MICHIGAN STATE UNIVERSITY

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 Items
  - "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
  - High — Showstopper, No Idea How to Do
  - Medium
  - Low — Not Vital, Probably Doable
- Classify Importance
  - High — Showstopper, Must Have
  - Medium
  - Low — Not Vital, Nice to Have
- Prioritize
  - High — Work On *Now*
  - Medium
  - Low — Work 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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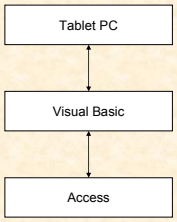
Basketball App Architecture



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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?
  - Game Clock?
  - Wall Clock?

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Mitigating Risks

- Use Existing Resources
  - Including But Not Limited To
    - Product Demos
    - Book Sample Code
    - Downloadable Examples
    - Etc...

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

  - Test Drive
    - Install
    - Compile
    - Extend
    - Etc...
- Build New Prototypes
  - Single Purpose
  - Quick-and-Dirty

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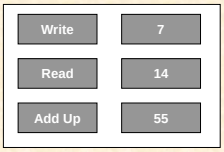
Basketball App Prototypes

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

- Access Interface
  - Write Number
  - Read Number
  - Add Up Numbers



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Basketball App Demo

State Basketball Timer

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Recent Examples

- Women's Fashion Patents Project
  - tiff Images (Bitmaps) of 600+ Patents
  - Wanted
    - Website
    - Search (Find Patent) by Keyword
- Family Medical History Website
  - Enter Family (Tree) Medical History
  - Predict Susceptibility to Diseases
- Hockey Practice Software
  - Web Based
  - Used to Build Hockey Practice Plan

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CSE498 Examples

- Auto-Owners Insurance
  - Risk: Bar Code Scanner (Hardware & Software)
  - Suggestions?
- Ford
  - Risk: Download Text From Forums or Blogs
  - Suggestions?
- IBM
  - Risk: Parsing Simics DML
  - Suggestions?
- TechSmith
  - Risk: Grabbing "Interesting" Windows Events
  - Suggestions?

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☑Risk

☒Project Schedule

☐Teamwork

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Where do you start?

- Technical Specification
- Prioritized Risks
- Course Milestones
- Client Milestones

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Course Milestones

Week	Date	Deliverables
4	Sep 18	Technical Specifications
7	Oct 9	Prototype Demo
10-14		Progress Reports & Demos
15	Dec 4	Project Video
16	Dec 12	Documentation

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Building A Project Schedule

- Start With Fixed Course Milestones
- Identify
  - Tasks
  - Dependencies
  - Priorities
- Estimate Times for Tasks
- Assign Task to Team Members
- Use "Short" Deadlines (E.g., 2-3 Days) Why?
- Document and Track
  - E.g., Microsoft Project
  - Project Management = 5% of Team Grade

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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 Take High Priority

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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
  - Etc..
- Track Your Progress
  - E.g., Microsoft Project
  - Project Management = 5% of Team Grade
- Revisit Schedule Often
  - Hold Weekly Triage Meetings
  - Identify Slippage
  - Hold Each Other Accountable
  - Set Corrective Action
  - Adjust Schedule

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Grading Revisited

- Team (70%)
  - Technical Specification Document 10
  - Prototype Demonstration 10
  - Progress Reports & Demonstrations 15
  - Final Demonstration & Project Video 15
  - Administrator & User Manuals 10
  - Project Management 5
  - Project Web Site 5
  - 70
- Individual (30%)
  - Technical Contribution 10
  - Team Contribution 10
  - Team Evaluation 5
  - Class Meeting Attendance 5
  - 30

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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

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

Over and/or Under

- Bearing
- Qualified
- Achiever
- Etc…

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Team Problems

- Can Be
  - Really Hard
  - Awkward
  - Frustrating
  - Etc...
- Addressing Problems
  - ASAP
  - Directly
  - Respectfully
  - Maturely
- Resolving Problems
  - Internally First
  - See Me "Soon" (Don't Wait Too Long)

Potential For Bad Effect on 70% of Your Grade

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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."
  - "They never asked to do anything."
  - Etc...

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