day</u>
 - 12/11: 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 $1 \rightarrow 6$ 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

High Priority Risks Get High Priority Scheduling

The Capstone Experience

Schedule and Teamwork

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





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 | <u>05</u> |
| Total | 70 |
| Individual (30%) | |
| Technical Contribution | 10 |
| Team Contribution | 10 |
| Team Evaluation | 05 |
| Meeting Attendance | <u>05</u> |
| Total | 30 |



[2 of 6]

- 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

| 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 |

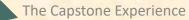
Nota Bene: Assumes Perfect Score In Every Other Category

The Capstone Experience

Schedule and Teamwork

Grading

| Fall 2018 Grade Distribution Goal | | | | |
|-----------------------------------|--------|--|--|--|
| Grade | Number | | | |
| 4.0 | 95 | | | |
| 3.5 | 0 | | | |
| 3.0 | 0 | | | |
| 2.5 | 0 | | | |
| 2.0 | 0 | | | |
| 1.5 | 0 | | | |
| 1.0 | 0 | | | |
| 0.0 | 0 | | | |





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...



- 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?

All-Hands Meetings

- 08/29: Capstone Overview
- 09/05: Capstone Overview

Project Plan

Team Photos: Teams Amazon – Mozilla

- 09/10: Risks and Prototypes
 Team Photos: Teams MSUFCU- Whirlpool
- 09/12: Team Status Report Presentations
- 09/17: Resume Writing and Interviewing
- 09/19: Schedule and Teamwork
- 09/24: Team Project Plan Presentations
- 09/25: MSU Fall Career Days (formerly Career Gallery)

[1 of 2]

What's ahead?

[2 of 2]

- 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., Monday, September 24
 - See Submission Instructions in Template
 - Presenting
 - 5 Teams Per Meeting Over 4 Meetings
 - Schedule Posted Sunday Evening
 - Strict 14 Minute Time Limit
 - Use Team Member Laptop
 - Bring Power Cord
 - Test In Meeting Room (in Advance)
 - o Rehearse
 - o 5% of Final Grade
 - Business Casual Dress
 - Formal Team Photos
 - Immediately Following Meeting
 - o In Capstone Lab
 - Schedule Conflicts
 - Only for Interview Trips or Grace Hopper
 - Notify Dr. D. and your TA well in advance.

← Get on this now!

← Nota Bene!