Test Plan and Test Case

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1. Test Plan

➤ A TEST PLAN is a document describing software testing scope and activities. It is the basis for formally testing any software / product in a project.
  ▪ the scope, approach, resources and schedule of intended test activities.

➤ Master Test Plan: A single high-level test plan for a project / product that unifies all other test plans.

➤ Testing Level Specific: Test plans for each level of testing:
  ▪ Unit Test Plan
  ▪ Integration Test Plan
  ▪ System Test Plan
  ▪ Acceptance Test Plan

➤ Testing Type Specific: Test plans for specific types of testing like Performance Test Plan and Security Test Plan.

Test Planning Process

1) Define test strategy
2) Define test system
3) Estimate test effort
4) Prepare and review test plan

1) Test Strategy

- ***Scope***
  - You cannot test everything.
  - What are the priorities?
    - most important features
    - new code
    - most difficult areas
    - most often used features

- ***Approach***: how to do different tasks
- ***Entry/exit criteria***
  - When can you start?
  - When can you stop?
  - When can you restart?
- ***Automation***
  - Which tools?
  - When? (e.g., only regression testing)

2) Test Systems

- ***Architecture***
  - ***Test suite***: collection of tests for a related group of requirements
  - ***Test case***: smallest unit

- ***Environment***: physical facilities，platforms

3) Estimating Test Effort

- **Tasks**: list of things to do
- **Effort estimation**: previous experience, expert judgment, decomposition
- **Schedule**: show relationships between tasks
- **Risks**: estimate likelihood and impact

Test Plan Components (1)

The format and content of a software test plan vary depending on the processes, standards, and test management tools being implemented.

The following format, which is based on IEEE standard for software test documentation, provides a summary of what a test plan can / should contain.

1. ***Test plan identifier***: unique

2. ***Introduction***: objectives of document/Specify constraints

3. ***Test items***: high-level description of inputs to testing (software / products and their versions)

4. ***Features to be tested***: list of features or requirements

5. ***Features not to be tested***: features you cannot test yet

Test Plan Components (2)

6. ***Approach***
   - how you will test
   - may include: phases of testing (unit, system, acceptance), static vs. dynamic methods, performance testing, regression testing, use of problem tracking system

7. ***Item pass/fail criteria***
   - When does a test pass?
   - When does the product pass?

Test Plan Components (3)

8. ***Suspension criteria and resumption requirements***: what to do if bugs prevent progress

9. ***Test deliverables***: all outputs of testing

     Test Case/Defects Report/ Test Report…

9. ***Environmental needs***: hardware and software/network
     any testing or related tools.

10. ***Responsibilities***: who does what/each team / role / individual.

Test Plan Components (4)

13. ***Staffing and training needs***: list people or types of people

14. ***Schedule***: milestones

15. ***Risks and contingencies***: matrix here
    - the risks that have been identified.
    - the mitigation plan and the contingency plan for each risk.

16. ***Approvals***: signatures

2. Test Case

➢ A TEST CASE is a documented set of preconditions (prerequisites), procedures (inputs / actions) and postconditions (expected results) which a tester uses to determine whether a system under test satisfies requirements or works correctly.

➢ A test case can have one or multiple test scripts .
   ▪ A sequence of instructions for the execution of a test

➢ A collection of test cases is called a test suite.