**Software testing:**

Testing the functionality of an application based on customer requirement is called "software testing".

(or)

It is testing an application with the intent of finding defects/bugs is called "software testing".

(or)

Testing is a process of QA (Quality assurance) and QC (Quality control).

**Manual testing:**

Testing an application without a tool is called "manual testing".

**Automation testing:**

Testing an application by using a tool is called "automation testing".

**Types of testing:**

There are different types of testing to test an application:

1. White box testing
2. Grey box testing
3. Black box testing

**1.White box testing (WBT):**

It is also called as Structural testing (or) unit testing (or) glass box testing (or) transparent testing (or) open box testing.

Testing the source code or internal structure of an application is called "white box testing".

It is usually done by **"developers".**

When situation demands, even "test engineer" can do this if he knows the coding.

**2.Grey box testing (GBT):**

Testing the source code and user interface of an application parallelly together is called as "Grey box testing".

It is done by a person who is aware of both testing and source code of an application. Means, he can be a developer or a Test engineer he can be **SDET (software development engineer in test).**

**3.Black box testing (BBT):**

It is also called as behavioural testing (or) closed box testing (or) functional testing.

Testing the user interface (UI) or graphical user interface (GUI) of an application is known as "Black box testing”. It is done by **test engineers.**

Here we don't worry about internal structure of an application.

**Example:** for UI----- Facebook Instagram etc...

for GUI------ all gaming applications like pubg, free fire etc.......

In Black Box Testing we have 3 types of testing:

1. Functional Testing
2. Integration Testing
3. System Testing

**1.Functional Testing:**

When developer gives one module will start with "functional testing". Before this we have to be ready with all the scenarios of all the modules. If developer gives multiple modules, we should do functional testing for all the modules separately.

Here we should check all the positive and negative scenarios for each and every component and find defects.

**Example:**

In Gmail we have different modules like login module, compose module and inbox modules etc…...

For the above modules, we write separate test cases i.e., functional test cases.

**2.Integration Testing:**

Testing the data flow between two or more dependent modules is called as "integration testing".

Whenever we are testing one module and if we are sending data to another module, "integration testing" will happen here.

Checking whether sending data and receiving data same or not it is called as "integration testing".

**Example:**

If I send an email from "compose module" and checking in "sent module", it is "integration testing".

If the data is not displaying same then it is called as "defect".

**Note:**

To do integration testing, **at least we need 2 dependent modules**. After functional testing, we perform integration testing.

**Ex:** If I sending message in WhatsApp to others, I get single tick mark is called as functional testing.

When the other person sees that message, I will get double tick mark & it will change to blue colour it is integration testing.

**3.System Testing:**

Testing an application end to end like a real end user is called as "system testing". It is done on **testing server**, which is **similar to production server**.

**Ex:**

Sign up -----> login -----> compose -----> send items -----> log out

Login -----> inbox -----> read email -----> reply -----> send item -----> log out

Login -----> settings -----> Reset password -----> save new password -----> logout -----> login with new password -----> logout

**Note:**

Functional, integration and system testing are mandatory for each and every application. This is the **most important testing** which we do to find defects.

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**Retesting:** Testing the defect fix of an application is called “retesting”.

**Regression testing:** Testing the impact areas of an application after defect fix or changes done in the application is called as “regression testing”.

**Performance testing (or) Scalability testing:**

Testing the response time of an application by applying load for an application is known as “Performance testing”.

**Load:** number of users who uses application.

**Response time:** time taken to get the expected screen based on the user actions.

**Types of performance testing:**

1. Load testing
2. Stress testing
3. Volume testing
4. Soak testing

**1.Load testing:** Testing the response time of an application by applying load which is less than or equal to designed number of users (it will be given by customer).

**2.Stress testing:** Testing the response time of an application by applying load which is greater than designed number of users that can be around 10 to 20% greater than the load.

**3.Volume testing:** Testing the response time of an application by transferring huge volume of data through the application.

**4.Soak testing:** Testing the response time of an application by applying load continuously for long duration of time.

**Smoke testing (or) confidence testing (or) build verification testing:**

Testing the basic or critical features of an application before doing through testing’s like functional testing, integration testing, and system testing.

Where we can check **only positive scenarios.**

Smoke testing is also called as **health check of software** it is done **based on time sense**. We do not check all the features; we check only basic or critical features.

**Sanity testing:**

it is Testing the new features and bug fixes also. Here we can check **both positive and negative scenarios**. It is the **subset of regression testing.**

**Exploratory testing:**

When requirement is not there but application is there. In this testing application will be there but requirement is not there so we have to apply **common sense** and **understanding** and take a decision it is called exploratory testing.

**Adhoc testing or monkey testing or Gorilla testing:**

Testing an application randomly without following any formal documents like Requirement, Test cases etc... is called Adhoc Testing.

This is the best testing for **gaming applications**.

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**Globalisation testing:**

Testing an application which is developed for multiple languages is called as globalisation testing.

**Types of globalisation testing:**

1. Internationalisation (I18N)
2. Localisation (L10N)

**1.Internationalisation:**

Testing the application whether it displays the right content at the right place in the right language is called as internationalisation (I18N) testing.

**2.Localisation:**

Testing the application with respect to the local culture (or) local standard to that country (or) state (or) region is called as localisation (L10N) testing.

**Compatibility testing:** Testing the application with different hardware and software platforms is called as compatibility testing.

**Types of compatibility testing:**

1. Software compatibility testing
2. Hardware compatibility testing
3. Mobile compatibility testing
4. Browser compatibility testing

**1.Software compatibility testing:**

Testing an application in different software platforms is software compatibility testing.

**2.Hardware compatibility testing:**

Testing an application in different hardware platforms is hardware compatibility testing.

**3.Mobile compatibility testing:**

When we test an application for different operating systems and also for each different versions like KitKat, Windows, IOS for each brand of mobile is mobile compatibility testing.

**4.Browser compatibility testing:**

Testing an application in different browsers is browser compatibility testing.

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