15-412
“...It's harder than it looks...”

Open-Source Project Advice
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Outline

Build it now
Read it three times
Talk about it
Write a design document
The merge problem
Build It Now

Where to get started?

- The project isn't well documented
  - Neither “how to use” nor “what's inside”
- There's code all over the place
  - In multiple languages
- The build system is strange
  - It's trying to achieve goals you don't understand
- Where to begin?

Build it now

- Get it built, get it installed, get it configured, get it running
  - The support network focuses on these steps!
  - Great forcing function for reading man pages, error logs
Reading The Code

Wow, that's a lot of source code!
- OpenOffice: more than 200 megabytes!

How can I understand all of it?
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How can I understand all of it?
- Bad news: you probably can't
- Good news: you may not need to

What to do?
- Pick “your part” (at least tentatively)
- Read “your part”
Reading The Code

Wow, “my part” is a lot of code!
- 10,000 lines...wow...

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How can I understand all of it?
- Bad news: you probably can't
- Good news: a future version of you probably can
  - How??
Read It Three Times

What to do?
- Print it out
- Read it three times

First time
- Read the first page
- Turn to the next page; repeat as necessary
- Don't get bogged down trying to become an expert
  - You can't
- Doing this step ASAP is really important
Read It Three Times

First time
- Read the first page
- Turn to the next page; repeat as necessary

Second time
- Read from top to bottom
- Take notes
  - Module breakdown
  - Module sizes, how much assembly code?
  - Calling conventions

Third time – the charm
- Try to understand how the parts fit together
- Draw at least one picture
Talk About It

Teaching is a great way to understand things

Prepare a “15-minute presentation”

- Motivation, Outline, ..., Conclusion
- Practice it a couple of times
- Don't forget pictures!
  - (Yes, they take time)
Talk About It

Teaching is a great way to understand things

Prepare a “15-minute presentation”
- Motivation, Outline, ..., Conclusion
- Practice it a couple of times
- Don't forget pictures!
  - (Yes, they take time)

Presenting it will take 30 minutes
- “Extra” discussion will be valuable
- Don't worry, you'll get better at it
  - Especially if you do it three times
Write A Design Document

Project motivation

Project approach

Code base features
- Lines of code, lines of asm, #modules, ...
- What you plan to add

Structural challenges

How you plan to measure the result

How does the group receive code submissions?
The Merge Problem

Life cycle
- You pull down the code
- You work away busily
- “Code complete”
- Debugged
- Measured

Time to commit back to the mother ship
- Oops, their code is now totally different

The painful tradeoff
Summary

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