

MICHIGAN STATE  
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3. Project Schedule and Risk

CSE 498, Collaborative Design

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Project Schedule and Risk

☒ Risk

☐ Project Schedule

☐ Teamwork

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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 Implement

What are you worried about?

Or, what should you be worried about?

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Example Risks

Including but not limited to...

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

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Prioritizing Risks

- Classify Difficulty
  - HighShowstopper, No Idea How to Do
  - Medium
  - LowNot Hard, Probably Doable
- Classify Importance
  - HighShowstopper, Must Have
  - Medium
  - LowNot Vital, Nice to Have
- Prioritize
  - HighWork On “Now”
  - Medium
  - LowWork on Later

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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

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Basketball App Architecture

Basketball Play Effectiveness

```
graph TD; A[BPE Application] <--> B[Visual Basic]; B <--> C[Access]; C <--> D[Windows XP Tablet PC];
```

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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?
  - Write Records?
  - Read Records?
  - Traverse Records?
- How do I do clocks in Windows?
  - Game Clock?
  - Wall Clock?

How would you classify these difficulties?

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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.

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Basketball App Risk Mitigation

- Game Clock
  - Start / Stop
  - Counts Down
  - By Minutes/Seconds
- Handling Access Records
  - Write Number
  - Read Number
  - Add Up Numbers

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CSE498 Examples

- Team 1: Auto-Owners Insurance
- Team 2: Boeing
- Team 3: Ford
- Team 4: IBM
- Team 5: MATRIX
- Team 6: Microsoft
- Team 7: Motorola
- Team 8: Sircon
- Team 9: TechSmith
- Team 10: Toro

What are your risks?

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Project Schedule and Risk

- ☒ Risk
- ☒ Project Schedule
- ☐ Teamwork

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Where do you start?

- Technical Specification
- Prioritized Risks
- Feature Set(s)
- Fixed Milestones
  - Course
  - Client

Tradeoffs...  
Features  
vs  
Time

Are there fixed milestones in the "real" world?

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Course Milestones

01/07: Course Overview / Skills Inventory

01/09: Technical Specifications / Team Assignments

01/14: Project Schedule & Risk

01/16: Teams: Status Reports

01/21: Martin Luther King Day, No Meeting

01/23: Prototyping

01/28: Teams: Technical Specifications / Schedule

01/30: Teams: Technical Specifications / Schedule

02/04: Teams: Technical Specifications / Schedule

02/06: Teams: Technical Specifications / Schedule

02/11: Resume Writing & Interviewing

02/13: Creating & Giving Presentations

02/18: Teams: Alpha Demonstrations

02/20: Teams: Alpha Demonstrations

02/25: Teams: Alpha Demonstrations

02/27: Teams: Alpha Demonstrations

03/03: Spring Break, No Meeting

03/05: Spring Break, No Meeting

03/10: Teams: Progress Reports &/Or Demos

03/12: Teams: Progress Reports &/Or Demos

03/17: Teams: Beta Demonstrations

03/19: Teams: Beta Demonstrations

03/24: Teams: Beta Demonstrations

03/26: Teams: Beta Demonstrations

03/31: The Project Video

04/02: Camtasia Demo

04/07: Ethics

04/09: Intellectual Property and Copyright

04/14: Teams: Progress Reports &/Or Demos

04/16: Teams: Progress Reports &/Or Demos

04/21: Teams: Project Videos

04/23: Teams: Project Videos

04/24: Design Day Setup

04/25: Design Day

04/30: Teams: Project Videos

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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

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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?

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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

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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

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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

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Living Schedule

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

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Project Schedule and Risk

☒Risk

☒Project Schedule

☒Teamwork

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Grading (1 of 2)

- Team (70%)

– Technical Specification & Presentation	10
– Alpha Demonstration	10
– Beta Demonstration	10
– Project Video	15
– Project Software & Documentation	15
– Design Day	5
– Team Web Site	5
	<u>70</u>
- Individual (30%)

– Technical Contribution	10
– Team Contribution	10
– Team Evaluation	5
– Class Meeting Attendance	5
	<u>30</u>

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Team Dynamics

- Organize as See Fit
  - Really Hard Stuff
  - Really Important Stuff
- Board of Directors...
  - Hires
  - Fires
- (Be Ready to Discuss During Interviews)

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Team Member Roles

- Client Contact
- Program Manager
- Developer
- Tester
- Etc...

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## Team of Peers

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Effective Team Members

- Relate as Equals
- Have 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

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## Potential Problems

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Over and/or Under

- Bearing
- Qualified
- Achiever
- Etc...

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## Mutual Responsibility

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- 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...

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## Team Evaluation Form

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- 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.

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## Team Problems

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- 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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## Project Schedule and Risk

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☒Risk

☒Project Schedule

☒Teamwork

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What's next?

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

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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 Tuesday, January 15. Email me the PowerPoint source file named as 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.
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.

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Team <#> Status Report (1 of 4)

Team <#>: <team\_name>

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

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Team <#> Status Report (2 of 4)

Team <#>: <team\_name>

- 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

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Team <#> Status Report (3 of 4)

Team <#>: <team\_name>

- Project Definition
  - Description Point 1
  - Description Point 2
  - Description Point 3
  - Description Point 4
- Technical Specification Document
  - Status Point 1
  - Status Point 2
  - Status Point 3
  - Status Point 4

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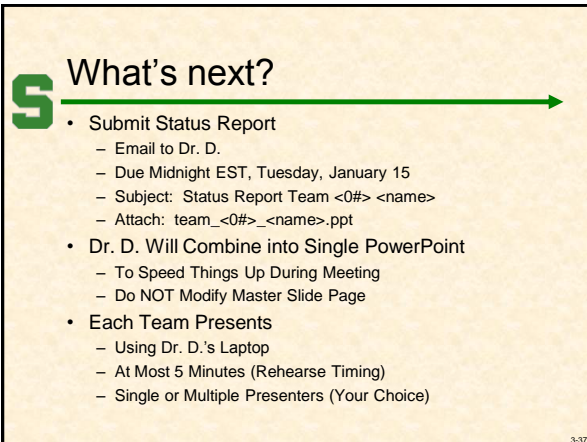
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Team <#> Status Report (4 of 4)

Team <#>: <team\_name>

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

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## What's next?

- Submit Status Report
  - Email to Dr. D.
  - Due Midnight EST, Tuesday, January 15
  - Subject: Status Report Team <0#> <name>
  - Attach: 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)

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