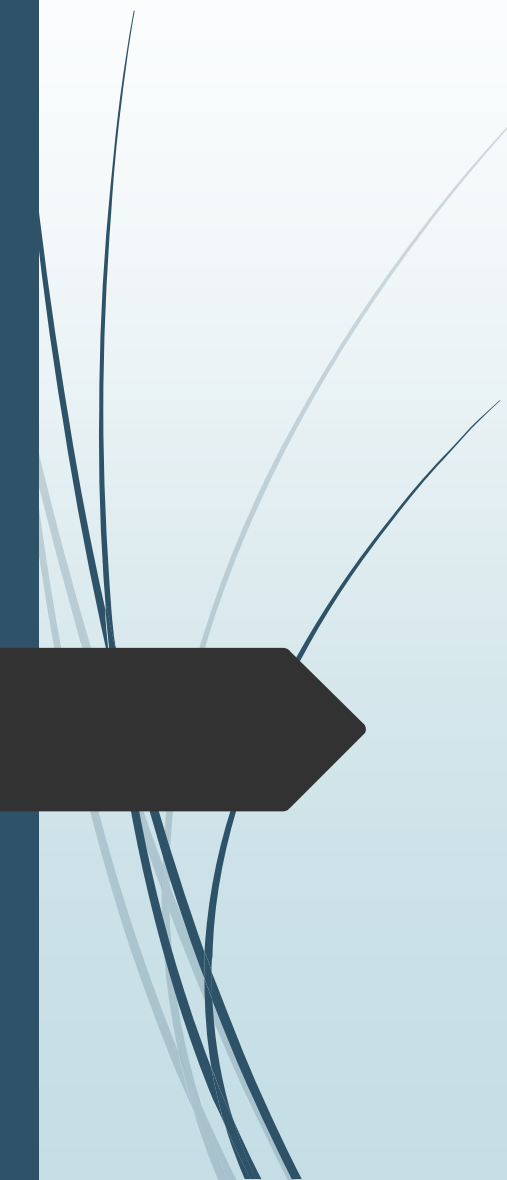

CS1632: Software Quality Assurance Fall 2019

Professor Wonsun Ahn

What is Software Quality Assurance? Your thoughts...?

Who Am I?

- Wonsun Ahn
  - First name is pronounced *one-sun*
  - You can just call me Dr. Ahn (rhymes with *naan*)
- BS in Computer Science
  - Seoul National University
- PhD in Computer Science, in Compilers and CPU Design
  - University of Illinois at Urbana Champaign
- Industry Experience
  - I've been a software engineer, field engineer, technical lead, manager
  - I've worked at a 70-person startup company
  - I've also worked as a researcher at IBM Research (thousands of people)
- When I refer to my experiences with software quality assurance, that is the background from which I will be speaking

What is Software Quality Assurance? What it's not...

- It's not something you've never done
- It's not optional
- It's not something you do after you created something
- It's not finding every bug
- It's not just testing

Well, then, what is it?

- How we ensure quality during software development.
- It's not something you do after you created something
  - It is involved in the entire software development lifecycle: developing requirements, designing the software, writing code, integrating and testing it, etc.
- It's not finding every bug
  - It is about managing business risk from exposure to bugs
- It's not just testing
  - It is identifying weaknesses and problems in the product, and creating processes to help correct them.
  - It is providing an independent view of the product.

QA includes....

Unit testing, automated testing, acceptance testing, requirements analysis, equivalence classes, white/grey/black box testing, verification, validation, combinatorial testing, performance testing, usability testing, formal analysis, static analysis, linting, traceability matrices, defect reporting, test planning, TDD, fuzz testing, KPIs, software profiling, resource analysis, usability analysis, regression testing, smoke testing, security analysis, penetration testing....

It’s an entire field of study!

Structure of the Course

- (20% of grade) Two Midterms
- (80% of grade) Six deliverables (projects), mostly done in groups of two students
  - Manual Test Plan and Traceability Matrix
  - Unit Testing
  - Systems Testing a Web Application
  - Performance Testing
  - Testing using static Analysis
  - Comprehensive testing of a large application