COMP2511

Object-Oriented Design and Programming

Introduction

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Today's Lecture

- Second Year is not First Year
- Design
- Software Engineering
- Course Outline
- Java and Eclipse

Second Year is not First Year

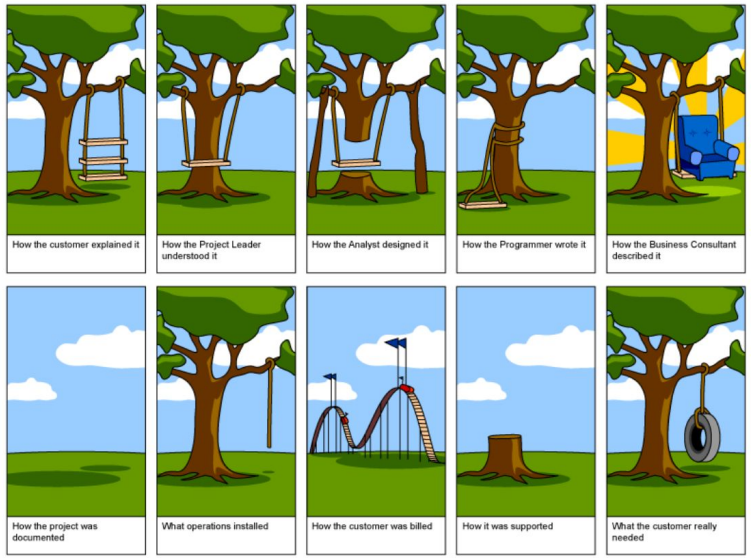
- What did you learn in first year?
  - And Java is not C
  - And this is not a Java course
    - ... but you have to write good Java!

Design

- What is design?

Software “Engineering”?

- What is good engineering design?
  - Purpose?
  - Reliability?
  - Quality?
  - Aesthetics?
  - Materials?
  - System structure?



Coding

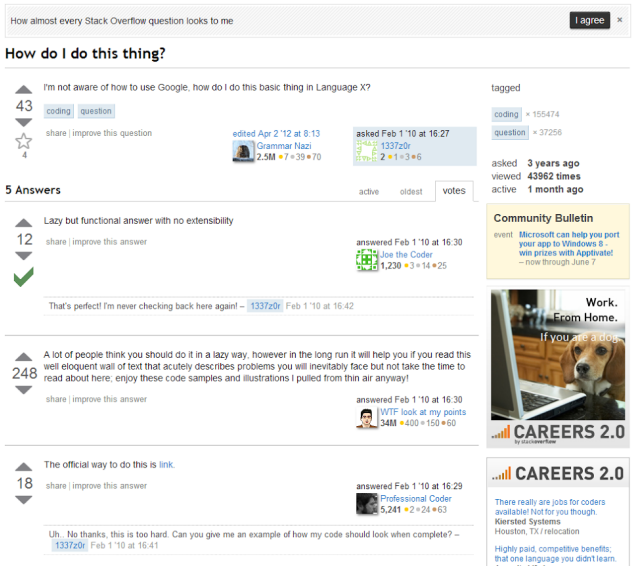
- ⋯ **not** the most important aspect of producing high quality software
  - Engineering/Design
  - Doing it properly − Best practice(s)
  - Correctness not enough
  - Design **before** coding
  - Teamwork and communication
  - Understanding the users

Toyota Production System

- Today produce software like cars
  - Focus on end users, business value
  - Elimination of waste (over-engineering)
  - People over process
    - But don’t ignore process!
  - Kaizen (continuous improvement)
  - Kanban (pull/signal)
  - Not just a collection of tools/processes

Course Outline

- Key points
  - Two cohorts, half done COMP1531
  - Course runs in both semesters
  - Knowledge/skills incremental and build on **both** lectures and labs (agile)
  - Blended learning – Read beforehand!
  - Tut-labs focus on best practice(s)
  - Use supplied references (not Internet)
  - Plagiarism (keep github repos private)



Course Outline

- Improvements for 2018
  - Course forum
    - General/assignment questions
    - Be wary of Facebook group!
  - Resources guides for each week
    - What to focus on before and after
  - Team project
    - More rigorous agile methods
    - Moodle Team Evaluation tool

Java and Eclipse

- OOP & Java basics for Tut-lab 2
  - JDK, JRE, JVM, API, IDE
  - Classes and objects (one class per file)
  - Inheritance (class extends another)
  - Encapsulation (public and private)
  - Java SE 8 API (e.g. Calendar)
  - Eclipse IDE
  - Javadoc

Next Week

- Readings mix foundations & practice
  - Object-oriented programming
  - OOP vs ADTs
  - Liskov Substitution Principle
  - Java technicalities: equality, exceptions