Reviews and Inspections

- A family of techniques
  - Walkthroughs
  - Inspections
  - Personal reviews
  - Formal technical reviews
- Review / inspect
  - To examine closely
  - With an eye toward correction or appraisal
- People (peers) are the examiners
Purpose

- Catching errors
  - Sooner
  - More and different
  - Breaking frame of reference
- Improving communication
  - Crossing organization boundaries
- Providing education
- Making software visible

Results

- Catching most errors before test
  - Review plus test is much cheaper than just test
  - Sample results:
    - 10x reduction in errors reaching test
    - 50 - 80 % total cost reduction
- Fewer defects after release
  - Substantial cost savings in maintenance
Results

- Composite data from H-P (R. Grady)
- Testing efficiency (defects found / hour)
  - System use 0.21
  - Black box 0.282
  - White box 0.322
  - Reading/inspect. 1.057

Inspections

- Features
  - Team reviews materials separately
  - Team and producers meet to discuss
  - May review selected product aspects only
- Implications
  - Focus on important issues
    - If you know what they are
  - More material per meeting
  - Less preparation time

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Walkthroughs

• Features
  • Less formal
  • Producer presents or provides information

• Implications
  • Larger groups can attend (education)
  • More material per meeting
  • Less preparation time
  • Harder to separate
    • Product and presenter
    • Explanation and justification

Personal Review

• Features
  • Informal
  • Done by the producer

• Implications
  • Not as objective
  • Available to any developer
  • Different mindset
    • Need for review
    • Product completion
Formal Technical Review

• Features
  • Formal
    • Scheduled event
    • Defined procedure
    • Reported result
  • Technical
    • Not schedule
    • Not budget
  • Independent review team
    • Producers not present

Formal Technical Review

• Implications
  • More preparation time
  • Less material per meeting
  • Product must stand or fall on its own

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Team Selection

- Manager assigns
  - Vested interest in a good outcome
  - Review as delegation of manager’s responsibility
- Technical competence
  - Current technology
- Objectivity
  - Best buddies and “outsiders”
- User involvement

Team Size

- Smaller for
  - Focus
  - Scheduling
  - Reasonable output volume per person-hour
- Larger for
  - Expertise
  - Making review public
- Non-participating observers

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What and When to Review

- Any software artifact
  - requirements, designs, code, documentation, procedures, interfaces, ...
- Design for review
  - Controlling product complexity
  - Controlling review length
- Scheduling reviews

Review Process

- Producers provide materials
- Leader schedules meeting
- Individuals prepare
- Team holds review meeting
- Manager gets report
Team Task Overview

- Provide a good review
  - The team is responsible for the review, not the product (Don’t shoot the messenger)
- Find issues
  - Raise them, don’t solve them
- Render an assessment decision
  - Accept, Accept with minor revision, Revision needed, Reject
  - Unanimous approval required
    - Product rejection by individual veto

Team Leader - Tasks

- Avoid premature reviews
- Coordinate arrangements
  - Materials distribution
  - Meeting schedule
  - Meeting location and facilities
- Ensure a good review
  - Or report the reason for failure
    - Materials missing
    - Reviewers missing or not prepared
**Team Leader - Run the Meeting**

- Act as chairperson
  - Opening and introductions
  - Procedure guide
  - Closing
- Act as facilitator
  - Controlling level of participation
    - Enough but not too much
  - Conflict resolution
- Terminate the meeting if unproductive

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**Reviewers - Tasks**

- Prepare before
  - Thorough review of materials
- Participate
  - Be there
    - Coming late; leaving early
  - Act professionally
    - Personal agendas
    - Big egos and shyness
- Positive and negative comments
  - Balance; courtesy; preserving what’s good

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Recorder

- Selection
  - Any competent reviewer
  - Single or multiple recorders
  - Rotating responsibility within a meeting
  - Don’t choose leader as recorder
    - Too much to do
    - Separation of power
- Task: Get it in writing
  - Basis for report

Recording Medium

- Issues
  - Public Vs. private notes
  - Speed and accuracy
  - Usefulness after the meeting
- Media
  - Flip charts; posting prior pages
  - Blackboards, overheads, PC and projector
  - Video and audio recording
Managers - Tasks

- Stay out of reviews in your own area
- Support reviews
  - Talk about it
  - Provide resources
    - Time, the right people, place, materials
    - Change the reward system
- Abide by the review results

Review Report

- Purpose
  - Tell managers the outcome
  - Early warning system for major problems
  - Provide historical record
    - For process improvement
    - For tracking people involved with projects
- Contents
  - Summary
  - Product issues
  - Other related issues
Summary

• Highly effective technique
• Low technology
• Not used nearly enough
• DO IT!
  • Personal review

Assignment 10

• Formal Technical Review
  • Midpoint: By Thursday, midnight
    • Document part of your code for a review
    • Context, specification, likely changes, code, test suite
  • By Tuesday, midnight
    • Review someone else’s project
    • Identify defects and other issues