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Domain: Testing

Exploration on STLC

Software Testing Life Cycle is a systematic process to test the software to ensure it meets the customer requirements, and it is free of defects.

The main goal of STLC

- to give high quality software that meets the customer's requirements.
- To identify and document any issues or defects in the software application as early in the development process

The stages/phases of STLC are

1. **Requirement Analysis**
   - → This is the first phase in which the **quality assurance team** understands the requirements with the help of SRS documents and communicates with the stakeholders to get a better understanding of the requirements.
   - → The quality assurance team will understand both the functional and non-functional requirements.
   - → The **Requirement Traceability Matrix** is the document generated once the requirement is gathered.

2. **Test Planning**
   - → This is the most important phase where the scope and objectives of the testing are defined.
   - → **The testing manager** will comminute with the quality assurance team and identify the risks and dependencies of the software, defining the scope and objectives of the testing.
   - → Testing manager is the who assigns the roles and responsibilities for the testing team.
   - → Once all done, the testing manager will document it, and that document is called a **Test Plan Document.**

3. **Test Case Development**

   → The **lead of the testing team** is responsible for document and design the testcases and prepares the test data

   → The deliverables will be the **test cases** and the **test data**.

   → Once the test cases are developed it will be reviewed by the QA team.

4. **Test Environment Setup**

   → Ensuring the testing environment mirrors the production setup.

   → Installation of software and hardware as required.

   → This is done by the **testing manager** and **testing team.**

   → The **Environment setup checklist** and **readiness confirmation** are the deliverables.

5. **Test Execution and Defect Reporting**

   → **The testing team** is responsible for executing the test cases. The test cases are executed based on the prepared test cases. Running the test cases and comparing the actual results with the expected results.

   → The test cases are executed either by using automation or manual testing approaches.

   → The tools to execute the test cases are JIRA, Bugzilla and defect tracking tools.

   → The document will be generated at the end of this phase called "**Defect Report**".

   → This document contains the steps to reproduce, screenshots/logs and severity and priority are documented.

6. **Test Closure Activity**

   → Final stage of STLC where all the testing activities are completed and documented.

   → The test summary report is created that summarizes the overall testing process, including the number of test cases executed, the number of defects found, and the overall pass/fail rate.

   → Analyzation the key metrics like defect density, defect leakage and test effectiveness.

   → **Lesson learned document** and the **test summary report** are the final document which are generated by the **QA team** and **testing manager.**

Advantages of STLC

- Improved efficiency

  Organised process saves time and efforts

- Higher quality

  It is a structured process and minimize the defect leakage

- Transparency

  Clear document and reporting enhance project visibility

- Cost effectiveness

  Early detection of issues reduces rework cost