Software Engineering
Work Reports
And How to Improve Them

16 November 2010
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SE Class Prof Hour
The Most Important Things

* Follow. The. Guidelines.
* Ensure technical content
* Write it during the work term

Marking Work Reports

- Technical communication [0 - 12]
- Technical content [0 - 4]
- Lookup table to reach final disposition
Write it During the Work Term

* Take your time; do it right
* All data, programs, etc. available
* Everything fresh in your mind
* Possible employer input
Follow the Guidelines

- Formatting checklist
- Answers to many common questions
- Guidance in choosing a topic
Choosing a Good Topic

- Analysis - Synthesis
- Quantitative analysis
Confidential Topics

- Anonymize if possible
- Confidential report
- Employer-marked report
- Self-study report
Writing the Body

* Write your problem statement
* Explain the scope and context
* Clearly define all criteria & constraints
* Analysis: present and evaluate options
* Synthesis: show decisions along the way
Conclusions

- Statement of facts
- Always supported by the body
Recommendations

- Concrete (Cost, Timing, Consequences)
- Come directly from the conclusions
- No new courses of action
Recommendations

“The company should use Product X.”
or

“The company should spend $700.00 to purchase Product X immediately.”
References

* Not just for direct quotations/excerpts
* Cite anything that is not your own work
* Avoid committing an academic offence!
Unacceptable References

* “Unknown”?
* Wikipedia?
* Company internal documents?
Background

* Assume a technical reader
* If unsure, add it to the background
* Use appendices if necessary
Appendices

• Big tables
• Long calculations
• Extra background
• Company documents (with permission)
Pitfalls

DOCUMENTATION
Pitfalls

* Problem too abstract (no context)
* Scope too narrow or too broad
* Relevance to Software Engineering
Pitfalls

* Unclear problem statement
* Unclear criteria or constraints
* Inconsistent analysis
* Insufficient technical detail
* No quantitative analysis
Pitfalls

• No reasonable alternatives
• Unfounded conclusions
• Vague recommendations
• New material introduced along the way
Key Questions

* Is there a decision being made?
* Are there at least 2 reasonable options?
* Is my choice supported by the analysis?
Technical Communication

“The best idea in the world is worthless if you can’t communicate it to someone else.”
Follow the Guidelines

- Use the formatting checklist
- Order of the report is provided
- General rules explained
Spelling & Grammar

* Proofread for spelling & grammar
* Don’t give the impression you don’t care
* Don’t rely on the spell checker
Grammar Troubles

Frequently-misused punctuation marks:
- – — (hyphen, en dash, em dash)
’ (apostrophe)
: (colon)
; (semicolon)
Common Writing Errors

* Redundancy
* Inconsistent plural forms
* Unclear lists
* Unfinished thoughts
* Casual writing style
Figures: What not to do
### Tables: What not to do

<table>
<thead>
<tr>
<th>Option</th>
<th>Height (m)</th>
<th>Weight</th>
<th>Length</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option Number 1</td>
<td>1</td>
<td>5</td>
<td>45 cm</td>
<td>2999</td>
</tr>
<tr>
<td>Option Number 2</td>
<td>1.745</td>
<td>11</td>
<td>0.5 m</td>
<td>499.50</td>
</tr>
</tbody>
</table>

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Proofreading and Reviewing

- Look at it with fresh eyes
- Print it out
- Read it out loud
- Show your employer
- Ask a friend
Resubmissions

* Listen to the marker’s comments
* Don’t be afraid to ask for clarification
* Don’t put it off until the last day
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