**What is software?**

A Software is a collection of computer program that helps us to perform task.

**Types of Software:**

* System software 🡪 device driver, operating system, servers, utilities, etc
* Programming software 🡪 complier, debugger, interprets, etc
* Application software 🡪 web Application, Mobile application, desktop application.

**What is software testing?**

* Software testing is a part of software development process.
* Software testing is an activity and identify the defects in the software.
* The objective of testing is to release quality product to the client.

**Why do we need testing? (Software Quality)**

* Bug free (every software will have bug but it will be 1% or 2%)
* Delivery on time
* Within budget
* Meets requirements or expectations
* Maintainable (important)

**Project Vs Product:**

* If software application is developed for specific customer based on the requirement, then is called project (B2B). 🡪 Bank Application => bank Employee can only use this application.
* If software application is developed for multiple customers on market requirements, then is called product (B2C) 🡪 Google Pay => any bank customer can use this application.

**Error, Bug / Defect & Failure:**

* Error is a human mistake on the code
* Bug/defect and error are not same
* Bug/defect are when tester passing invalid username and password if it’s login then it’s called bug/defect. Bug will be finding by tester’s and tell to the developer
* Failure: will be faced on customer side or production side. When customer tells something not working properly then it’s called failure.

Why software has bug?

* Miscommunication or No communication
* Software complexity
* Programming error
* Lack of skilled tester

**SDLC – Software Development Life Cycle:**

* SDLC is a process used by software industry to design, develop and test software.
* Every IT company has 3 P’s pillars
* P – People
* P – Process -> Design -> Develop -> Test.
* P – Product.

**SDCL**

**SDCL:**

* SDLC has a N-number of modules which is based on company working process.
* Some company will follow different models
  + Waterfall module
  + Spiral module
  + V-Module, etc….

**Waterfall Module:**

Requirement Analysis

System Design

Implementation

Testing

Development

Maintenance

**Requirement Analysis:**

On the requirement Analysis we will get the **SRS** **(Software Requirement Specification)** document from the customer

**System Design:**

Based on the **SRS** document the designer will divide the module into **High Leve Modules & Low-Level Modules,** they will prepare a design document.

**Implementation:**

Based on **Design document** the developers will start coding for the requirement.

**Testing:**

After completion of implementation the tester will start testing.

**Deployment:**

Deploy the software to the customer.

**Mainte**

https://codeshare.io/eVnBLK

**Functional Testing:**

* **Smoke Testing**
* **Sanity Testing**
* **Regression Testing**
* **Unit Testing**
* **Integration Testing**

**Non-Functional Testing:**

* **Performance Testing**
* **Load testing**
* **Stress testing**
* **Spike testing**
* **Volume testing**

**Smoke testing:**

* Smoke testing also called build verification testing, is a software testing method that is used to determine if a new software build is ready for the next testing phase. This testing method determines if the most crucial functions of a program work but does not delve into finer details.
* Smoke testing is done to make sure the build we received from the development team is testable/stable or not.
* Smoke testing is performed by both developers and testers.
* Smoke testing, build may be either stable or unstable.
* It’s done on initial builds.
* It is a part of basic testing.
* Usually, it done every time there is a new build release.

**Sanity Testing:**

* Sanity testing is done during the release phase to check for the main functionalities of the application without going deeper
* Sanity testing build is relatively stable
* It is done on stable builds
* It is a part of regression testing

**Regression Testing:**

Regression testing conduct on modified build to make sure there will not be impact on existing functionality because of changes like adding/deleting/modifying feature. There are three types of regression testing.

* Unit Regression testing
* Regional Regression testing
* Full Regression testing

**Unit Testing:**

* A unit is a single component or module of the software.
* After completion every single module the developer team will test the module. This testing will do by developers because it is a white box testing.

**Decision Table Technique:**

Decision table technique is a combination of **Ruler** and **Conditions**.

No. of Test cases = No. of Rules = 2 power (Condition)

**Example:**

**Condition:**

1. If a new user is signing up 🡪 then he should get 15% of discount.
2. If an existing user 🡪 then he should get 10% of discount.
3. If a user has a coupon code 🡪 then he should get 20% discount.

No. of Test cases = No. of Rules = 2 power (Condition)

No. of Test cases = 2^3 = 8 test cases = No. of test cases

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Condition | Rule 1 | Rule 2 | Rule 3 | Rule 4 | Rule 5 | Rule 6 | Rule 7 | Rule 8 |
| New User 15% | T | T | T | T | F | F | F | F |
| Existing user 10% | T | T | F | F | T | T | F | F |
| Coupon code 20% | T | F | T | F | T | F | T | F |
| Result | Negative | Negative | 35% | 15% | 30% | 10% | Negative | Negative |