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10. Given the quality assurance term (QA), how do you relate testing to QA in general?

Quality assurance is an away of avoiding mistakes in a product or service. Quality assurance is a part of the broader term quality management which focuses on maintaining integrity of products or services in other to increase the stakeholder confidence. Testing however is a process to find defects. Testing is a process used to detect the problems in a product or service. The main difference between quality assurance and testing is that whilst Quality assurance is about the various activities designed to ensure that a project conforms to the expectations of stakeholders, testing is exploring the system to find defects. Testing focuses on using a product orientation and corrective activity to find bugs and conduct system inspection.

What are the concepts of QA that can be applicabl in software quality assurance (SQA)?

SQA gets all development processes under strict control by maintaining the quality of production and ensuring customers satisfation . SQA process ensures that all software quality process, methods, and activities are monitored and complied with against the standards. Concepts of QA that are applicable in SQA are adherence to software engineering standards, they are both processed focused and ensure that the product developed is fit for purpose. Most importantly they both adhere to the ISO 9000 standard for software.

How can SQA be different from the QA for any other products?
Software Quality Assurance is about engineering process that ensures quality whilst QA is a process which provides assurance the quality request is achieved. Again, the scope of SQA applies to all products that will be created by the organization. Lastly QA may not necessarily require deep knowledge of information technology unlike SQA, it is may not be related to main product of a software.

11. Describe the names and abbreviations of each of the test processes (or why they are called, what they are called). Also, what phases each process suggests?

Testing involves a series of process rather than a single activity. It is planned and requires discipline to act upon. The effectiveness of software testing is determined by the quality of the test process. There are five testing processes which have been outlined below:

1) Phase 1 - Planning and Control

Test planning defines the objectives of testing and specifies the various test activities the enable us to meet objectives and missions. Test planning produces a document that outline the overall approach to test objectives. In test planning there is the conscious effort to understand the goals of the stakeholders, customer as well as the project. Reviewing of test basis, identifying test conditions, writing test cases, and designing the test environment are all considered in the test planning process.

Test Control is the persistent activity of comparing actual progress against the plan, and reporting the status, which could be deviations from the plan [1]. It involves actions necessary to meet the mission and objectives of the project [2].

This can be defined as the phase 1 which is requirement collection, here the requirements for the software product are collected from the stakeholders, customers and industry expects. The project owners then outline the project scope, defining the budget, gathering resource, as well as looking into the potential risk and quality assurance requirements.

2) Phase 2 - Analysis and Design

Test analysis and Design is the second phase, this phase involves the reviewing of test basis and identification of test conditions. All artifacts are known as test basis because they are used as the basis of defining what and how the testing should be done. The review of test basis includes the review of the product requirement, design, architecture, design specifications, product risk analysis and interfaces. In this phase, the requirements and system are also

evaluated for testability [3]. The requirements help testers in designing tests, and designing the test environment set-up and identify the required infrastructure and tools

3) Phase 3 - Implementation and Execution

Test execution and implementation is the third phase in the test process, here the test conditions designed are taken and set up as test. This phase involves the running of the specified test on a computer system either manually or by using an automated test tool [4]. The implementation stage involves prioritizing test cases, using test techniques and test approaches to create test suites from the test cases for efficient test execution.

Test execution involve running the test suites and the individual test cases and following the pre-defined test procedures. Test that failed previously are re-executed to confirm a fix. The outcome of the test execution is recorded in the test log which cloud be pass/Fail. The differences between the actual and expected results is also observed.

4) Phase 4 - Evaluating Exit criteria and Reporting

In this phase the result of test execution is measured against the test objectives and a test summary report are prepared for the various stakeholders. In some instances, there is a return to test execution, if the test objectives are not met and more testing are needed. The exit criteria are the definition of when to stop testing, which depends on code coverage, business risk, time and cost which varies from project to project. Finally, when the exit criteria have been met, a test summary report is prepared and broadcasted to stakeholders.

5) Phase 5 - Test Closure activities:

This is the final phase in software testing process, in this phase Test closure activities are done when the software is considered as complete and ready to be delivered. The testing can however be closed for some reason which could be, when a project is cancelled, when a considerable target is achieved or when a maintenance release or update is done

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