

A Romantic Misunderstanding of Engineering

- Example, a bridge
 - Simple specification
 - Top level design tends to be seen as aesthetic
 - Engineers describe the engineering as the detail work – like coding!



Who likes the term?

- Employers (HR departments)
 - programmers (now coders) seen as clerical workers
 - software engineers are a kind of engineer
professionals!
Can be paid engineering salaries!
- Engineering college deans
 - allows them to claim control of teaching computing

What's wrong with it?

- Computer Science Lite
 - if we just follow these magic rules, programming is easy?
- The History of Software Engineering is full of
 - buzzword salad
 - charlatans selling training courses
 - fads
 - The Michael Jackson Method
 - Extreme Programming (XP)
 - Agile Development

But, there is a core of truth

- Consider Extreme Programming (XP)
- Key idea: Incremental development.
 - start with a working program (Hello World)
 - take small steps toward finished product
 - at the end of each step, have a testable working program
- For each step
 - develop specs and test criteria first
 - program and debug second
 - if you can't make it work, start the step over!

Object Oriented Programming

- Originated with Simula 67
- Developed in Scandinavia
- Purpose was operations research and logistics
- Introduced
 - classes, objects, methods, class hierarchy

Path from Simula 67 to Java

- Simula 67 – descended from Algol 60
- C – descended from Algol 60 via BCPL
origin of {block} notation !=
- C++ – Add Simula 67 concepts to C
- Java – subtract dangerous features of C

Object Oriented Programming

- Term emerged in late 1960s
- *Simula 67* programming language introduced
 - Classes
 - Objects
 - Class Hierarchy
 - Inheritance
- Developed for simulation
 - Key work all done in Scandinavia
 - Motivation was work in logistics, operations research

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