FUNCTIONAL SYSTEM TESTING TECHNIQUES

REQUIREMENTS TESTING

- Verify the system perform its function correctly and correctness sustained over a continuous period of time.
- Correctness can be tested throughout the lifecycle, but reliability can be tested only when program becomes operational.

OBJECTIVES

- User requirements are implemented
- Correctness maintained over extended processing periods

- Application processing complies with organization policies and process
- Secondary user needs have been included, such as
  - Security Officer
  - Database administrator
  - Internal auditors
  - Comptroller
- The system processes accounting and process information in accordance with generally accepted accounting process and government regulating.

HOW TO USE

- Performed through the creation of test conditions and checklists.
- Final testing is more effective when test conditions directly created from user requirements when test conditions created from system documentation, defects will not be detected through testing.

Examples :

- Creating test matrix to prove system requirements documented are as requirements desired by the user.
- Using checklist to verify applications compliance to organizational policies and government regulations.
- Determining system meets auditability requirements established by organizational department of internal auditors.

WHEN TO USE

- The process should begin in requirements phase and continue the every phase of lifecycle upto maintenance

REGRESSION TESTING

Examples :

- Rerunning of previously conducted tests to ensure unchanged system segments functions properly
- Reviewing previously prepared manual process to ensure they remain correct after changes made to application system.
- Obtaining a printout from data dictionary to ensure document for data elements that are changed is correct.

ERROR HANDLING TESTING

Examples

- Entering set of transactions containing errors into system to determine whether application can identify the problems.
- Through iterative testing, enter the errors that result in corrections and reenter transactions with errors tat were not included in original set of transactions.

– Enter improper master data such as prices or employee pay rates to determine that errors occur repetitively are subjected to greater security.

MANUAL SUPPORT TESTING

Examples

- Provide input personnel with type of information they receive from customers and then enter it into the computer.
- Output reports prepared from computer based on typical conditions and then uses are asked to take necessary action based on reports.
- Users provided with a series of test conditions and asked to response.

Manual support testing is like an exam in which users are asked to obtain answer from process and manuals available to them.

INTERSYSTEM TESTING

- To ensure interconnection between applications functions correctly

Example:

- order entry
- billing
- shipping
- returned goods

OBJECTIVES

- Determining proper parameters and data are correctly passed between applications.
- Ensure that proper coordination and timing of functions exists below application systems.
- Determining documentation for the involved system is accurate and complete.

HOW TO USE

- One of the best tools is the integrated test facility. This permits testing during production environment and coupling of system can be tested at minimal cost.

Examples

- Developing set of test transactions in one application for passage to another application for processing verification.
- Entering test transactions in a live production environment using integrated test facility so that test conditions passed from application

- Manually verifying documentation in affected system is updated based upon new or changed parameters in the system being tested.

WHEN TO USE

- Whenever there is a change in parameters between application system extent of testing depends on risks associated with parameters being erroneous. If integrated test facility used the intersystem parameters can be verified after changed or new application placed into production.

CONTROL TESTING

- The controls includes data validation, file integrity, audit trails, backup and recovery, documentation etc..
- To ensure mechanisms that oversee proper functioning of the application work.

OBJECTIVES

- Accurate and complete data
- Authorized transactions
- Maintenance of adequate audit trail of information
- Efficient, effective and economical process
- Process meeting the needs of the user.

HOW TO USE

- System of internal controls
- Controls are designed to reduce the risks.
- To develop a risk matrix that method to test controls. Matrix identifies risks, control and segment within the application system in which the controls reside.

Example

– Determining manual controls used to ensure that computer processing is correct are in place and working

- Selecting transactions and verifying that processing for those transactions can be reconstructed on a test basis.

WHEN TO USE

- Controls viewed as a system within a system and tested in parallel with other systems.
- Tests 50% of total development effort goes into controls. Hence control testing is done to evaluate adequacy of controls

PARALLEL TESTING

- Used in earlier days
- To determine results of new application are consistent wit processing of previous version of application or previous application.

OBJECTIVES

- Conducting redundant processing to ensure that new version or application performs correctly
- Demonstrating consistency and inconsistency between 2 versions of same application system.

HOW TO USE

- It can be done with entire application or with a segment of applications
- Segment such as day-to-day interest calculation. It is a effective method of testing is to run new logic in parallel with old logic. If data formats change, input data will have to be modified before it can be run through new application.

The more difficulty in verifying results and preparing common input, the less attractive parallel testing becomes.

Examples

- Operating old and new version of a payroll system.
- Running old versions that operational status maintained in the event that problems are encountered in the new application

WHEN TO USE

- When there is uncertainty regarding correctness of processing of the new applications and old and new versions are similar

THANK YOU