**SYSTEM TESTING**

Software testing is an important element of software quality assurance and represents the ultimate review of specification, design and coding. It increasing visibility of software as a system element and the costs associates with a software failure are motivating forces for all well planned through testing .The system is tested with giving wrong information. Cascade deletion and, the software developer checks updating. Testing and debugging are different activities, but debugging must be accommodated in any testing strategy.

**UNIT TESTING**

The first step in testing is Unit testing. Individual testing are tested to ensure that they operate correctly. Each component is tested independently, without other system components. The module interface is tested to ensure that information properly flow into and out of the program.These are tested that the module operates at boundary established to limit or restrict processing. Unit testing is normally considered as an adjunct to the coding step. After the coding has been developed, received and verified for correct syntax, unit testing begins. Here each module is tested to provide its correctness, validity and determine any missing operations and to verify whether the objectives have been met, errors are noted down and corrected immediately.

Unit testing is the important and major part of the project. So errors can be rectified easily in each module and program clarity can be increased. In this project, the entire system is divided into several modules and is developed individually. Hence, unit testing is conducted to individual modules.

**Integration Testing**

The second step in the testing process is the Integration testing. Integration testing is the systematic technique for constructing the program structure while conducting tests to uncover errors associated with integrating. After the unit test, each module is gradually integrated to form one final system.

All the modules when unit tested will work properly but after integrating the data can cause error one module can have an inadvertent, adverse effect on another; sub functions when combined may not produce the desired major function; global data structures can cause problems, etc.

Hence, the objective of integration testing is to take unit tested modules and build a final program structure. In this project, modules are combined to find the overall performance of the system.

**7.2 VERIFICATION & VALIDATION**

**Client Side Validation**

Various client side validations are used to ensure on the client side that only valid data is entered. Client side validation saves server time and load to handle invalid data. Some checks imposed are:

* VBScript in used to ensure those required fields are filled with suitable data only. Maximum lengths of the fields of the forms are appropriately defined.
* Forms cannot be submitted without filling up the mandatory data so that manual mistakes of submitting empty fields that are mandatory can be sorted out at the client side to save the server time and load.
* Tab-indexes are set according to the need and taking into account the ease of user while working with the system.

**Server Side Validation**

Some checks cannot be applied at client side. Server side checks are necessary to save the system from failing and intimating the user that some invalid operation has been performed or the performed operation is restricted. Some of the server side checks imposed is:

* Server side constraint has been imposed to check for the validity of primary key and foreign key. A primary key value cannot be duplicated. Any attempt to duplicate the primary value results into a message intimating the user about those values through the forms using foreign key can be updated only of the existing foreign key values.
* User is intimating through appropriate messages about the successful operations or exceptions occurring at server side.
* Various Access Control Mechanisms have been built so that one user may not agitate upon another. Access permissions to various types of users are controlled according to the organizational structure. Only permitted users can log on to the system and can have access according to their category. User- name, passwords and permissions are controlled o the server side.
* Using server side validation, constraints on several restricted operations are imposed.

**IMPLEMENTATION**

**8. SYSTEM IMPLEMENTATION**

Provision must be made for environmental change which may affect either the computer or other parts of computer based system, such activity is normally called maintenance. It included both improvement of the system functions and the correction of the faults which arise during the operation of the system.

Maintenance activity may require the continuing involvement of a large proportion of computer department resources.

Responsibility for the maintenance of a particular system must be allocated before any requirement for change arises. The maintenance team should be allowed to influence the original design of the system programs in so far as if will affect their maintainability

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