Student Startup Sequence

- Verify network connection
- Rotate to Landscape mode
- Start Presenter 2.0
- Maximize Application
- Role->Student
- Connect->Classroom 1
- Test student submissions
- How is your work for beta release going?
- Send Selection

Deliverables: Zero-Feature Release

- **Build process, installation process, code repository, automated testing framework, bug tracking system**
  - Maybe no tests yet and no tickets in the bug tracking system
- **Installation package**
  - Includes all of the items below
- **Demo of one-step build and component communication**
  - Checks out all sources from repository, compiles and builds binaries, packages them along with all existing documentation and automated tests, and places the result on a known site ready for downloading
  - Shows that your main components identified in the design can successfully communicate (be integrated) with each other
- **Latest specification, design, and test plan documents**
  - Keep them short! Consider what is / isn't important for customers / devs.
- **Up-to-date schedule**
  - Includes what has been done and what remains to be done
- **Release notes**
  - Detailed instructions on how to run the demo
  - Known issues with prioritization

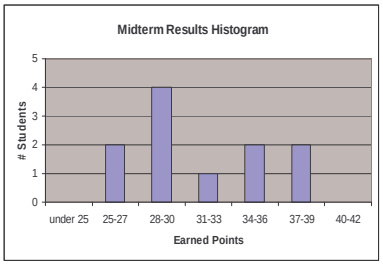
Deliverables: Alpha/Beta Releases

- **Installation package**
- **Application sources and binaries**
  - One-step build (for all sources) produces the installation package
- **Automated tests**
  - Unit (single component) tests and acceptance (end-to-end) tests
- **Latest spec, design, and test plan documents**
  - Keep it short! Consider what is / isn't important for customers / devs.
- **Release notes**
  - Detailed instructions on how to run your application and/or a demo
  - Known issues with prioritization, expressed in a bug tracking system
- **Up-to-date schedule**
  - Include what has been done and what remains to be done.

Issues to consider:

- Who is your audience – customers or developers? What do they expect from this release? What defines success for them?

Midterm Statistics



Other statistics:
- Average: 31.64
- Median: 30
- Std Dev: 4.47
- Max: 39
- Min: 25

Easiest Problems:
8, 12, 7

Hardest Problems:
6, 9, 13

Lecture 13: Risk Management

Valentin Razmov

Outline

- The essence of risk and risk management
- Risk exposure and prioritization
- Coping with risks
- Risk assessment in practice – exercises

Resources

- *Rapid Development*, by Steve McConnell
- *Software Requirements*, by Karl Wiegers
- Lectures from winter2005 and spring2005

Risks

"If Las Vegas sounds too tame for you, software might be just the right gamble."

– Steve McConnell

- Risk = a condition that could cause loss or otherwise threaten the success of a project

Risk Management

- The goal
  - Successful project completion
- The job
  - Identify the risks
  - Address the risks with specific actions
  - Avoid or resolve the risks *before* they become real threats to the project
- Remember this:
  - Mistakes are made on *every* project. The goal is to get to successful project completion *even though* mistakes were made.

Levels of Risk Management

- **Crisis management**
  - Address risks only after they have become problems
- **Fix on failure**
  - Address risks only after they have manifested
- **Risk mitigation**
  - Plan for when risks will show, but no attempt to prevent
- **Prevention**
  - Identify and prevent risks from becoming problems
- **Elimination of root causes**
  - Identify and eliminate factors that make risks possible

Risks Can Be Related To…

- Requirements
  - Misunderstanding requirements, inadequate user involvement, uncertain or changing project scope and objectives, continually changing requirements
- Design
- Testing
- Schedule
- Personnel
- Technology
- etc.

The Multitude of Risks

- McConnell gives a list of 111 (!) schedule risks.
  - This does *not* even include risks beyond scheduling.
- How can one pay attention to all possible risks at once and proactively address them?
  - It's a full-time job
    - Managers get paid very well when they are good at it.
  - Not all potential risks apply to all situations.
    - There are patterns; past experience or data on similar projects/teams can show what to pay extra attention to.
  - Not all risks that apply are equally important or likely.
    - Calls for risk prioritization

Risk Exposure

- Exposure = P(Loss) * |Loss|
  - E.g.: a 15% chance of slipping a project schedule by 10 weeks => a slippage time of 1.5 weeks is to be expected.
- Allows a more intelligent estimate of the size of the "cushion" period you need for the project
- Don't take the estimation too far!
  - It's not precise, after all.

Risk Prioritization

- Compute the risk exposure for each risk.
- Sort all risks by their exposure: from high to low.
- Move large-loss risks up on the list.
  - To avoid *even* unlikely catastrophic events
- Address the risks starting from the top of the list.

Approaches to Coping with Risks

- Avoid the risk
- Transfer risk off the critical path
- Buy information
  - Bring in outside help
  - Prototype
- Publicize risk
- Schedule to accommodate some risk
- Monitor risks as project progresses

Risk Management in Practice: Team Construction

- Put yourself in the shoes of a hiring manager.
- Task: Select 6 individuals from the list that follows to form a software team.
- Product to build: A homework management and grading system
- Goal: Maximize the chance of project success.
- Constraints: Budget limits your hiring choices.

Team Construction: Details of the Task

- Three job classes to fill: PM, Developer, Tester
- Cost categories: A (expensive), B, C (cheap)
  - Constraints: employ at most 2 A's and at least 1 C
- Job class specific attributes
  - Communication – expected of PMs
  - Programming Ability – expected of Developers
  - Technology Understanding – expected of Testers
- Personality attributes
  - Charisma (leadership, external interactions)
  - Congeniality (getting along with team members)
  - Reliability
- Attribute ratings on a scale of 1 (low) to 5 (high)

Choose 6 team members: at most 2 A's, and at least 1 C

	Job	Comm	Prog	Tech	Char	Cong	Rel
1	PM A	5	1	1	5	4	4
2	PM B	4	2	2	4	3	4
3	PM B	4	2	3	3	5	3
4	PM C	3	2	2	3	3	3
5	Dev A	2	5	4	1	1	3
6	Dev A	3	4	3	4	4	3
7	Dev A	1	4	4	2	3	5
8	Dev B	2	4	3	2	2	3
9	Dev B	3	3	3	3	4	4
10	Dev C	2	3	3	2	4	1
11	Dev C	2	3	2	1	2	4
12	Test A	3	3	5	5	4	5
13	Test B	2	3	4	3	3	3
14	Test B	3	2	4	1	4	4
15	Test C	2	2	3	3	2	3

List the main factors affecting your choices:

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