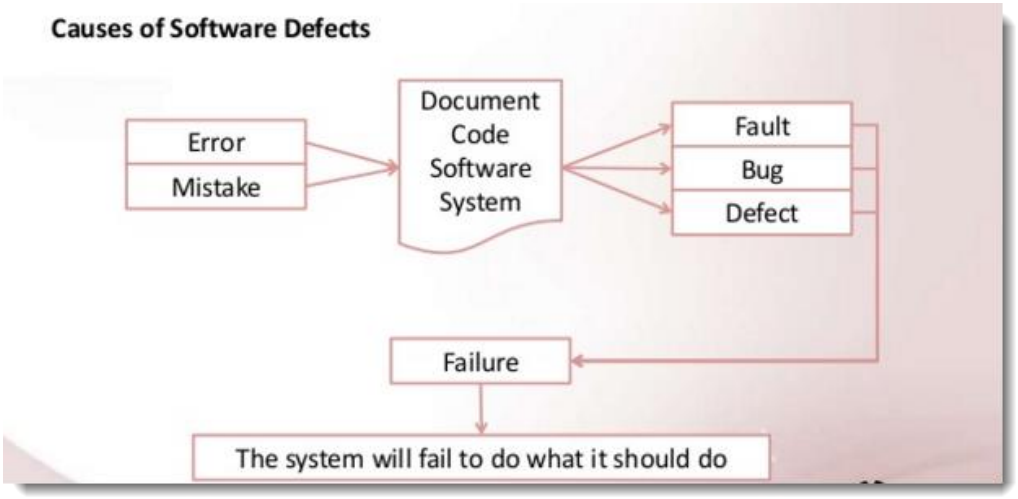
Software Testing

Software Testing is the process of identifying the ***correctness and quality*** of software program. The purpose is to check whether the software satisfies the specific requirements, needs and expectations of the customer.

In other words, testing is executing a system or application in order to find software ***bugs, defects or errors***. The job of testing is to find out the reasons of application failures so that they can be corrected according to requirements.

Example:
Car manufacturer tests the car for maximum speed, fuel efficiency and safety from crash. These test later become the part of advertising strategy for car sales.



There can be many reasons for defects in the software. The developer can also make an error which may result in a defect or bug in the software source code. Any defect or bug in the software will produce wrong results causing a failure.

When a bug or defect causes in software application, testing is done to find out the cause of defect and to remove the bug.

Also, if a part of software develops bug, it has to be rectified so that it does not disrupts the whole process of software program. That rectified part is again tested to confirm that it is compatible with the rest of program.

Positive Vs Negative Testing

Software Testing is process of Verification and Validation to check whether software application under test is working as expected. The intent is to find the defects in the code and to improve the quality of software application.

To test the application, we need to give some input and check if the results are as per mentioned in the requirements or not. Testing of application can be carried out in two different ways, Positive testing and Negative testing.

Positive Testing

Positive Testing is testing process where the system is validated against the valid input data. In this testing, tester always check for only valid set of values and check if an application behaves as expected with its expected inputs.

The main intention of this testing is to check whether software application does that what it is supposed to do. Positive Testing always tries to prove that a given product and project always meets the requirements and specifications.

Positive testing is testing of the normal day to day life scenarios and to check the expected behavior of application.

Example of Positive Testing:

Consider a scenario where you want to test an application which contains a simple text box to enter age and requirements say that it should take only numerical values. So here provide only positive numerical values to check whether it is working as expected or not is the Positive Testing.

Most of the applications developers implement Positive scenarios where testers get less defects count around positive testing.

Negative Testing

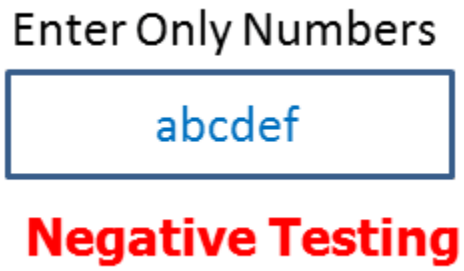
Negative Testing, commonly referred to as error path testing or failure testing is done to ensure the stability of the application. Negative testing is the process of applying as much creativity as possible and validating the application against invalid data

In Negative Testing the system is validated by providing invalid data as input. **A negative test checks if an application behaves as expected with its negative inputs.** This is to test the application that does not do anything that it is not supposed to do so. Such testing is to be carried out keeping negative point of view & only execute the test cases for only invalid set of input data.

The main reason behind Negative testing is to check the stability of the software application against the influences of different variety of incorrect validation data set.

Negative testing helps to find more defects & improve the quality of the software application under test but it should be done once the positive testing is complete.

Example of Negative Testing :
Considering example as we know phone no field accepts only numbers and does not accept the alphabets and special characters but if we type alphabets and special characters on phone number field to check it accepts the alphabets and special characters or not than it is negative testing.



Here, expectation is that the text box will not accept invalid values and will display an error message for the wrong entry.

Difference Between Positive and Negative Testing

Sno	Positive Testing (Valid)	Negative Testing (Invalid)
1	Positive Testing means testing the application or system by giving valid data.	Negative Testing means testing the application or system by giving invalid data.
2	Positive Testing is done by keeping positive point of view for example checking the mobile number field by giving numbers only like 9999999999.	Negative Testing is done by keeping negative point of view for example checking the mobile number field by giving numbers and alphabets like 99999abcde.
3	It is always done to verify the known set of **Test Conditions**.	It is always done to break the project and product with unknown set of Test Conditions.
4	This Testing checks how the product and project behave by providing valid set of data.	This Testing covers those scenarios for which the product is not designed and coded by providing invalid set of data.

Boundary testing:

- *Allowed data bounds and limits* – Applications can use input fields that accept data in a certain range. For example, there can be an edit box into which you enter an integer number from 10 to 50, or an edit box that accepts text of a specific length. To check the application's behavior, create a negative test that enters a value smaller than the lower bound or greater than the upper bound of the specified field.
  Another example of this negative test case is entering data that exceeds the data type limits. For instance, an integer value can normally contain values in the range of -2,147,483,648..2,147,483,647 (the size is limited by the number of bytes in memory).
  To check the application's behavior, you can create a negative test that enters a value exceeding the bounds. For instance, the test can enter a large number (100,000,000,000) into an integer field.