The Test Workflow

CSC 532: Advanced Software Engineering

Main Goals

- To ensure that the system offers a high degree of quality before it's delivered to customers
- Result: Test Model
- Artifacts
- Workers
- Activities

Artifacts

- Test Case
  - Black-box testing-use cases
  - White-box testing-use case realizations-design
  - Integration testing-system level
- Test Procedure
  How to perform

Artifacts

- Test Component
  Piece of code that automates all or parts of one or more test procedures
- Test Model – test cases, procedures and test components
- Test Plan - Describes plans including the resources
- Defect - Refers to any problem
- Test Evaluation
  Evaluation of the results of a set of tests

Workers

- Test Engineer
  - Planning Integration, system and regression testing
  - Selecting and describing test cases and corresponding test procedures
  - Ensuring the completeness and correctness
  - Evaluating the results of testing
- Component Engineer
  - Building one or more test components

- Integration Tester
  - Integration testing on each build of the system
- System Tester
  - System testing on each build of the system
Activities

- **Plan Test**
  - Developing a test plan for the given iteration
  - Two Basic Strategies
  - conformance-directed testing (feature sufficiency)
  - fault-directed testing (fault efficiency)

- **Execute test plans**
  - Important but most ignored
    - Performance and Reliability testing
    - E.g. stress testing

Activities (continued)

- **Implement Test Tool**
  - creating test components that automate test procedures (Component engineer)

- **Perform Integration Test**
  - performing manual and automated integration
  - testing for each build of the system
  - integration testers (defects)

- **Perform System Test**
  - system tester (results of integration testing satisfy the quality goals)

Key Measure

- Completeness of testing or Coverage
- Reliability

Design Test

- Designing the various levels of tests
- Procedures to carry out those tests
- The test engineer(s) should design integration and system test cases with an eye toward reuse
- Reuse of test cases within test procedures
  All of the test cases go into the test model

Evaluate Test

- evaluating results of integration and system (use-cases)
- comparing to appropriate quality goals

Test Workflow Activities