



# CS1632: Software Quality Assurance Fall 2019

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# Your Experiences with Software Quality Assurance

- What have you done to test your code before turning in a project?



# What is Software Quality Assurance?

## Let's start with 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?

- It is how we ensure quality during software development.
- It is involved in the entire software development lifecycle: developing requirements, designing the software, writing code, integrating and testing it, etc.
- It is providing an independent view of the software product.
- It is identifying weaknesses and problems in the software product, and creating processes which help correct those weaknesses and problems.



## 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!**



# Who Am I?

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



# 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