Functional Testing Types:

1.Unit Testing
2.Integration Testing
3.Smoke Testing
4.Sanity Testing
5.Regression Testing

Unit Testing:

● Unit testing involves the testing of each unit or an individual component of the software application.
● A unit is a single testable part of a software system and tested during the development phase of the application software.
● The purpose of unit testing is to test the correctness of isolated code. A unit component is an individual function or code of the application. White box testing approach used for unit testing and usually done by the developers.
● If developers done unit testing then there is less chances for failing smoke testing

Integration Testing

● Integration testing is the second level of the software testing process comes after unit testing. In this testing, units or individual components of the software are tested in a group.
● The focus of the integration testing level is to expose defects at the time of interaction between integrated components or units.
● Once all the components or modules are working independently, then we need to check the data flow between the dependent modules is known as **integration testing**.

● Integration Testing has three types/approaches:

1.Top- down Integration Testing

2.Bottom-Up Integration Testing

3.Sandwich Integration Testing

1.Top- down Integration Testing

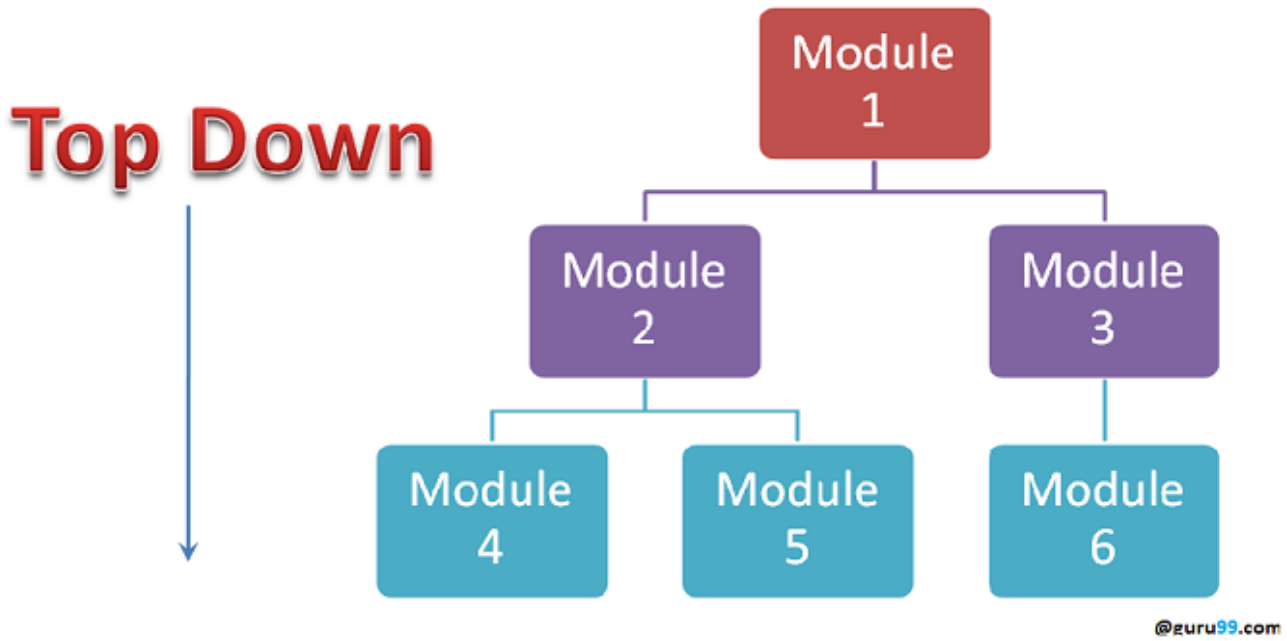
● **Top Down Integration Testing** is a method in which integration testing takes place from top to bottom following the control flow of software system.

● The higher level modules are tested first and then lower level modules are tested and integrated in order to check the software functionality.

● Stubs are used for testing if some modules are not ready.

● Stub is dummy module created by developer when sub module is not developed yet or sub module is under development

● Stubs are basically known as a “called programs”



2.Bottom-Up Integration Testing

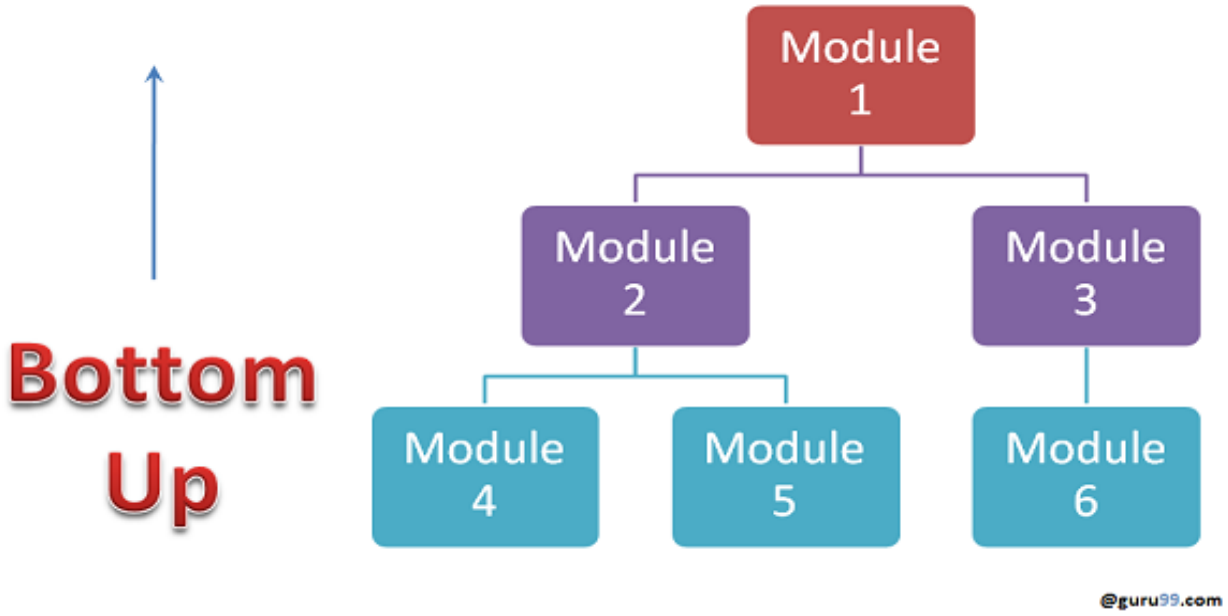
● **Bottom-up Integration Testing** is a strategy in which the lower level modules are tested first.

● We will test the bottom module i.e sub module first then we will test main module.

● If main module is not available then instead of that they use Drivers

● Drivers are dummy module created by developer when main module is not developed yet or if s main module is under development

● drivers are the “calling program”

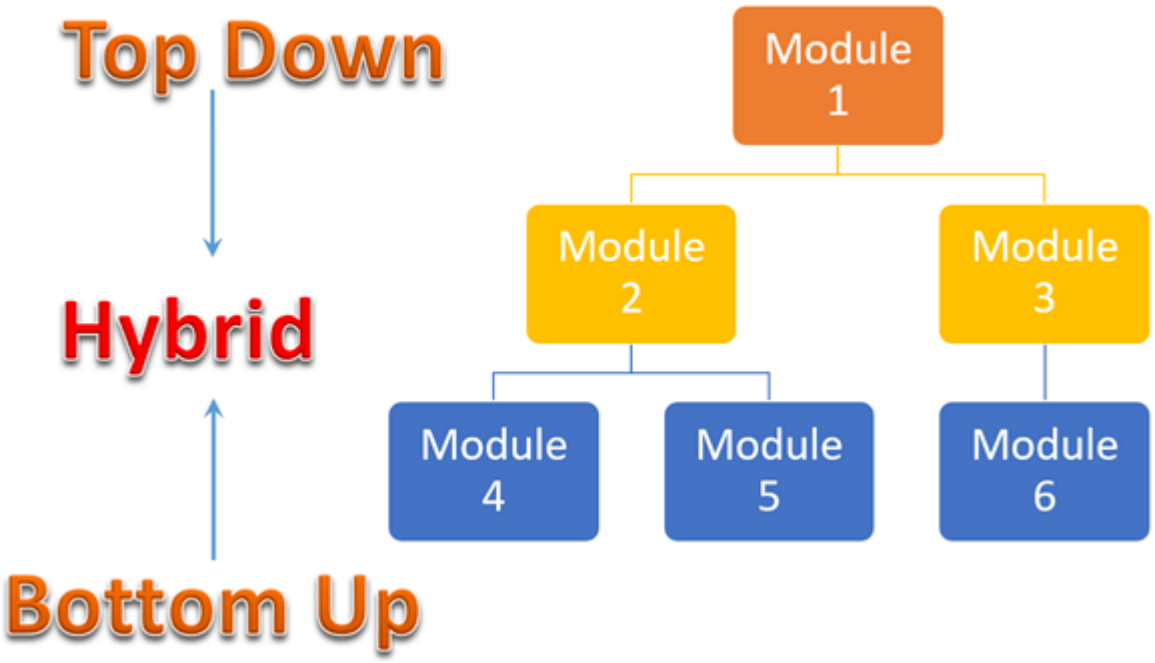


3.Sandwich Integration Testing

● **Sandwich Testing** is a strategy in which top level modules are tested with lower level modules at the same time lower modules are integrated with top modules and tested as a system.

● It is a combination of Top-down and Bottom-up approaches therefore it is called **Hybrid Integration Testing**.

● It makes use of both stubs as well as drivers.



Regression Testing:

● Regression Testing is a type of testing that is done to verify that a code change in the software does not impact the existing functionality of the product.

● This is to ensure that the product works fine with new functionality, bug fixes or any changes to the existing feature. Previously executed test cases are re-executed in order to verify the impact of the change.

● Regression Testing is a Software Testing type in which test cases are re-executed in order to check whether the previous functionality of the application is working fine and the new changes have not introduced any new bugs.

When do we do regression testing?

1.When new functionalities are added to the application.

Example:

A website has a login functionality which allows users to login with only emai.Now client adds login with facebook,google,phone number.

2.When there is a change Requirement(CR)

Example:

A website has a login functionality with email,facebook,gmail etc. Now clients want login only with email.

3.When there is a Bug Fix

Example:

Imagine, a ‘Signup Functionality’ is not working in a login page and the tester reports a bug stating that signup is not working. Once the bug is fixed by the developers, testers test it to make sure whether the Signup Functionality is working as expected. Simultaneously tester test other functionalities which are related to Signup Functionality

Sanity Testing

● Sanity Testing is done during the release phase to check for the main functionalities of the application without going deeper.
● It is also Called as subset of regression Testing
● It is done at “release level”.
● At times due to release time constraints rigorous regression testing can’t be done the build, Sanity testing done that part by checking main functionalities.