Chapter 7

Being a Tester

How do you handle all the test activities in project from start to end?

The series of Test activities involves below:

* Gathering the Requirements through FD documents and analyzing the requirements.
* List the skills needed and plan training session if the team doesn't have the required skills.
* Participate in the FD Walk through meeting and clearing the queries if any on the requirements.
* Provide the test estimates for the testing frame.
* Organize the kick-off meeting.
* Prepare the test plan which consists of test strategy, testing objectives, resources required for testing, test schedule, test estimation and test deliverables and testing scope.
* Get the test cases development and review done and closed.
* Get the inputs on test data if any other external team is involved in creating test data.
* Track the closure of test cases execution and defects status.
* Make sure defects are closed either by resolved or deferred status.
* Make sure the test artifacts are attached and training documents are prepared.
* Have the RTM document and sign off documents.
* Once release is done, follow up of the incidents reported till the closure and also take the action items for the incidents reported.

How to do the Effective test planning?

* Scope the required tests.(functional testing, performance testing, security testing)
* Prepare the test strategy document (team size, skills, requirements list, test environment details) and making sure it is in the scope of testing and following the organizational standards.
* Make sure the testing tools are available and setup done.
* Estimate the test efforts and team(size, skills, schedule).
* Create test schedule (task, dependencies, assigned testers)
* Identify training requirements of the testers.
* Determine and procure test environment (hardware, software, and network)
* Identify the test metrics
* Prepare the test planning document which consists of scope of testing, assigned resources, test assumptions, constraints, dependencies) and reviewed and approved.

How to keep track of the testing progress?

* Communicate with the business and onshore and offshore team regularly
* Track the assigned tasks wrt software test plan and project schedule
* Report status to stake holders
* Share the test results to the business
* Get information on the latest releases and builds
* Inform and obtain issue resolution

How can you contribute to the test automation as a lead?

* Developing the framework and enhancing the framework.
* Review the test automation created by the testers
* Maintain the test automation suite of the project.
* Schedule and execute the test automation on project

What are the day to day activities as a lead?

* Mostly involved in the reviewing test cases and test automation code and incorporate the review comments
* Make sure test environment is working correctly
* Tracking the new and updated requirements in the project and modify testing artifacts accordingly
* Update the project status in the project management tool
* Administer the application under test
* Make sure the team has tasks assigned and working effectively and not facing impediments

How to manage the defects as a lead

* Review the debugs logged by team and make sure they are assigned in the respective dev team
* Track the status of the bug till the closure
* Assign the bugs for retest to respective testers

How do you motivate your team?

* Always be available and approachable to the team
* Plan, organize and lead team meeting and ensure action items are taken from the outcomes of the meeting
* Plan and organize trainings for the testers
* Review the status reports of the testers

What are the tasks involved at the beginning of the project?

Requirement gathering, planning, kick-off

What are the activities test planning process consists of ?

Scope, test strategy, estimation, schedule, test plan

What does test plan document comprises of?

It is the detailed document that contains test strategy, testing objectives, resources, test schedule, test estimation, test deliverables, testing scope.

What are the different test estimation techniques?

Estimation basically involves estimation of resources, time, human skills, cost

There are different techniques to provide estimations like Work breakdown structure(wbs) - breaking down test project into small pieces, Three point estimate - estimation method is based on statistical data, Functional point method - measure the size and give weightage to each function point.

How to do:

* divide the project into subtasks
* allocate resources for each task
* estimate efforts required to complete each task
* validate the estimate
* What are the best practices for estimation?
* Always add buffer time
* Account resource planning in estimate
* Use past experience as reference
* Stick to estimate

When the client reported more bugs in production, what actions you take as lead for testinG process to be more efficient?

* Tighten the acceptance criteria
* Add more negative test cases
* Increase the automation coverage on regression
* Modify the exit /stop condition
* Increase the test data combinations
* Add reviews for the test cases.

What are the test deliverables in testing ?

* Test strategy, test plan, test scenarios, test cases, test data, RTM, Test metrics, test incident report, test status report, test summary report, release notes, test closure report, defect/bug report, test incident report, User guide.
* Test strategy: high level document developed at the planning phase which consists of approach on how we do the testing, achieve the end point. It is derived from requirements. Test plan doc will be prepared keeping this document as base. it has scope, test approach, testing tools, industry standards, test deliverables, testing metrics, RTM , Risk and mitigation, reporting tool and test summary.
* Test Plan: Document which contains the plan for all testing activities to be done to deliver the product. it consists of test plan identifier, references, introduction, test items, features to be tested, features not to be tested, approach, pass/fail criteria, suspension criteria, test deliverables, testing tasks, environment needs, responsibilities, staffing and training needs, schedule, risks, approvals.
* Test summary report: it consists the summary of test activities and final test results.
* Test incident report: it consists of all incidents such as resolved or unresolved incidents which are found while testing the software.
* Test closure report: It gives the detailed analysis of bugs found, removed and discrepancies found in the software.
* Release notes: It will be sent to client , customer along with the build. it consists of list of new releases, bug fixes.

What are the different phases of SDLC:

* Planning and Requirement Analysis : Business Analyst and Project organizer set up meeting with client to gather all the requirements by understanding the objectives and expectations of the end user/client. Risk Identification and requirement understanding is done in this phase. INPUT: Customer/end user requirements OUTPUT: USR(User requirement specifications)
* Defining Requirements: In this phase all the requirements are clearly defined and documented and get approved from end user. INPUT: USR(User requirement specifications)

OUTPUT: SRS(System requirement specifications)

* Design: Based on the SRS document, product architects propose one or more approaches for product architecture and will be documented in DDS(Design Documentation specification). This DDS will be reviewed by important stakeholders and based on various factors like risk assessment, product robustness, design modularity, budget and time constraints the best design approach is selected. INPUT: SRS(System requirement specifications) OUTPUT: DDS(Design Document Specification) / TDD(Technical design document)
* Coding/Development: Actual development starts and product is built by developers following the coding guidelines. Programming language is chosen based on the type of software being developed. INPUT: DDS/TDD OUTPUT: Developed Software
* Testing: This refers to testing only stage of the product where the defects are reported ,tracked, fixed and retested until the product reaches the quality standards defined in SRS. INPUT: Developed Software, Test cases, Test Environment. OUTPUT: Quality Product, Test Deliverables
* Deployment and Maintenance: Product is released formally to the market/ end user and maintenance is provided for the end users. INPUT: Quality Product OUTPUT: Real time issues

What are the different Phases of STLC:

* Requirement Analysis: QA team gathers all the requirements and studies from the testing perspective to identify testable requirements and will connect with stakeholders or business team to understand the requirements in detail and clarify all the queries. requirements can be functional and non functional and also team checks the automation feasibility in this stage. INPUT: SRS Documents, Functional Documents OUTPUT: RTM, Automation feasibility report
* Test Planning: In this phase Senior QA Manager determines Test plan strategy along with efforts and cost estimates and resources , test environment, test limitations and test schedules. Test plan is also prepared and finalized. INPUT: RTM,SRS, Test Plan, test strategy templates OUTPUT: Test Plan and Test Strategy Documents, effort estimation document
* Test case Development : In this phase QA team works on activities of Test case and test script creation, review and rework. team also works on creation of test data in this phase. INPUT: Test Plan, Test Strategy Documents OUTPUT: Test cases/Scripts, test data
* Test Environment Setup: Test team will check the readiness(smoke test) of the given environment. INPUT: Test Environment OUTPUT: Smoke test results, test env with test data setup
* Test Execution: QA team executes the test scripts/test cases once the product is deployed. This phase involves test script execution, test script maintenance and bug reporting and retesting. INPUT: Test scripts/Test cases, Test env setup OUTPUT: Completed RTM with execution status, test cases updated with results, defect reports
* Test Closure : In this phase team works on test closure activities like test completion reporting, collection of test completion matrices and test results. Also testing team members meet, discuss and analyze testing artifacts to identify strategies that have to be implemented in future, taking lessons from current cycle INPUT: Test cycle results, incidents OUTPUT: Test closure report, Test metrics

What is interface testing?

* It is kind of software testing that checks the proper communication between two different software systems.
* Interface is the connection that integrates two components and interface can be API, web services, connection strings etc and testing of these connecting interfaces is called interface testing

What is Integration Testing?

* It is the process of testing the interface between 2 software units or module.
* Interface testing exposes faults in the interaction between integrated units. After unit testing of all modules integration testing is performed

What is difference between interface testing and integration testing?

* Interface testing is performed to test an interface to verify the expected result where as integration testing is done verify the end to end functionality of the integrated components.
* Interface testing is performed only on the code where as integration testing is performed on both code and GUI
* Interface testing is done n interfaces like API, Webservices etc where as integration testing is done on integrated components.

What are Black box, white box and grey box testing and differences?

Black Box Testing:

* In this testing, tester doesn't have any prior knowledge of the internal structure and source code of the software on which they perform testing.
* Testers need not to have any coding skills and in this testing, the main aim of tester is to interact with the user interface and test its functionality and to make sure that every input and output of the system meets the specified requirements.
* This is also called as Functional testing or specification based testing
* This testing in general are performed by independent testing teams from the end user point of view by testing expected outcomes for the invalid/valid inputs.
* This method of testing can be performed at every level of software testing like unit, integration, system, acceptance.
* Techniques: Decision table testing, error guessing , all pairing testing, equivalence partitioning

White Box Testing:

* In this testing, testers goal is to perform the analysis of the internal structure of software and the logic behind it.
* In testing needs string coding skills, full knowledge of the software and access to all source code nd architectural documents
* This is also called as Structural testing or logic-driven testing
* This is in general performed by developers as they check the statements and conditions, the code paths and dataflows to make sure there are no hidden errors or defect prone elements.
* This can be done at unit level as unit testing and also for integration and regression testing
* Techniques: control flow testing, data flow testing, branch testing

Grey Box Testing:

* This testing gives the advantages of both black box testing and white box testing methods while neutralizing most of the flaws through effective , balanced combining of the two.
* This method increases the coverage of testing techniques by focusing on all layers of the software tested regardless of its complexity.
* Tester should have skills to design test cases, also partial knowledge of the internal structure , including documentation on the data structure , architecture as well as functional specifications of the software.
* This is most useful at integration level.
* It is well suited for testing web applications because they doesn't have source code or binaries which makes them impossible to test using the white box method.
* Techniques: Matrix testing, regression testing, pattern testing

Is API Testing black box or white box testing?

Black box testing as tester need not to have knowledge of how API is constructed and will test with focus on input and output

Is automation testing black box or white box testing?

It can be both black box and white box testing depending on the scenarios in which automation is performed. It is black box as tester usually test he application without knowing the low level design or code of the application and sometimes automation test scripts need access to the db details hat are used in the application thus it can be type of white box testing as well.

What is difference between test strategy and test plan?

* Test plan document defines the approach, scope and intensity of efforts for software testing where as test strategy is a set of instructions which explains the test design and determine how the test should be performed.
* Test plan document can be changed but test strategy can't be changed
* Test plan happens independently where as test strategy is part of the test plan
* Test plan describes about the details where as test strategy describes about the general methodologies
* Test plan is done by test manager where as test strategy is done by task/Project manager
* Test plan is utilized at project level where as test strategy is utilized at association level for multiple projects
* Test plan has essential objective of how to test, when to test and who to test where as test strategy has essential objectives of what approach to pursue and which module to check.
* Components of test plan are test plan id, features to be tested, test techniques, testing tasks, features pass or fail criteria, test deliverables, responsibilities and schedules where as test strategy components as objectives, scope documentation formats, test processes, team reporting structure, client communication strategy etc.

What are the types of non functional testing?

* this is to test the non functional aspects like performance , usability, reliability etc.
* Non functional testing parameters are security, reliability, survivability, availability, usability, scalability, interoperability, efficiency, flexibility, portability, reusability.
* Types of non functional testing are performance testing, load testing, failover testing, compatibility testing, usability testing, stress testing, scalability testing, maintainability testing, volume testing, security testing, disaster recovery testing, compliance testing, portability testing, efficiency testing, documentation testing, recovery testing, localization testing, endurance testing, internationalization testing.

What is difference between smoke and sanity testing?

* Smoke testing is done to assure that the acute functionalities of program is working fine where as sanity is done to check bugs have been fixed after the build.
* Smoke is subset of acceptance testing where as sanity is subset of regression testing
* smoke testing is documented where as sanity is not documented
* smoke is either performed by either developers or testers where as sanity is done by testers
* Smoke testing may be stable or unstable where as sanity is stable
* Smoke testing scripted where as sanity is not scripted
* Smoke is done to measure the stability of the system / product by performing testing where as sanity is done to measure rationality of the system/product by performing testing
* Smoke testing is used to test all over function of the system where as sanity is used in the case of only modified or defect functions of system/product
* smoke can be performed manually or by automation tools where as sanity is done manually and can't be automated
* smoke is done when new product is build where as sanity is done after completion of regression testing.