SE Technical Presentation Milestone (TPM)

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Content based on materials provided by
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Fall 2016
1. The Technical Presentation Milestone: Mechanics

2. Presentation Skills
   - Planning
   - Showing
   - Telling
   - Answering questions

3. Presentation Styles

4. Conclusion
Online resources

- SE policies and procedures (scroll to the bottom):
  https://uwaterloo.ca/software-engineering/current-undergraduate-students/policies-procedures-guidelines

- Prof. Patrick Lam’s TPM page for SE students:
  http://patricklam.ca/tpm/

- Dr. Douglas Wilhelm Harder’s TPM page for ECE students:
  http://www.ece.uwaterloo.ca/~tppe000/
Feedback from co-op employers:

“UW students cannot give presentations.”
When?

2B

... or shortly thereafter if you are not able to clear the TPM in 2B or if you join the SE program after 2B
What’s in a TPM presentation?

Technical presentation, usually related to your 2B work term.

Structure:
- 12-15 minutes (with slides)
- 3-5 minutes question-and-answer
- 1-2 evaluators at a time + peer audience

Note: Presentations shorter than 12 minutes or longer than 15 minutes are penalized for poor organization. The penalty increases after 15 minutes and 30 seconds.
What should I talk about?

Choose a technical topic, for example involving some math or logic.

Discuss something you know (well).

Show enthusiasm and confidence!
Purpose

Goal: To inform and persuade.

Your presentation is not:

- a one-sided sales pitch
- an in-depth lecture
- your work-term report in slide form

Level: appropriate for other 2B students in SE.
Desired learning outcomes

Ability to use a clear and logical organization in written or oral technical communication.

Ability to use figures and tables effectively in written or oral technical communication.

Ability to use rhetoric to inform and persuade in written or oral technical communication.

Ability to make effective oral technical presentations.
Evaluation

Four criteria, each marked out of 2 points:

1. organization
2. quality of overheads
3. presentation style
4. response to questions

A passing grade is at least 1/2 (50%) in each category and at least 6/8 (75%) overall.

Evaluation form available online:
Results from S2016

128 SE students enrolled

119 (91%) cleared the TPM by the end of the S16 term

7 (5%) failed first attempt

3 (2%) withdrew from term

2 (2%) did not clear the TPM, did not withdraw
Process

SE students are pre-enrolled in TPM 1X000. (Please check your schedule in Quest.)

In 2015/2016 the TPM sessions started in the second week of the spring term and took place T-W-Th 3:30-6:20pm in EIT3145.

Bring your .ppt or .pdf file on a USB drive, and (optionally) your own laptop.

Dress appropriately and attend all talks in your session.

Pick up your evaluation form a week after the presentation.
Required content

Three mandatory slides:
- title slide (talk title, your name, date)
- outline (presented after title slide)
- summary or conclusion (wraps up the talk)

Number your slides to facilitate Q&A. You may skip the slide number on the title slide.
Timer

(thanks to Douglas Wilhelm Harder for these pictures).
Recovery options

The TPM is a degree **requirement** and you must clear it (one way or another) before graduating.

Each SE student will receive evaluations from up to two graders – usually one grader on the first attempt and a different grader on the second attempt, if needed.

If you receive a failing grade from both graders then make an appointment to see the SE TPM coordinator (i.e., myself) in person to discuss alternative recovery options.

Fourth year students may have difficulty enrolling in courses if they have not yet cleared the TPM.
Example TPM Presentations

http://www.ece.uwaterloo.ca/~tppe000/Examples/

- Comparison of PostgreSQL and MySQL/InnoDB (Baverstock)
- How Apple’s launchd Compares to a Standard System V init (Zarnett)
- Network Security—Passive and Active Methodologies (Robinson)
- Next Generation Optical Media (Armstrong)
Next: tips and opinions about presentations.

- Planning
- Showing
- Telling
- Answering questions
Planning

Tips on planning

Give yourself enough time to prepare and practice! (This talk took one full day to prepare.)
Pick a topic

From 2B work-term report, perhaps.

Next, learn about your topic.
Questions to think about

What’s your objective?

What do you want to say about it?

(Who is your audience?)

What is your evidence?
Organize your thoughts

TPM Talk:

15 mins - TPM requirements and conventions
   - webpage and scheduling
   - structure
   - content
   - passing/failing consequences, evaluation
   - examples
   - reasons people fail

35 mins - good technical presentations
   - Lessig style (at end), Cognitive Style of PowerPoint
   - speaking tips
   - presentation layout
   - practicing
   - answering questions
   - preparing talks

Nov. 30
Practicing

Practice early and often!

Consider:
- going to EIT 3145
- timing your presentation
- getting friends to critique you
Purpose of slides

Visual information:
- tables
- diagrams
- charts
- maps

Augment the presenter’s speech and gestures.

Help focus audience attention.
Non-purpose of slides

Not for you to read from with your back facing the audience!

Not for reference afterwards!
Good slide design

Good qualities:
- readable (large fonts)
- consistent style
- appropriate content
- unity of purpose

Guideline: each slide should take about a minute to present.
Bad slide design

Pitfalls:

- too much text, or text too small
- spelling and grammar mistakes
- disunity of purpose
- distracting backgrounds
- weird fonts
- bizarre transitions
- use of Word
Showing Graphics

Do use graphics! (when appropriate)

Major graphics formats:
- PNG: lossless compression
- JPEG: lossy compression

Don’t use JPEG for line art!
Don’t use JPEG for line art!
(thanks Douglas Wilhelm Harder for these pictures.)
Maximize information density.
Nonmaximal information density

(Image source: http://commons.wikimedia.org/wiki/File:BBC_licence_fee_expenditure_percentage_2005-6_Redvers.png)
Telling

Speaking well

Try to:

- make effective eye contact
- show some enthusiasm
- vary your tone
- speak at suitable volume
- enunciate clearly
- maintain good posture
Speaking poorly

Do not:

- speak too fast
- read all of the talk from cue cards
- hesitate ("um, ah, like") unnecessarily
- fix gaze at any one spot (e.g., back wall)
- put hands in pockets
- panic
Purpose of Q&A:

- probe your knowledge of topic
- display unscripted interaction
You may repeat the question to the rest of the audience.

Answer the question that was asked.

“I don’t know” is not a wrong answer.
What's your style?

The remaining slides suggest:

- an interesting book on presentation style
- an example of how not to design your slides
- a couple of out-of-the-box ideas

These resources may help you create great presentations.
The Cognitive Style of PowerPoint

Edward R. Tufte

The Cognitive Style of PowerPoint: Pitching Out Corrupts Within

http://www.edwardtufte.com/tufte/books_pp
Gettysburg Address in PowerPoint

Example of a bad slide show:

http://norvig.com/Gettysburg/
Improving Hob's Specification Language (AOSD '05)

Module must allocate array:

\[
\begin{array}{cccc}
5 & 8 & 4 & \ldots
\end{array}
\]

redundant

proc init() ensures Init'
proc add() requires Init &
proc del() requires Init &
proc isEmpty() requires Init &

Solution: Defaults

Specifications aggregate, hurting scalability

Solution: Scopes

Case Studies:
- data structures
  - singly- & doubly-linked lists, arrays as sets, stacks, queues, pqueues
- Minesweeper Benchmark
  - (750 lines impl, 250 lines spec)
- Water numerical computation benchmark
  - (2000 lines impl, 500 lines spec)

Contributions:
- Hob framework for modular program analysis
  - Set specification language: abstraction functions
  - Scope invariants, defaults
  - Enables multiple diverse analyses to interoperate
  - Statically verifies data structure consistency properties
“Lessig style”

http://randomfoo.net/oscon/2002/lessig/free.html
Summary

Described the format of the Technical Presentation Milestone.

Gave tips on presentations:

- planning
- speaking
- organizing slides
- answering questions

Described alternative presentation styles.