**ASQA Engineer Training Tasks**

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**Task 1:**

**Prepare a document stating why software quality is important, and what impact it has over the development teams?**

Software Quality refers to a software system which is bug and defect free, delivered in time and within budget, meets the requirements, is maintainable and of high quality. Quality of software is an important concern for both clients and organization, as clients always demand high quality and error free software and organizations also try to deliver a product which is error free and perform its functionality according to user’s requirements. Delivering quality software gains customer’s trust and increases the reputation of an organization. It ensures that the end product is competitive, secure, and smoothly performs its expected functions. Software quality drives predictability. Do it once and do it right, and there will be less re-work, less variation in productivity and better performance overall. Products get delivered on time, and they get built more productively. High quality software applications which are free from errors and bugs can enhance the credibility and reputation of the business. Thus, the owners of the business will be capable of boosting the profits as well as the growth of the business. A quality product satisfies the customer. A satisfied customer comes back for more and provides positive referrals. Quality of software reflects the skills of the development team; a good and experienced team always develops quality software by utilizing all possible and suitable design patterns and optimized code. Quality software are easy to maintain and reusability of these software is high.

**Task 2:**

**Prepare a document listing the parallel comparison of the steps in SDLC and STLC, with examples.**

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| **Parameter** | **SDLC** | **STLC** |
| Abbreviation | Software Development Life Cycle | Software Testing Life Cycle |
| Origin | Development Life Cycle | Testing Life Cycle |
| Definition | SDLC aims to produce a high-quality system that meets or exceeds customer expectations, work effectively and efficiently. | STLC identifies what test activities to carry out and when to accomplish those test activities. |
| Objective | The objective of SDLC is to complete successful development of the software. | The only objective of the STLC phase is testing |
| Phases | 1. Requirement Gathering 2. Design Phase 3. Development Phase 4. Testing Phase 5. Deployment & Maintenance | 1. Requirement Analysis 2. Test Planning 3. Test Design 4. Environment Setup 5. Test Execution and Closure |
| Requirement Gathering | Business analyst gathers the requirements and create Development Plan.  **Deliverable: Software Requirement Specification** | In STLC, the QA team analyze requirement documents and create System Test Plan  **Deliverable: RTM Requirement Traceability Matrix** |
| Design Phase | Development team creates the high and low-level design plans  **Deliverable: Design Document** | In STLC, the test analyst creates the Integration Test Plan  **Deliverable: Test Plan** |
| Development Phase | The real code is developed, and actual work takes place as per the design documents.  **Deliverable: Code** | The testing team prepares the test environment and test cases  **Deliverable: Test Case, Test Data** |
| Testing Phase | Testing is done in this phase, which include Unit, Integration, System, Regression etc.  **Deliverable: Testing Document** | Test cases are executed in this phase and defect report and retesting is also done in this phase.  **Deliverable: Defect Report** |
| Deployment & Maintenance | SDLC phase also includes post-deployment supports and updates.  **Deliverable: BRD Versions** | Testers performs regression testing to updated and evolved system.  **Deliverable: Regression Test Suite** |
| Outcome | A good quality software product | A bug free software |

**18-May-2022**

**Task 3:**

**Prepare a document and enlist 3 major differences between BRD, SRS, FSD, with examples.**

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| **Parameter** | **BRD** | **SRS** | **FSD** |
| Abbreviation | Business Requirement Document | Software Requirements Specifications | Functional Specification Document |
| Definition | BRD is a formal document which describe requirement provided by clients. | SRS is a document which describe functional and nonfunctional requirement of the software to be developed. | FSD is a document which describe all the details around the functional requirements on a project. |
| Contains | BRD describes very high-level business and stakeholder requirements. | It describes at a high level, the functional and technical specification of the software. | It describes granular functional requirements, data flow and UML diagrams. |
| Created By | Business Analyst | System/Business Analyst | System/Business Analyst, Implementation Team |
| Origin | It is derived from client interaction and requirements. | It is derived from the BRS. | It is derived from SRS. |
| Example | Improve user experience by providing tracking facility of parcel. | Tracking software will contain Login, Admin, Customer and Organization modules. | Login module will contain fields like Enter Username, Enter Password, Sign in Button. |

**20-May-2022**

**Task 4:**

**Statement Coverage and Path Finding is performed in QA or QC? Explain with justifications according to your understanding.**

* **Quality Assurance** is a process by which entities review the quality of all factors involved in production, and to manage the quality of product.
* **Quality Control** is a part of quality management focused on fulfilling quality requirements. It is used to test the deliverable project in order to catch bugs and to make it bugs free. It is usually done by testers.
* **Statement Coverage** is white box testing technique which demands execution of all statements at least once in the source code. It is a metric, to calculate and measure number of executed statements. It is done by tester to check code coverage.
* **Path Finding** is used to find all possible paths from source point to end point. In Software Development path finding is used to check all possible executable path using source code. We draw Control Flow Graph from code and using CFG we make paths.

**Statement Coverage is performed in Quality Control.**

* Statement Coverage is done by Tester.
* It is performed by executing code.
* It is used to identify bugs and errors in code.

Based on these statements we consider Statement coverage as a Quality Control. As in statement coverage our main focus is to execute each line of code to check the existence of errors in source code.

**Path Finding is performed in Quality Assurance.**

* We find path by just studying code and draw control flow graph.
* It doesn't need to execute the program.
* It is basically used to find all possible path and from these paths we select best paths for testing.

We consider Path finding as Quality Assurance as it doesn't need to execute the code, and it also provide paths which are used to select best path in this way we save our resources and time of testing. QA is preventive technique and Path finding is also preventive as we prevent extra effort of testing by selecting best paths to gain maximum coverage.

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