MICHIGAN STATE
U N I V E R S I T Y

01/21: Project Schedule and Risk

CSE 498, Collaborative Design

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Project Schedule and Risk

☒ Risk

☐ Project Schedule

☐ Teamwork

Identifying Risks

- What You Don't
  - Know
  - Understand
  - Know How to Do
- Normally
  - Major Project Features
  - "Showstoppers"
- Varies From
  - Not Familiar With But (Probably) Can Learn
            to
  - Absolutely No Idea How to Do It

> What are you worried about?
> Or, what should you be worried about?

Example Risks

Including but not limited to...

- Key Application Features
- Hardware Systems
- Software Systems
- Development / Programming Environments
- Programming Languages
- Etc...

Prioritizing Risks

- Classify Difficulty
  - High   Showstopper, No Idea How to Do
  - Medium
  - Low   Not Hard, Probably Doable
- Classify Importance
  - High   Showstopper, Must Have
 - Medium
  - Low   Not Vital, Nice to Have
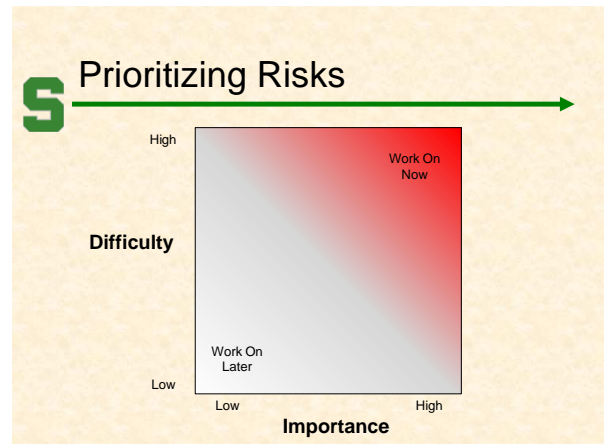
Prioritizing Risks

Case Study: Basketball App

- For Each Player, Track
  - Minutes Played
    - Game Clock Time
    - Consecutive & Total
  - Minutes Rested
    - Wall Clock Time
    - Consecutive
- Must Be Usable
  - On the Bench
  - In Real Time

Basketball App Architecture

Basketball Playing/Resting Time

Play/Rest Time Application

Visual Basic

MS Access

Windows Vista Tablet PC
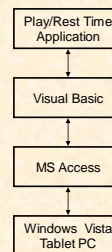
Basketball App Risks?

- How do I program in VB?
- How do I make a GUI in VB?
- What SDK should I use?
- How do I interface VB with Access?
  - Create/Open/Save a Database?
  - Read/Write Records?
  - Traverse Records?
- How do I do clocks in Windows?
  - Game Clock?
  - Wall Clock?

How would you classify these difficulties?

Mitigating Risks

- Use Existing Resources
  - Including But Not Limited To
    - Product Demos
    - Book Sample Code
    - Downloadable Examples
    - Etc...
  - Test Drive
    - Install
    - Compile
    - Extend
    - Etc...
- Build Prototypes
  - Single Purpose
  - Quick-and-Dirty

Nota Bene:
1. Check license if including in project.
2. Document.
3. Inform client.

Basketball App Risk Mitigation

- Game Clock
  - Start / Stop
  - Counts Down
  - By Minutes/Seconds

Start
Stop
19:55
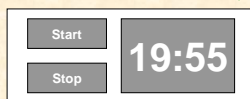
- Handling Access Records
  - Write Number
  - Read Number
  - Add Up Numbers

Write — 7
Read — 14
Add Up — 55
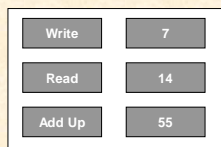
CSE498 Examples

- Team 1: Altair
- Team 2: Auto-Owners
- Team 3: Boeing
- Team 4: Ford
- Team 5: GE Aviation
- Team 6: Motorola
- Team 7: TechSmith
- Team 8: Terex
- Team 9: Toro
- Team 10: Urban Science

What are your risks?

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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?

Major Milestones

01/12: Course Overview / Course Inventory	03/16: Teams: Status Reports &/or Demos
01/14: Project Plan / Team Assignments	03/18: Teams: Status Reports &/or Demos
01/19: (Martin Luther King Day, No Meeting)	03/23: The Project Video
01/21: Project Schedule & Risk	03/25: Camtasia Demo
01/26: Teams: Status Reports	03/30: Teams: Beta Demonstrations
01/28: Prototyping	04/01: Teams: Beta Demonstrations
02/02: Teams: Project Plan	04/06: Teams: Beta Demonstrations
02/04: Teams: Project Plan	04/08: Teams: Beta Demonstrations
02/09: Teams: Project Plan	04/13: Ethics and Professionalism
02/11: Teams: Project Plan	04/15: Intellectual Property and Copyright
02/16: Resume Writing & Interviewing	04/20: Teams: Status Reports &/or Demos
02/18: Creating & Giving Presentations	04/22: Teams: Status Reports &/or Demos
02/23: Teams: Alpha Demonstrations	04/27: Teams: Project Videos
02/25: Teams: Alpha Demonstrations	04/29: Teams: Project Videos
03/02: Teams: Alpha Demonstrations	04/30: Design Day Setup
03/04: Teams: Alpha Demonstrations	05/01: Design Day
03/09: (Spring Break, No Meeting)	05/07: Teams: Project Videos
03/11: (Spring Break, No Meeting)	

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 — Very Important
5. Test Big Task

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

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Grading

- Team (70%)
  - Project Plan Document & Presentation   10
  - Alpha Demonstration   10
  - Beta Demonstration   10
  - Project Video   15
  - Project Software & Documentation   15
  - Design Day   5
  - Team Web Site   5
                                            70
- Individual (30%)
  - Technical Contribution   10
  - Team Contribution   10
  - Team Evaluation   5
  - Class Meeting Attendance   5
                                            30

Team Dynamics

- Organize as See Fit
  - Really Hard Stuff
  - Really Important Stuff

- Board of Directors…
  - Hires
    &
  - Fires

- (Be Ready to Discuss During Interviews)

Team Member Roles

- Client Contact
- Program Manager
- Developer
- Tester
- Web Master
- System Administrator
- Etc...

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…

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
  - Overall Effort
  - Overall Performance
- Other Questions
  - 8. Describe the contributions of each team member, starting with you. Be specific. Include comments about your/their individual technical contributions as well as your/their contributions to the team as a whole.
  - 9. Whom do you feel did the best (either in effort or overall contribution to the team)? Why? Be specific.
  - 10. 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 Matt and/or Me Next but ASAP (Don't Wait)
- "Bad" Team Not an Acceptable Excuse

Potential For Bad Effect on 70% of Your Grade

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What's next?

- Team Status Reports
- All-Hands Meeting Presentation
- Use PowerPoint Template
- Include
  – Description Points
  – Status Points

What's up? (Delete this slide.)

1. What follows is the required skeleton for your presentation.
2. Do not change the organization or number of slides. Make your presentation fit within these four slides.
3. Replace items between angle-brackets, <…>, with the appropriate information **without** the angle-brackets.
4. The time limit for your presentation is 5 minutes (which will be strictly enforced). Practice your presentation to ensure that you finish within the allotted time.
5. All presentations are due via email to me by midnight on Sunday, January 25. Email me the PowerPoint source file named as tsr_team_<0#>_<name>.ppt as in team_01_auto_owners.ppt. For subject, use "Status Report: Team <0#> <name>"
6. All presentations will be posted on the course web site so do not include company confidential information or anything that your client would not want posted.
7. The order of the presentations will team numerical order.
8. Do **NOT** include this slide in your presentation.
9. **Delete** this slide from the presentation.

Team <#> Status Report (1 of 4)

- Client Contact
  – Status Point 1
  – Status Point 2
- Team Meetings
  – Status Point 1
  – Status Point 2
- Team Organization
  – Description Point 1
  – Description Point 2

Team <#>: <team_name>

Team <#> Status Report (2 of 4)

- Server Systems / Software
  – Description &/or Status Point 1
  – Description &/or Status Point 2
- Development Systems / Software
  – Description &/or Status Point 1
  – Description &/or Status Point 2
- Web Site
  – Status Point 1
  – Status Point 2

Team <#>: <team_name>

Team <#> Status Report (3 of 4)

- Project Definition
  – Description Point 1
  – Description Point 2
  – Description Point 3
  – Description Point 4
- Project Plan Document
  – Status Point 1
  – Status Point 2
  – Status Point 3
  – Status Point 4

Team <#>: <team_name>

Team <#> Status Report (4 of 4)

Team <#>: <team_name>

- Risks
  - Risk 1
    - Description
    - Mitigation
  - Risk 2
    - Description
    - Mitigation
  - Risk 3
    - Description
    - Mitigation
  - Risk 4
    - Description
    - Mitigation

What's next?

- Submit Status Report
  - Email to Dr. D.
  - Due Midnight EST, Sunday, January 25
  - Subject: Status Report Team <0#> <name>
  - Attach: tsr_team_<0#>_<name>.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)