Module-2

(*) What is Exploratory testing?

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(*) What is traceability matrix?

⇒ Test conditions should be able to be linked back to their sources in the test basis, this is known as traceability.

(i) Forward traceability (ii) Backward (iii) Bi-Direction

(*) What is boundary value testing?

⇒ Boundary value testing is a methodology for designing test cases that concentrates software testing efforts on cases that limits of valid ranges.

(*) What is Equivalence partitioning testing?

⇒ E.P is the process of defining the optimum number of test by:

- Reviewing documents such as the functional design specification and detailed design specification, and identifying each input condition within a function.

- selecting input data that is representative of all other data that would likely involve the same process for that particular condition.

⇒ E.P can be used for all levels of testing.

⇒ Aim is to treat groups of inputs as equivalent and to select one representative input to test them all.

(*) Levels of software testing.

(i) Unit/Component testing
(ii) Integration testing
(iii) System testing
(iv) Acceptance testing.

⊛ Component testing :-

⇒ Component (Unit) :- A minimal software item that can be testing in isolation.

⇒ A smallest testable part of software.

⇒ Component testing is the testing of individual software components.

⇒ Unit tests find problems early in the development cycle.

⇒ Unit testing is performed by using the white box testing method.

⊛ Integration testing :-

⇒ Testing performed to expose defects in the interfaces and in the interactions between integrated components or system

⇒ Integration testing is a level of the software testing process where individual Units are combined and tested as a group.

⇒ there are 2 levels of integration testing.

(i) Component Integration testing.

(ii) system integration testing.

(*) Integration testing methods.

(i) Big Bang integration testing

(ii) Incremental integration testing.

- Top Down Approach
- Bottom UP Approach

(*) Big Bang integration testing:-

⇒ In Big bang integration testing all components or modules is integrated simultaneously, after which everything is ~~finished~~ tested as a whole.

⇒ it has the advantage that everything is finished before integration testing starts.

Advantages:-

→ suitable for small systems.

- Disadvantages:-
→ Fault localization is difficult.
→ High risk.

(*) Entry and Exit Criteria:-

Entry Criteria :-
⇒ Unit tested components / modules.
⇒ All high prioritized bugs fixed and closed
⇒ All modules to be code completed and integrated successfully.
⇒ Integration test plan, test case, scenarios to be signed off and documented.
⇒ Required test environment to be set up for integration testing.

Exit Criteria:-
⇒ Successful testing of integrated Application
⇒ Executed test cases are documented.
⇒ All high prioritized bugs fixed and closed
⇒ Technical documents to be submitted followed by release notes.

⋆ System Testing:-

→ System Testing - Process of testing an integrated system to verify that it meets specified requirements.

2 types of system testing:-

(i) Functional system testing

(ii) Non-functional system testing.

⋆ Functional Testing	Non-Functional Testing
→ is performed Using functional specification Provided by client and verifies the system against the function requirement.	is checks the performance reliability, scalability and other non-functional aspects of the software system.
→ Functional testing execute first	Non-functional testing performed after.
→ Manual testing or Automation tools can be used for functional testing.	Both tools can be used

⇒ Business requirements are the inputs to functional testing.	Performance parameters like speed, scalibility are inputs.
⇒ Easy to do manual testing	Tough to do manual testi
✗ Types of Functional Testing	Types of Non-functional testing.
(i) Unit/component testing	(i) Performance testing
(ii) smoke testing	(ii) load testing
(iii) Sanity testing	(iii) Volume testing
(iv) integration testing	(iv) stress testing
(v) White box testing	(v) Penetration testing
(vi) User acceptance testing	(vi) Compatibility testing
(vii) regression testing	(vii) Migration testing.
(viii) Black box testing	

(*) Black Box Testing and its different types.

⇒ Testing, either functional or non-functional without reference to the internal structure of the component or system.

⇒ specification based testing technique is also known as 'black box'.

⇒ the tester have no knowledge of how the system or component is structured inside the box.

⇒ In black box testing the tester is concerning on what the software does, not how it does it.

⇒ (*) The technique of testing without having any knowledge of the interior working of the application is Black box testing.

(*) Advantages :-

⇒ Well suited and efficient for large code segments.

⇒ Code access not required.
⇒ large number of moderately skilled tester can test the application without knowledge of coding.

(*) disadvantage :-
⇒ Test cases are difficult to design.
⇒ Inefficient testing
⇒ limited coverage.

(*) Techniques of Black box testing :
or specification based testing

(1) Equivalence partitioning
(2) Boundary value analysis.
(3) Decision tables
(4) state transition testing
(5) Use case testing
(6) other Black box testing.

(*) Errors, Defects, bugs and Failures.

⇒ A mistake in coding is called error.

⇒ Error found by tester is called defect.

⇒ defect accepted by development team then it is called bug.

⇒ Build or final Product does not meet the requirements then it is failure.

(*) Quality :-

⇒ the degree to which a component, system or process meets specified requirements and or customer needs and expectations.

⇒ Quality software is reasonably bug or defect free.

(*) Risk :-

⇒ A factor that could result in future negative consequences, usually expressed as impact and likelihood.

(*) Types of Risk

(1) Project Risk

(2) Product Risk

(7)

QA	QC	Tester
⇒ Activities which ensure implementation of Process, Procedures and standards in development of software.	Activities which ensure the verification of developed software with respect to specified requirements.	Activities which ensure the identification of bugs/error/defe in the software
⇒ Focuses on Processes and Procedures rather than testing	Focuses on testing.	Focuses on actual testing
⇒ Process oriented	Product oriented	Product oriented
⇒ Preventive activities	~~Product oriented activities~~ Corrective Process	"

⇒ It is a subset of STLC	QC can be Considered as the subset of QA	Testing is the subset of QC.

(*) White box testing and list the types of white box testing.

⇒ Testing based on the analysis of the internal structure of the Components or system.

⇒ also called structure based testing.

⇒ called as glass box testing. because the testers require knowledge of the how the software is implemented, how it works.

(*) Advantages

⇒ more testing coverage

⇒ quality of the the software product.

(*) Disadvantages.

⇒ costly.

⇒ more skills are required

(*) Techniques of white box testing :-
(1) statement coverage
(2) Decision coverage
(3) conditional coverage.

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Smoke Testing	Sanity Testing
=> smoke testing is Performed to ascertain that the Critical Functionalities of the program is working fine.	sanity testing is done to check the new functionality bugs have been fixed.
=> main objective of this testing is to verify "stability" of the system.	main objective of this testing is to verify the "rationality" of the system.
=> Performed by developer or tester.	usually performed by tester.
=> usually documented or scripted.	usually not documented and Unscripted.

smoke testing is a subset of regression testing.	Sanity testing is a subset of acceptance testing.
⇒ exercises the entire system from end to end.	exercises only the particular component of the system.
⇒ its just like general health check up	it's just like specialized health check up.

(*) Performance testing & types

⇒ Software Performance testing is a means of quality assurance. It involves testing software applications to ensure they will perform well under their expected workload.

⇒ Focus of Performance testing is checking a software programs: speed, scalability and stability.

⇒ Types of performances testing

- load testing.
- stress testing
- Endurance testing
- spike testing
- Volume testing
- scalability testing

(*) GUI testing

⇒ Graphical User interface testing is the process of testing the system's GUI of the system under test.

⇒ GUI testing involves checking the screens with the controls like menus, buttons, icons and all types of bars.

(*) Stress testing

⇒ Stress testing is done to make sure that the system would not crash under extreme conditions.

⇒ It is use to determine the limit, at which the system or software or hardware breaks.

⇒ the main purpose of stress testing is to make sure that the system recovers after failure which is called as recoverability

(*) load testing:

⇒ load testing its a performance testing to check system behaviour under load.

⇒ Testing an application under heavy loads such as testing of a web site under a range of loads to determine at what point the system's response time degrades or fails.

(*) when regression testing be performed.
⇒ when system or the environment change
⇒ when testing bug fix releases as a part of the maintenence phase.

(*) Alpha testing
⇒ It is always performed by the developer at the software development site.
⇒ Performed in Virtual Environment.
⇒ Performed with in the organization.
⇒ It comes under both category white box and black box testing.

(*) Beta testing
⇒ It is always performed by the customer at their own site.
⇒ It is open to market and Public.
⇒ It is Performed in Real time environment
⇒ Performed out side of organization.
⇒ It is only a kind of black box testing.

(*) mention what are the categories of defects?

⇒ Database defect
⇒ Critical Functionality defect
⇒ Functionality defect.
⇒ Security defect
⇒ UI defect.

(*) Bug life cycle:-

⇒ A computer 'Bug' is an error, flaw, fault in the computer program that prevents it from working correctly.

⇒ Bugs arise from mistakes and errors made by people in either a program's source code or it's design.