

CS 350, slide set 10

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ACM Speaker: Frank Byrum

Date: Wednesday, April 20, 2005

Time: 12:00-1:00pm

Location: 1st Floor Auditorium,
E&CS Building



Come and find out about the ACM
and the computer science department!

Refreshments will be served



Reading

- TSP text, omit Ch. 6; central part of CS 410; the NASA document provides one concrete example.
- TSP text: Ch. 7, 8, 9, 10, App. B (config. mgmt) will be discussed in class
- TSP text: Read Ch. 16 (Managing yourself), Ch. 17 (Being on a team), & Ch. 18 (Teamwork)

What's due when?

- See class web site, link under "checklists," "Required forms checklist, due dates"
- Mail completed components to userid cs350
 - The grader will check for them there

Comments

- There's a spreadsheet
 - Takes time to learn, use is optional
- Make sure you know what data you will need to report so it will take less time to provide it!
 - Look over the forms NOW!
- You set your own schedules
 - But we will be checking on what you submit & prompting for things!
- Project is about TSPi, not coding
 - Eval. biased on determining if you followed TSPi!
 - Did you make reasonable plans (time, sizes, req. tasks)?
 - Were you able to handle the inevitable surprises?
 - Did you set goals, design, inspect, test, record errors, log time, etc.?
 - Did you measure your performance against your goals?
 - Did you support your team?

Topics

- Designing in teams
- Design script
- Implementation
- Implementation script

Comments on team design

- Not easily done by large group
 - Some believe all good designs are done either by one individual or at most by a very small team
- Design can start with brain-storming session
 - All team members have input and contribute ideals
 - Then 1 or 2 people create the design

Design completion details

- Goal: Inspection team can determine correctness of design
- Programmers can produce the intended implementation directly from the design and their background knowledge
 - Sometimes reference materials may be needed
 - And domain knowledge

Design standards

- Naming conventions
- Interface formats
- System and error messages
- Design representation notations

Levels of design

- Common levels:
 - System
 - Subsystem
 - Product
 - Component
 - Module
- For GCS, you only need
 - System (mostly done)
 - Module (for each selected module)

Design goals

- Reuse
 - Depends in part on standard documentation
- Usability
 - Need to review design from perspective of all people who will use the software
- Testability
 - May choose one design over another

Design script - 1

Step	Activity	Description
1	Design process review	Review design process <ul style="list-style-type: none"> ■ Review sample design ■ How design inspection is performed
2	High-level design	Develop manager leads design team <ul style="list-style-type: none"> ■ Define program structure ■ Name program components ■ Identify design tasks to be completed and documented
3	Design standards	Quality/process manager leads the effort to produce the name glossary and design standards
4	Design tasks	The development manager leads the team through <ul style="list-style-type: none"> ■ Outlining the SDS and the work to produce it.
5	Task allocation	The team leader help allocate task among team members <ul style="list-style-type: none"> ■ Also obtains commitments from members

Design script - 2

Step	Activity	Description
6	Design specification	Each team member <ul style="list-style-type: none"> ■ Produces and reviews his/her portions of the SDS document ■ Provides these to development manager Development manager produces composite SDS draft
7	Integration test plan	Development manager leads team in producing and reviewing integration test plan
8	Design & int. plan inspection	Quality/process manager leads team through inspecting the SDS draft and integration test plan <ul style="list-style-type: none"> ■ Design is complete and correct ■ Integration test plan is adequate ■ Each problem is recorded and fix responsibility decided Inspection is documented in form INS, defects recorded in LOGD

Design script - 3

Step	Activity	Description
9	Design update	Development manager SDS obtains sections and <ul style="list-style-type: none"> ■ Combines them into final SDS ■ Verifies traceability to the SRS
10	Update baseline	Support manager baselines the SDS

Standards

- Design standards
 - Let's assume pseudocode is good enough
 - Use another if you prefer
- Coding standards
 - What we have is good enough
- Size standards
 - Max size of a single component?
- Defect standards
 - What we have is good enough
- Standards need to be reviewed and changed if they don't work
 - But not this semester

IMP script - 1

Step	Activity	Description
1	Implementation process overview	Instructor has described <ul style="list-style-type: none"> ■ Importance of quality implementation ■ Need for coding standards ■ Strategy for handling poor-quality components
2	Implementation planning	Development manager leads work to <ul style="list-style-type: none"> ■ Define and plan implementation task (SUMP & SUMQ)
3	Task allocation	Team leader helps allocate tasks to team members <ul style="list-style-type: none"> ■ Obtains commitments for when they will complete tasks
4	Detailed design	Programmers produce detailed designs <ul style="list-style-type: none"> ■ They do individual thorough design reviews ■ They complete LOGD and LOGT forms
5	Unit test plan	Tester produces unit test plans

IMP script - 2

Step	Activity	Description
6	Test development	Testers follow script UT to produce unit test plans, test procedures, and test data for each component
7	Test inspect.	Quality/process manager leads team in inspection of test cases, procedures and data (use INS script and forms INS and LOGD) for each component
8	Detailed design inspect.	Quality/process manager leads team in inspection of DLD of each component (script INS and forms INS and LOGD)
9	Code	Programmers produce component source code <ul style="list-style-type: none"> ■ Do a code review using personalized checklist ■ Compile and fix the code until it compiles ■ Complete LOGD and LOGT forms
10	Code inspect.	Quality/process manager leads team in code inspection of each component (script INS and INS and LOGD forms)

IMP script - 3

Step	Activity	Description
11	Unit test	Programmers, following script UT <ul style="list-style-type: none"> ■ Conduct the unit tests and complete forms LOGD and LOGT
12	Component quality review	Quality/process manager reviews each component's data to determine if component quality meets establish team criteria <ul style="list-style-type: none"> ■ If so, component is accepted for integration testing ■ If not, quality/process managers recommends either: the product be reworked and reinspected, or the product be scrapped and redeveloped
13	Component release	<ul style="list-style-type: none"> ■ When components are satisfactorily implemented and inspected, developers release them to support manager ■ The support manager enters the components in the configuration management system

Some goals/guidelines

- Design time > coding time
- Design review time > 50% of design time
- Code review time > 50% coding time, preferable > 75%
- You should find twice as many defects in code review as compile
- You should find > 3 defects / review hr.
- Review rate < 200 LOC/hr.
