**CHAPTER 7**

**SYSTEM TESTING**

The System testing is stage in which is the system tested to check whether the system works accurately and efficiently before it was implemented. Testing is vital to the success of the system. System testing makes a logical assumption that if all the parts of the system are correct, the goal will be successfully achieved.

**8.1 TYPES OF TESTING**

• Unit Testing

• Integration Testing

• Validation Testing

• Output Testing

• System Testing

• Performance Testing

• Procedure Testing

**8.1.1 Unit Testing**

Unit testing focuses verification efforts on the smallest unit of software design, the module. The objective in unit testing is to isolate a unit and validate its correctness. A manual approach to unit testing may employ a step-by-step instructional document. However, automation is efficient for achieving this, and enables the many benefits listed in this article. Conversely, if not planned carefully, a careless manual unit test case may execute as an integration test case that involves many software components.

Thus preclude the achievement of most if not all of the goals established for unit testing. This is also known as “Module Testing”. The modules are tested separately. This testing is carried out during programming stage itself.

During unit testing, modules are tested in isolation:

• If all modules were to be tested together it may not be easy to determine which module has the error.

• Unit testing reduces debugging effort several folds.

• Programmers carry out unit testing immediately after they complete the coding of a module.

**8.1.2 Integration Testing**

Data can be lost across the interface; one module can have an adverse effect on others. Integration testing is a systematic testing for constructing program structure. While at the same time conducting tests to uncover errors associated within the interface. Integration testing addresses the issues associated with the dual problems of verification and program construction. After the software has been integrated a set of high order sets are conducted. The objective is to take unit tested modules and combine them test it as a whole. Thus, in the integration-testing step, all the errors uncovered are corrected for the next testing steps.

After different modules of a system have been coded and unit tested

•Big Bang Approach

•Top-Down Approach

•Bottom Approach

•Mixed Approach

**8.1.3 System Testing**

System testing involves:

•Validating a fully developed system against its requirements.

•System testing is done against the requirements in the SRS

•This is the last phase of testing before the product is delivered

•System testing consists of three kinds

•Alpha testing

•Beta testing

•Acceptance testing

•**Alpha** - System testing is carried out by the test team within the developing

organization.

•**Beta** - System testing performed by a select group of friendly customers.

•**Acceptance** - System testing performed by the customer himself to determine whether the system should be accepted or rejected.

**8.1.4 Validation Testing**

The outputs that come out of the system are as a result of the inputs that go in to the system. So, for the correct and the expected outputs the inputs that go in to the system should be correct and proper.

So, this testing is done to check if the inputs are correct and they are validated before it goes in to the system for processing.

**8.1.5 Output Testing**

After performing the validation testing, the next step is output testing of the proposed system, since no system could be useful if it does not produce the required output in the specified format. Asking the users about the format required by them tests the outputs generated or displayed by the system under consideration. Hence the output format is considered in 2ways-one is on screen and another is printed format.

**8.1.6 Performance Testing**

Performance testing is designed to test the run-time performance of software within the context of an integrated system. It requires both hardware and software instrumentation. It is often necessary to measure resource utilization in an exacting fashion.

**8.1.7 Procedure Testing**

Determine the clarity of the documentation on operation and the user of the system by having users do exactly what manual request. In case of this project work system testing and unit testing are mainly used.