Chapter 7

System Assurance & Testing

7.1 Software Quality Assurance

Software quality assurance is a planned and systematic pattern of all actions necessary to provide adequate confidence that an item or product conforms to established technical requirements and a set of activities designed to evaluate the process by which the products are developed or manufactured. Contrast with: quality control.

A systematic, planned set of actions necessary to provide adequate confidence that the software development process or maintenance process of a software system product conforms to established functional technical requirements.

The quality of software is assessed by a number of variables. These variables can be divided into external and internal quality criteria. External quality is what a user experiences when running the software in its operational mode. Internal quality refers to aspects that are code-dependent, and that are not visible to the end-user. External quality is critical to the user, while internal quality is meaningful to the developer only. (software testing, 2018)

External Quality (Functional):

- Stability
- Speed
- Accuracy
- Features
- Robustness
- Ease-of-use

Internal Qualities (Structural):

- Maintainability
- Flexibility
- Re-usability
- Readability

- Understandability

7.2 Software Quality Management Process

Software quality management (SQM) is a management process that aims to develop and manage the quality of software in such a way so as the best ensure the product meets the quality standards expected by the customer while also meeting any necessary regulatory and developer requirements, if any. Software quality managers require software to be tested before it is released to the market, and they do this using a cyclical process-based quality assessment in order to reveal and fix bugs before release. The job is not only to ensure their software is in good shape for the consumer but also to encourage a culture of quality throughout the enterprise.

Some of the specific SQM processes are defined below in standard: (software testing, 2018)

7.2.1 Quality Assurance Process

Quality Assurance makes sure the project will be completed based on the previously agreed specifications, standards and functionality required without defects and possible problems. Its monitors and tries to improve the development process from the beginning of the project to ensure this. (software testing, 2018)

7.2.2 Verification & Validation (v&v) Process

Verification and validation – These are the two important aspects of software quality management. Verification gives the answer to the question whether the software is being developed in a correct way and validation provides the answer whether the right software is being produced. In a nutshell, verification denotes precision whereas validation indicates value of the end or final product or software. Verification and validation is an important step used in various processes in different industries.

7.2.3 Review Process

The purpose of a technical review is to evaluate a software product to determine its suitability for its intended use. The objective is to identify discrepancies from approved specifications and standards. The results should provide management with evidence confirming (or not) that the product meets the specifications and adheres to standards and that changes are controlled.

7.2.4 Audit Process

The purpose of a technical review is to evaluate a software product to determine its suitability for its intended use. The objective is to identify discrepancies from approved specifications and standards. The results should provide management with evidence confirming (or not) that the product meets the specifications and adheres to standards and that changes are controlled. procedures. The audit is a formally organized activity, with participants having specific roles, such as lead auditor, another auditor, a recorder, or an initiator, and includes a representative of the audited organization. The audit will identify instances of nonconformance and produce a report requiring the team to take corrective action.

7.3 Testing

Table XIV. Testing scenario No:1

Testing scenario No:1	
Scenario	Admin Login testing scenario of this system
Input's	Username, password of admin for Login
Desired Output's	When enter username, password then get successful level define.
Actual Output's	For login our system work correctly
Verdict	Getting result from Desired Output's and Actual Output's decided this system is successful for login.

Table XV. Testing scenario No:2

Testing scenario No:2	
Scenario	Admin can add Products
Input's	Products Information

Desired Output's	When enter all basic info correctly, Products will be registered in the system.
Actual Output's	For adding products our system work correctly
Verdict	Getting result from Desired Output's and Actual Output's decided this system is successful for Adding Products.

Table XVI. Testing scenario No:3

Testing scenario No:3	
Scenario	Admin can add Stuffs
Input's	Giving Stuff's basic info correctly
Desired Output's	When enter all the basic info stuff will be registered
Actual Output's	For adding Stuffs our system work correctly
Verdict	Getting result from Desired Output's and Actual Output's decided this system is successful for Adding stuffs

Table XVII. Testing scenario No:4

Testing scenario No:4	
Scenario	Admin can add Layouts.
Input's	Layouts Basic inputs
Desired Output's	When enter all basic info correctly, System Layouts will be registered
Actual Output's	For Adding layouts our system work correctly
Verdict	Getting result from Desired Output's and Actual Output's decided this system is successful for adding layouts

Table XVIII. Testing scenario No:5

Testing scenario No:5	
Scenario	Admin can edit Products.
Input's	Products basic info update by the admin
Desired Output's	When changed basic information for the Product by the admin.
Actual Output's	For update Product info our system work correctly

Verdict	Getting result from Desired Output's and Actual Output's decided this system is successful for update Product details.

Table XIX. Testing scenario No:6

Testing scenario No:6	
Scenario	Admin can remove Stuffs
Input's	Delete Stuffs from our database.
Desired Output's	When admin want he/she can remove an Stuffs
Actual Output's	I check this process and get actual outputs
Verdict	The process is worked correctly and successfully.

Table XX. Testing scenario No:7

Testing scenario No:7	
Scenario	Take daily monthly reports and calculate profit.
Input's	Admin give whole month all cost and incomes.
Desired Output's	Systems take the information and calculate monthly profit and print the profit.
Actual Output's	I check this process and get actual outputs
Verdict	The process is worked correctly and successfully.