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**Testing Day 1 Lab**

**True or False:** Why is Testing necessary?

1. because software is likely to have faults **True**
2. To learn about the reliability of the software **True**
3. To fill the time between the delivery of the software and the release date **False**
4. To prove that the software has no faults **False**
5. Because testing is included in the project plan **False**
6. Because failures can be very expensive **True**
7. To avoid being sued by customers **True**
8. To stay in business **True**

**Compare between:**

1. functional and non-functional testing

* Functional testing verifies each function/feature of the software whereas Non-Functional testing verifies non-functional aspects like performance, usability, reliability, etc.
* Functional testing can be done manually whereas Non-Functional testing is hard to perform manually.
* Functional testing is based on customer’s requirements whereas Non-Functional testing is based on customer’s expectations.
* Functional testing has a goal to validate software actions whereas Non-Functional testing has a goal to validate the performance of the software.
* A Functional Testing example is to check the login functionality whereas a Non-Functional testing example is to check the dashboard should load in 2 seconds.
* Functional describes what the product does whereas Non-Functional describes how the product works.
* Functional testing is performed before the non-functional testing.

1. black box, white box, and gray box

#### ****BLACK BOX TESTING****

Also known as Behavioral Testing, Black box testing is a software testing technique where the application is tested without the knowledge of its internal code structure. The name only depicts that the software program is not perceived through the tester’s eyes. This type of testing commonly focuses on only the input and output of the software system.

* **WHITE BOX TESTING**

This type of software testing evaluates and verifies the ‘source code’, or the internal workings of a software system, such as its code and infrastructure. White Box is an essential part in a modern Continuous Integration (CI)/Continuous Delivery (CD) of automated build processes.

* **GREY BOX TESTING**

Grey Box Testing is a combination of Black Box Testing and White Box Testing techniques. In Black Box, the tester is not aware of the internal workings of the application being tested, while White Box Testing allows the tester to have that knowledge freely. Grey Box Testing grants a partial information of the internal structure to the tester, including the access to internal data and design for the purpose of creating test cases.

1. What is the SDLC?

The software development lifecycle (SDLC) is the cost-effective and time-efficient process that development teams use to design and build high-quality software. The goal of SDLC is to minimize project risks through forward planning so that software meets customer expectations during production and beyond. This methodology outlines a series of steps that divide the software development process into tasks you can assign, complete, and measure.

### **Plan**

### **Design**

### **Implement**

### **Test**

### **Deploy**

### **Maintain**

1. What are the Testing levels?

In general, mainly four levels of testing in software testing: Unit Testing, System Testing, Integration Testing, and Acceptance Testing.

* Unit Testing
* Integration Testing
* System Testing
* Acceptance Testing

1. What are the Testing Types?

### Unit tests

### Integration tests

### Functional tests

### End-to-end tests

### Acceptance testing

### Performance testing

### Smoke testing

1. [Bonus] search for the difference between TDD, DDD and BDD

* Test Driven Development, or TDD, is a process of developing software where a test is written prior to writing code. Once that is done, developers will work towards writing just enough code to pass the test, and then begin refactoring.
* Domain Driven Design, or DDD, is an approach to development that connects the implementation to an evolving model; placing the focus of the project on the core domain (sphere of knowledge), the logic behind it, and forces collaboration between technical and nontechnical parties to improve the model.
* Behavioral Driven Development, or BDD, is a refinement of TDD and DDD that aims to streamline development through narrowing communication gaps, creating a better understanding of the customer, and allowing for continuous communication. Simply put, BDD is a way of combining business requirements with code and allows you to understand the behavior of the system from a business/end-user perspective.

1. Who does Testing?

It depends on the process and the associated stakeholders of the project(s). In the IT industry, large companies have a team with responsibilities to evaluate the developed software in context of the given requirements. Moreover, developers also conduct testing which is called **Unit Testing**. In most cases, the following professionals are involved in testing a system within their respective capacities −

* Software Tester
* Software Developer
* Project Lead/Manager
* End User