

CHAPTER 7

TESTING

Software testing is the process used to help identify the correctness, completeness, security and quality of developed computer software. This includes the process of executing the program or application with the intent of finding errors. Quality is not an absolute; it is value to some person. With that in mind testing can never completely establish the correctness of arbitrary computer software; testing furnishes a criticism or comparison that compares the state and behaviour of the product against a specification.

Testing forms the first step in determining the errors in a program. Clearly the success of testing in revealing errors in programs depends critically on the test cases. Because code is the only product that can be executed and whose actual behaviour can be observed, testing is the phase where the errors remaining from all the previous phases must be detected.

The program to be tested is executed with a set of test cases and the output of the program for the test cases are evaluated to determine if the programming is performing as expected.

7.1 Testing Methodologies

The following are the testing methodologies:

- **Unit Testing:** This is the first phase of testing; the different modules or components are tested individually, often performed by coder himself.
- **Integration Testing:** In this type of testing many unit tested modules are combined into subsystems, which are then tested. The goal here is to see if the modules can be integrated properly.
- **System Testing:** Here the entire software system is tested. The reference document for this process is the requirement specification and the goal is to see if the software meets the requirements. This form of testing is popularly known as black box testing.

7.2 Testing Criteria

Table 7.1: Test cases for Flood Prediction using AI

Sl. No	Test Procedure	Expected Result	Actual Result	Passed/ failed
1	Click 'Go' with state selected as "Please Select" and month selected as "Please Select"	Error saying "State Cannot be Please Select"	Error saying "State Cannot be Please Select"	Passed
2	Click 'Go' with month selected as "Please Select"	Error saying "Month Cannot be Please Select"	Error saying "Month Cannot be Please Select"	Passed
3	Select a state and month	Application runs successfully	Application runs successfully and outputs the result	Passed