Software Testing

Non-Functional Testing

by J. Janvier (Jay/文宇)

Non-Functional Testing

Non Functional Testing

Non Functional Testing is: Testing of the Non Functional Requirements.

Most common types of Non Functional Tests :

- Usability Testing:

  Test the system’s operation and usability for a specific group of users (disabled users) (ISO 9241, ISO 9126)

  How to Test: Check the software against the ISO requirements, or invite the specific users to do acceptance testing.

- Recovery Testing:

  Testing of recovery of the system and/or the implemented data recovery mechanism(s).

  How to Test: Take a copy of the system/data and perform the recovery.

Non Functional Testing

- Load Testing:
  Measuring of the system behavior for increasing system loads (examples: the number of users that work simultaneously, number of transactions)
  How to Test: Use of Record & Playback Tools, Test Scripts to simulate the load.

- Performance Testing:
  Measuring of the processing speed(CPU) and response time for particular use cases, usually dependent on increasing load.
  How to Test: Use of Record & Playback Tools, Test Scripts to simulate the load.

- Stress Testing:
  Observation of the system behavior when it is over loaded.
  How to Test: Use of Record & Playback Tools, Test Scripts to simulate the load.

- Volume Testing:
  Observation of the system behavior dependent on the amount of the data (for example: processing of very large files)
  How to Test: Define and use specific sets of Test Data.

Non Functional Testing

- Reliability Testing:

  Run-Time operational testing to measure the mean time between failures or failure rate. (How long can the system run without error?)

  How to Test: Let the system run in a defined state for a defined amount of time.

- Robustness Test:

  Measuring the system's response to operating errors, wrong programming, hardware failure etc as well as examination of exception handling and recovery.

  How to Test: Trigger exceptional situations to see how the system will respond.

- Compatibility and Conversion Testing:

  Examination of compatibility to given systems, import/export of data etc.

  How to Test: Define and use specific sets of Test Data/Test Environment(s)

- Back-to-Back Testing:

  Testing of different configurations of the system (for example: different versions of the operating system, user interface language, hardware platform, etc).

  How to Test: Define and use different Test Environments

Questions?