6.SYSTEM TESTING

AND

IMPLEMENTATION

Software testing is a critical element of software quality assurance and represents the ultimate reviews of specification, design and coding. Testing present an interesting anomaly for the software. Testing is vital to the success of the system. Errors can be injected at any stage during development. System testing makes a logical assumption that if all the parts of the system are correct, the goal will be successfully achieved.

During testing, the program to be tested is executed with set of test data and the output of the program for the test data is evaluated to determine if the program is performing as expected. A series of testing are performed for the proposed system before the system is ready for user acceptance testing.

**TYPES OF TESTING:**

* Unit Testing
* Integration Testing
* Validation Testing
* Output Testing
* User Acceptance Testing

**6.1 SYSTEM TESTING**

**6.1.1. UNIT TESTING**

Unit testing focuses verification effort on the smallest unit of the software design, the module this is known as module testing. Since the proposed system has modules the testing is individually performed on each module.

Using the details description as a guide, important control paths are tested to uncover errors within the boundary of the modules. This testing was carried out during programming stage itself. In this testing step each module is found to be working satisfactorily as regards to the expected output from the module .In our system we want to check the informations like whether the inputs are saved to back end correctly. So Every form includes this testing because we want to maintain our database because informations like Employee details, calculation tables including Test and Clr should be maintained correctly. These are checked in the programming step itself.

**6.1.2. INTEGRATION TESTING**

Data can be test across an interface, one module can have adverse effect on another, sub function when combined may not produced the desired function. Integration testing is a systematic technique for constructing the program structure while at the same time conducting test to uncover errors associated within the interface.

The objective is to take unit tested modules and built a program structure that has been dictated by design. All modules

are combined in this testing step. The entire program is tested as a whole. Correction is difficult at this stage because the isolation of causes is complicated by the vast expense of the program. Thus in the integration testing step all the errors uncover are corrected for the next testing step. Primarly we have met with several errors like data save and table linking. These are corrected well.

6**.1.3 VALIDATION TESTING**

At the culmination of integration testing, software is completely assembled as a package. Interfacing errors have been uncovered and corrected and a final series of software test-validation testing begins. Validation testing can be defined in many ways, but a simple definition is that validation succeeds when the software functions in manner that is reasonably expected by the user. Software validation is achieved through a series of tests that demonstrate conformity with requirement. After validation test has been conducted, one of two conditions exists.

* The function or performance characteristics confirm to specifications and are accepted.
* A validation from specification is uncovered and a deficiency created.

There was some errors with our project in this stage too. Because there are some validation problems like saving the deatls without filling all the fields , Data type mismatch errors and so on. These are corrected in this validation stage.

Deviation or error discovered at this step in this project is corrected prior to completion of the project with the help of the user. Thus the proposed system under consideration has been tested by using validation testing and found to be working satisfactorily.

**6.1.4 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 specific format. The output generated or displayed by the system under consideration is tested asking the users about the format required by them. Here, the output is considered in two ways: one is on the screen and the other is printed format.

In the first test we saw that our reports are disorderd and not Interactive. We found that Customer bills, Salary payment statements like outputs should be interactive. We made it in this step.

The output format on the screen is found to be correct as the format designed according to the user needs. For the hard copy also, the output comes out as specified by the user. Hence output testing doesn’t result in any connection in the system.

**6.1.5 USER ACCEPTANCE TESTING**

User acceptance of a system is the key factor for the success of any system. The under consideration is tested for user acceptance by constantly keeping in touch with the prospective system users at a time of developing and making for ‘**Student Information System**’.

The testing of the software began along with coding. Since the design was fully object oriented, first the interfaces were developed and tested. Then unit testing was done for every module in the software for various inputs, such that each line of code is once executed.

After all modules were coded the integration test were carried out. Some minor errors were found in the output at the earlier stage and each of them was corrected. In the implementation of user interface part no major errors were found. After the software was completely developed, the testing was done. The output of the software were correct and accurate during the time of demonstration, after that no errors were reported.

6.2. IMPLEMENTATION

Implementation is the stage in the project where the theoretical design is turned into a working system and is giving confidence on the new system for the users, that it will work efficiently and effectively. It involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the change over, an evaluation, of change over methods.

Implementation is the final and important phase. The most critical stage in achieving a successful new system and in giving the users confidence that the new system will work and be effective. The system can be implemented only after thorough testing is done and if it found to working according to the specification. This method also offers the greatest security since the old system can take over if the errors are found or inability to handle certain type of transactions while using the new system.

At the beginning of the development phase a preliminary implementation plan is created to schedule and manage the many different activities must be integrated into plan. The implementation plan is updated throughout the development phase, culminating in a changeover plan for the operation phase. The major elements of implementation plan are test plan, training plan, equipment installation plan and a conversion plan.

There are three types of implementation:

* Implementation of a computer system to replace a manual system.
* Implementation of a new computer system to replace an existing one.
* Implementation of a modified application to replace an existing one, using the same computer.

In our case it was about to implement a new system to replacemanual system. All the operations in the ”STUDENTS INFORMATION SYSTEM “ was conducted manually. They have keep a lage list of books to maintain their records.