IS2545: Software Quality Assurance

Introduction

History of Software Testing

Sources:

- Gelperin, D.; B. Hetzel (1988). “The Growth of Software Testing”.
- “Bug”, The Jargon File, ver. 4.4.7.
- Turing, Alan (October 1950), “Computing Machinery and Intelligence”.

The Debugging-Oriented Period (pre 1956)

- Focused on hardware.
- The first “bug”.
- Testing not considered a separate part of the software development lifecycle (SDLC).
- Alan Turing writes the first article that discusses software testing.

The Demonstration-Oriented Period (1957 - 1978)

- Charles Baker is the first to identify two different kinds of testing.
  - Verification - Did we build the product right?
  - Validation - Did we build the right product?
- Testing still focuses on the “happy path”.
- Employers begin posting job listings explicitly requesting testing skills.

The Destruction-Oriented Period (1979 - 1982)

- Glenford J. Myers publishes the *The Art of Software Testing* and defines testing as:
  - “The process of executing a program with the intent of finding errors.”
- “Sad path” testing.
- Quality assurance (QA) activities begin to emerge.
  - Before this, testing has focused on quality control (QC).

QA vs. QC

- QA focuses on defect prevention. QC focuses on defect detection.
- Example:
  - Bob is a tester that is tasked with insuring the quality of a flight reservation system.
  - Bob identifies a need for requirements documentation for the product so that the team knows what to build. **QA.**
  - Bob identifies a need for unit testing and agrees with the team that the product should meet unit testing code coverage standards. **QA.**
  - Bob writes test plans that insure the product meets specified requirements. **QC.**
  - Bob identifies a discrepancy between the product and the documentation and enters a bug report. **QC.**

The Evaluation-Oriented Period (1983 - 1987)

- The Institute for Computer Sciences and Technology publishes *Guideline for Lifecycle Validation, Verification, and Testing of Computer Software*.
- QA is defined as a process that begins at product inception and spans all the way to product delivery.

The Prevention-Oriented Period (1988 - present)

- Testers realize, the earlier they find a defect, the cheaper it is to fix.
- QA activities begin focussing on preventing bugs before they occur.
- Test driven development (TDD) is introduced.

Responsibilities of the tester

- It’s not the tester’s responsibility to find every defect in an application.
- It’s the tester’s responsibility to understand and describe the quality of an application.
- The tester’s job doesn’t begin with a handoff from a development team.
- The tester’s job spans the entire lifecycle of a product.
- Testing is not the tester’s only job.
- Testing is not only the tester’s job.