500 Lines or Less

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What is AOSA?

- Architecture of Open Source Applications

- Founded by Greg Wilson and Amy Brown

- Architects study thousands of buildings

- Read critiques written by expert architects

AOSA I and II

- Free-form writeups of well-known FOSS projects

- History, evolution, high-level architecture

- Focus was determined by the author

Projects in I & II

- BASH

- LLVM

- GHC (Glasgow Haskell Compiler)

- PyPy

- Sendmail

AOSA III: POSA

- Performance of Open Source Applications

- Edited and produced by Tavish Armstrong

Some numbers

- aosabook.org ~17k uniques a month

- 10000+ copies sold across all 3 books

- 60k+ raised for Amnesty International

500 Lines?

- Not 500 Lines or Fewer

- Scope of existing books too large for audience

- If your comfort level is 1000-10000sloc...

Goal of 500Lines

- Present readers with low-to-medium level design decisions that go into a project kernel

- Describe past experience used to manage this

- Explain what would be needed to expand it

500 Lines or Less

Experienced programmers solve interesting problems

Edited by Michael DiBernardo

Projects

- *A Web Crawler With asyncio Coroutines*
  A. Jesse Jiryu Davis and Guido van Rossum

- *A Rejection Sampler*
  Jessica B. Hamrick

- *Contingent: A Fully Dynamic Build System*
  Daniel Rocco and Brandon Rhodes

Projects

- *A Python Interpreter Written in Python*
  Allison Kaptur

- *Dagoba: An extensible in-memory graph database*
  Dann Toliver

- *A Continuous Integration System*
  Malini Das

Process

- Code review and chapter review

- Each review done by at least one relatively new and one relatively experienced programmer

This meant...

- ~30 proposed chapters

- 60+ code reviews

- 40+ chapter reviews

- ... and I read them all

A lesson learned

- How many of us try to write "clean code"?

A lesson learned

- How many of us try to write "clean code"?

- How many of us can precisely define that?

Observation

- Discomfort with a system is proportional to how much it differs from what one expected to see

- E.g. someone with CG background

Observation

- Depending on how much we've researched the techniques we use, we may have a more visceral or more studied explanation as to why we use them

Audience

- Who is the reader?

- In 500Lines, it was "a relatively new programmer without much experience in the domain."

- We can do better than this on most projects

A lesson learned

- Focus more on "recognizable architecture" and less on "clean code"

- Think hard about our probable reader