

# 01/15: Schedule and Teamwork

## The Capstone Experience

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*From Students...  
...to Professionals*

# Schedule and Teamwork

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➤ 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
  - 01/22: Status Report Presentations
  - 01/27: Project Plan Presentations
  - 02/17: Alpha Presentations
  - 03/31: Beta Presentations
  - 04/21: Project Videos
  - 04/23: All Deliverables
  - 04/24: Design Day Setup
  - 04/25: Design Day



# 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





# Revision Control

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



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 TA
  - Identify Slippage
  - Hold Each Other Accountable (or Contact TA or Me)
  - Set Corrective Action
  - Adjust Schedule



# Schedule and Teamwork

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✓ Schedule

➤ Teamwork



# Team Organization

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- Up to Each Team
- Organize into Roles
  - Client Contact
  - Program Manager
  - Developer
  - Tester
  - Systems Administrator
  - Etc...
- Everyone Must Make Technical Contributions



# Team Dynamics

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



# Grading

(1 of 2)

- Team (70%)
  - Project Plan Document & Presentation 10
  - Alpha Presentation 10
  - Beta Presentation 10
  - Project Video 10
  - Project Software & Documentation 25
  - Design Day 5
  - Total 70
- Individual (30%)
  - Technical Contribution 10
  - Team Contribution 10
  - Team Evaluation 5
  - Meeting Attendance 5
  - Total 30



# Grading

(2 of 2)

- Final Grade Sum Of...
  - Individual Total
  - % of Team Total Based on Team Contribution
- Grand Total =  
$$\begin{aligned} & \text{(Individual Total)} \\ & + \\ & \text{(Team Total) * (Team Contribution) / 10.0} \end{aligned}$$
- *Nota Bene*: Your Team Contribution will have a very significant effect on your final grade.



# 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

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## Over and/or Under

- Bearing
- Qualified
- Achiever
- Etc...



# Mutual Responsibility

- You are your “brother’s/sister’s keeper”.
- Responsible For
  - Your Contribution  
and
  - Your Teammates’ Contributions
- What Won’t Work
  - “They never asked me to do anything.”
  - “They never let me do anything.”
  - “He/she never asked to do anything.”
  - “He/she never wanted to do anything.”
  - 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
  - Etc...
- Addressing Problems
  - ASAP
  - Directly
  - Respectfully
  - Maturely
- Resolving Problems
  - Internally First
  - See Dr. D. and/or Malcolm Next but ASAP (Don't Wait)
- "Bad" Team Not an Acceptable Excuse



Potential For  
Bad Effect  
on 70% of  
Your Grade



# Schedule and Teamwork

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✓ Schedule

✓ Teamwork



# What's ahead?

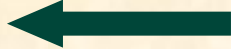
(1 of 3)

- All-Hands Meetings
  - ~~M, 01/13: Project Plan, Risks and Prototypes~~
  - ~~W, 01/15: Schedule and Teamwork~~
  - M, 01/20: (Martin Luther King Day, No Meeting)
  - W, 01/22: Team Status Report Presentations
  - M, 01/27: Team Project Plan Presentations
  - W, 02/29: Team Project Plan Presentations
  - M, 03/03: Team Project Plan Presentations
  - W, 03/05: Team Project Plan Presentations



# What's ahead?

(2 of 3)

- Team Status Report Presentations
  - PowerPoint Template
  - Due Midnight, Tuesday, January 21
  - Six Days  Panic!
  - Email to Dr. D.
    - Subject: Team <Company Name>: Status Report  
Subject: Team Auto-Owners: Status Report
    - Attachment: team-<company-name>-status-report-presentation.ppt  
Attachment: team-urban-science-status-report-presentation.ppt
- Dr. D. Will Combine Into Single PowerPoint
  - To Speed Things Up During Meeting
  - Do NOT Modify Master Slide Page
- Each Team Presents
  - Using Dr. D.'s Laptop
  - At Most 5 Minutes (Rehearse Timing)
  - Single or Multiple Presenters (Your Choice)



# What's ahead?

(3 of 3)

- Project Plan Presentations

- PowerPoint Template

- Download Now
- Read the Read Me Slide (Over and Over and Over...)

- Submission

- Both Project Plan Document and PowerPoint Slide Deck
- Due Midnight, Sunday, January 26
- See Submission Instructions in Template

 Panic!

- Presenting

- 3 Teams Per Meeting Over 4 Meetings
- Schedule Posted Sunday Evening
- Strict 15 Minute Time Limit
- Use Team Member Laptop
  - ❖ Bring Power Cord
  - ❖ Test In Meeting Room (in Advance)

- Rehearse
- 5% of Final Grade
- Business Casual Dress

- Formal Team Photos

- Immediately Following Meeting
- In Capstone Lab

- Schedule Conflicts

- Only for Interview Trips
- Notify Dr. D. Well In Advance

