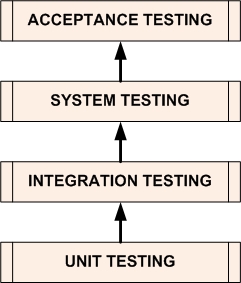
**ASSIGNMENT-5**

**SOFTWARE TESTING LEVELS**

**Q1. What are the various levels of testing?**

**Ans.** There are four **levels of software testing**: **Unit**>> **Integration**>> **System**>> **Acceptance.**



1. UNIT TESTING

A level of the software testing process where individual units/components of a software/system are tested. The purpose is to validate that each unit of the software performs as designed. It is basically done by the developers to make sure that their code is working fine and meet the user specifications.

1. INTEGRATION TESTING

A level of the software testing process where individual units are combined and tested as a group. The purpose of this level of testing is to expose faults in the interaction between integrated units. It is also called as module testing.

1. SYSTEM TESTING

A level of the software testing process where a complete, integrated system/software is tested. The purpose of this test is to evaluate the system’s compliance with the specified requirements. In system testing the testers basically test the compatibility of the application with the system.

1. ACCEPTANCE TESTING

A level of the software testing process where a system is tested for acceptability. The purpose of this test is to evaluate the system’s compliance with the business requirements and assess whether it is acceptable for delivery. Acceptance testing are basically done to ensure that the requirements of the specification are met.

**Q2. What is AUT?**

**Ans.** AUT is "Application under test".After designing and coding phase of development cycle,when the application(build) comes under testing then at that time application state is under test,so at that time period that application(build) is called "Application Under test".

**Q3. What is UAT?**

**Ans.** UAT is “User Acceptance Testing”. It is a neccessary step before migrating/implementing a new feature, or fix, to a Production environment. Basically is a "user validation" step in a Development or Parallel testing area.

**Q4. What is the difference between Unit Testing and Component Testing?**

**Ans.** The **Unit Testing** involves testing of individual programs, modules, or components to demonstrate that the program executes as per the specification and it validates the design and technical quality of the application. In Unit Testing, the Called Components (or Communicating Components) are replaced with Stubs, Simulators, or Trusted Components. Testing Stubs or Drivers are used to simulate the behavior of interfacing modules.

The **Component Testing** is like **Unit Testing** with the difference that all Stubs and Simulators are replaced with the real objects. Here a Unit is a component, and integration of one or more such components is also a Component.

**Q5. What are the various types of Integration Testing?**

**Ans.** Types of integration testing are:

1. [**Big Bang integration testing**](http://istqbexamcertification.com/what-is-big-bang-integration-testing/)**:** In Big Bang integration testing all components or modules are integrated simultaneously, after which everything is tested as a whole. As per the below image all the modules from ‘Module 1’ to ‘Module 6’ are integrated simultaneously then the testing is carried out.
2. **Top-down integration testing:** Testing takes place from top to bottom, following the control flow or architectural structure (e.g. starting from the GUI or main menu). Components or systems are substituted by stubs.
3. **Bottom-up integration testing:**Testing takes place from the bottom of the control flow upwards. Components or systems are substituted by drivers.

**Q6. What are the various factors influencing test scope?**

**Ans.** Factors influencing test scope:

### **Scope of the project**

### **Complexity of the application**

### **Use of supporting tools / technologies**

### **Implementing the Framework**

### **Learning & Training**

### **Environment setup**

### **Coding / scripting and review**

**Q7. What are the various testing types available in Acceptance Testing?**

**Ans.** Various testing types available in Acceptance testing:

1. **Alpha & Beta Testing**

**Alpha Testing** normally takes place in the development environment and is usually done by internal staff – long before the product is even released to external testers or customers.

**Beta Testing**, also known as “field testing”, takes place in the customer’s environment and involves some extensive testing by a group of customers who use the system in their environment. These beta testers then provide feedback, which in turn leads to improvements of the product.

### Contract Acceptance Testing

Contract Acceptance Testing means that a developed software is tested against certain criteria and specifications which are predefined and agreed upon in a contract.

### Regulation Acceptance Testing

Regulation Acceptance Testing, also known as Compliance Acceptance Testing, examines whether the software complies with the regulations. This includes governmental and legal regulations.

### Operational acceptance testing

Also known as **Operational Readiness Testing** or **Production Acceptance Testing**, these test cases ensure there are workflows in place to allow the software or system to be used.

### Black Box Testing

### It’s, basically, a method of software testing which analyzes certain functionalities without letting the tester see the internal code structure of the software.

**Q8. What is the difference between bug and defect?**

**Ans.** BUG is the issue found in the software during the Testing Lifecycle. Defect is an issue which is not found during the Testing Lifecycle. Issues found by the developers and corrected by the developer himself is DEFECT. Issues found after the production of a software are called DEFECTS. Issues found only during the testing lifecycle are called BUGS. DEFECT and BUG are both issues in an application but depends at what stage they are caught. If they are discovered during the Testing Lifecycle then they are called BUGS but if they are discovered and corrected by the developers themselves or if they are discovered after the production of the software then they are called DEFECTS.

**Q9. What is the difference between unit testing and integration testing?**

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| --- | --- | --- |
|  | **Unit Testing** | **Integration Testing** |
| 1. | It do not occurs after and before of anything. | It occurs after [Unit Testing](http://testingbasicinterviewquestions.blogspot.in/2012/01/what-is-unit-testing-explain-it-with.html) and before System Testing. |
| 2. | It is not abbreviated by any name. | It is abbreviated as “I&T” that is why sometimes also called Integration and Testing. |
| 3. | It is not further divided into any | It is further divided into [Top-down Integration](http://testingbasicinterviewquestions.blogspot.in/2012/04/explain-top-down-strategy-of.html), Bottom-Up Integration and so on. |
| 4. | It may not catch integration errors, or other system-wide issues because unit testing only tests the functionality of the units themselves. | Integration testing uncovers an error that arises when modules are integrated to build the overall system. |
| 5. | The goal of unit testing is to isolate each part of the program and show that the individual parts are correct. | The goal of Integration Testing is to combined modules in the application and tested as a group to see that they are working fine. |
| 6. | It does not follow anything. | It follows unit testing and precedes system testing. |
| 7. | It obviously starts from the module specification. | It obviously starts from the interface specification. |
| 8. | Unit testing always tests the visibility of code in details. | Integration testing always tests the visibility of the integration structure. |
| 9. | It requires complex scaffolding means frame. | It requires some scaffolding means frame. |
| 10. | It definitely pays attention to the behavior of single modules. | It definitely pays attention to the integration among modules. |
| 11. | It is only the kind of White Box Testing. | It is both the kind of [Black Box and White Box Testing](http://testingbasicinterviewquestions.blogspot.in/2014/09/top-10-differences-between-black-box.html). |

**Q10. What is the difference between White and Black Box Testing?**

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|  | **White Box Testing** | **Black Box Testing** |
| 1. | knowledge of programming is must. | knowledge of programming is not necessary. |
| 2. | Normally software developers are responsible for doing White Box Testing. | Normally independent software testers are responsible for doing Black Box Testing. |
| 3. | In this form of testing Implementation knowledge is required. | In this form of testing Knowledge of implementation is not required. |
| 4. | In this sort of testing developers mainly focuses on the structure means program/code of the system. | In this sort of testing testers mainly focuses on the functionality of the system. |
| 5. | This testing is mostly done by developers. | This testing is done by testers. |
| 6. | This type of testing always focuses on how it is performing/ carried out. | This type of testing always focuses on what is performing/ carried out. |
| 7. | knowledge regarding internal logic of code is needed. | knowledge regarding internal logic of code is not needed. |
| 8. | need of programming is mandatory. | no need of programming is necessary. |
| 9. | Also know as Structural testing, Glass-box/ Clear-box testing, Open-box testing/ Transparent-box testing, Logic-driven testing and Path-oriented testing. | Also known as [Functional testing](http://testingbasicinterviewquestions.blogspot.in/2012/01/what-is-functional-testing-explain-it.html), Behavioral testing, and Opaque-box/ Closed-box testing. |
| 10. | |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  |   White box testing means structural test or interior test. | Black box testing means functional test or external test. |