CS1632:
Software Quality Assurance Spring 2020

Professor Wonsun Ahn

1

Who Am I?

- Wonsun Ahn
  - First name is pronounced *one-sun*
  - You can just call me Dr. Ahn (rhymes with *naan*)
- 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 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? Your thoughts…?

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 built something
  - It's involved in the entire software development lifecycle: requirement development, software design, writing code, integrating code, verification
- It's not finding every bug
  - It's about managing business risk from exposure to bugs
- It's not just testing
  - It's also about creating processes to help correct problems
  - It's also about providing an independent view of the product

Well, then, what is it?

All activities that ensure quality during software development

QA includes....

Unit testing, systems testing, acceptance testing, automated 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
- (75% of grade) Five projects, mostly done in groups of two students
  - Manual Test Plan and Traceability Matrix
  - Unit Testing
  - Systems Testing a Web Application
  - Performance Testing
  - Comprehensive development & testing of a large application
- (5% of grade) Participation