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**Testing Exercises:**

1. What is the primary goal of manual testing?
   1. **To find defects in software**
   2. To automate the testing process
   3. To reduce the time required for testing
   4. To increase the efficiency of developers
2. Which of the following is NOT a phase of the manual testing process?
   1. Test Planning
   2. Test Execution
   3. **Test Automation**
   4. Test Closure
3. Which type of testing involves testing the software as a whole to ensure that all components work together?
   1. Unit Testing
   2. Integration Testing
   3. **System Testing**
   4. Acceptance Testing
4. Which testing technique involves testing a system's functionality without knowing its internal code structure?
   1. White-box testing
   2. **Black-box testing**
   3. Gray-box testing
   4. Glass-box testing
5. What is exploratory testing?
   1. **Testing based on pre-defined test cases**
   2. Testing without any specific test cases or plans
   3. Testing only the critical functionalities
   4. Testing performed by an external team
6. In which phase of the software development lifecycle is manual testing typically conducted?
   1. Requirement Analysis
   2. Design
   3. Implementation
   4. **Testing**
7. What is the purpose of regression testing?
   1. To validate if the software meets the specified requirements
   2. **To ensure that new changes haven't adversely affected existing functionality**
   3. To test the software in various operating environments
   4. To verify if the software is user-friendly
8. Which of the following is NOT a common type of manual testing?
   1. F**unctional Testing**
   2. Performance Testing
   3. Security Testing
   4. User Acceptance Testing
9. What is the main advantage of manual testing over automated testing?
   1. Greater test coverage
   2. Faster execution of tests
   3. **Human intuition and creativity**
   4. Consistency in test execution
10. What is the purpose of smoke testing?
    1. To verify if the software is stable enough for further testing
    2. **To test the core functionalities of the software**
    3. To test the software in various browser environments
    4. To ensure that the software meets all specified requirements
11. What is the purpose of usability testing?
    1. To verify if the software performs efficiently under high load
    2. **To ensure that the software is user-friendly and intuitive**
    3. To test the software across different operating systems
    4. To check for security vulnerabilities in the software
12. Which testing technique involves executing the test cases in a random order to identify defects?
    1. **Ad-hoc Testing**
    2. Boundary Testing
    3. Equivalence Partitioning
    4. Sanity Testing
13. What is the main focus of acceptance testing?
    1. **Validating if the software meets specified requirements**
    2. Testing individual components or modules of the software
    3. Evaluating the overall performance of the software
    4. Ensuring that the software is compatible with different devices
14. Which of the following is NOT a commonly used manual testing technique?
    1. Boundary Value Analysis
    2. Equivalence Partitioning
    3. Fuzz Testing
    4. **Code Coverage Analysis**
15. What is the purpose of ad-hoc testing?
    1. To verify if the software performs well under normal conditions
    2. To execute pre-defined test cases systematically
    3. **To test the software without any specific test cases or plans**
    4. To test the software in different languages and locales
16. What is the main advantage of pairwise testing?
    1. It ensures that every possible combination of inputs is tested
    2. **It reduces the number of test cases while providing good coverage**
    3. It focuses solely on testing user interfaces
    4. It allows for automated test execution without human intervention
17. Which type of testing involves executing test cases in a controlled environment that simulates the production environment?
    1. **Alpha Testing**
    2. Beta Testing
    3. Regression Testing
    4. Smoke Testing
18. What is the primary purpose of sanity testing?
    1. To ensure that the software meets all specified requirements
    2. **To verify if the software is stable enough for further, more comprehensive testing**
    3. To test the software in a variety of real-world scenarios
    4. To evaluate the software's performance under varying load conditions
19. Which testing technique involves testing the software's response to unexpected inputs or conditions?
    1. **Negative Testing**
    2. Positive Testing
    3. Boundary Testing
    4. Equivalence Partitioning
20. What is the primary focus of compatibility testing?
    1. To verify if the software performs efficiently under high load
    2. **To ensure that the software is compatible with different devices, browsers, and operating systems**
    3. To test individual components or modules of the software
    4. To evaluate the software's security features
21. What is the primary goal of regression testing?
    1. To ensure that the software meets specified requirements
    2. To verify if the software is stable enough for release
    3. **To ensure that new changes haven't introduced defects in existing functionality**
    4. To test the software in various operating environments
22. Which testing technique involves testing the software's ability to recover from crashes or failures?
    1. **Recovery Testing**
    2. Performance Testing
    3. Compatibility Testing
    4. Installation Testing
23. What is the main focus of localization testing?
    1. To verify if the software performs efficiently under high load
    2. **To ensure that the software is compatible with different devices**
    3. To test the software's behavior in different locales and languages
    4. To evaluate the software's security features
24. Which of the following is NOT a category of software testing?
    1. White-box testing
    2. Black-box testing
    3. Gray-box testing
    4. **Blue-box testing**
25. What is the purpose of static testing?
    1. To verify the software's behavior under varying load conditions
    2. **To test the software without executing the code**
    3. To simulate real-world usage scenarios
    4. To evaluate the software's compatibility with different devices
26. What is the primary focus of boundary testing?
    1. **To test the software's ability to handle unexpected inputs or conditions**
    2. To test the software's response to extreme or boundary values
    3. To verify if the software meets specified requirements
    4. To ensure that the software is user-friendly and intuitive
27. What is the purpose of test case prioritization?
    1. **To ensure that all test cases are executed in a specific order**
    2. To identify which test cases should be executed first based on their importance
    3. To allocate resources for test case execution
    4. To generate additional test cases automatically
28. Which testing technique involves testing the software's ability to handle large volumes of data?
    1. Volume Testing
    2. **Stress Testing**
    3. Load Testing
    4. Scalability Testing
29. What is the main focus of smoke testing?
    1. To verify if the software is stable enough for further testing
    2. **To test the core functionalities of the software**
    3. To test the software's performance under varying load conditions
    4. To test the software's compatibility with different devices
30. What is the primary goal of acceptance testing?
    1. To verify if the software meets specified requirements
    2. **To ensure that the software is user-friendly and intuitive**
    3. To identify defects in the software
    4. To test the software's performance under varying load conditions
31. **Define Software Development Life Cycle (SDLC) and briefly explain its primary phases.**

Software Development Life cycle is a sequential and linear model used to build an application or product that can be for multiple users or for a single user.If the application is developed for a single client according to their requirement is called project.If the application is developed for multiple users according to business requirement is called product.so in order to build a application there are different phases it occurs.

1. **Requirement Phase**:In this phase the data is collected from stakeholders and it is analyzed and see the main objective and scope of the application.
2. **Design Phase:**In design phase developer will give blueprint or structure of the application what are the modules,interfaces,components it should contain.
3. **Development Phase**:In development phase the actual implementation of the code is started.In parallel unit testing is done to know the any error occurring in the module.
4. **Testing**:In testing phase they will test the whole application to know any errors or defect it has.And also the application is meeting the user requirement.
5. **Deployment**:In deployment application is released to the user in the form of phases if it works smoothly, then the whole application is deployed into the production environment.
6. **Maintenance:**In maintenance phase If the client give any feedback to improve the performance of the application is minimized and also they can add the new features to the application ,they can change the application from one operating system to another operating system.
7. **What are the main objectives of the Requirements Gathering phase in SDLC?**

Requirement gathering phase plays a major role in the software development life cycle.It is the primary phase in the SDLC.Some of the main objective of Requirement Gathering phase is:

* As it is the first step the collection of the data should be clear.
* Next phase depends on the gathering of the requirement phase.
* If the data is clear then the developer can give the perfect application to the client.
* If the data is unclear then they should start their application from the beginning as they are dependent phases.

1. **Explain the significance of the Design phase in the SDLC process.**

After the Requirement Phase the next step is the deign phase.It also plays a significance role in the SDLC process.Once the data is gathered by the stakeholders the design phase will start.The significance are:

* The developer will give a overview or structure of the application.
* They will identify what are interfaces,Components,Modules it should contain.
* Once the design phase is done according to that the developer will build an application.
* If the requirements are unclear then again developer should build another structure for the application.

1. **Discuss the importance of thorough Testing during the SDLC.**

Once the developer write the code then the tester will test the application.In the development unit testing is done because if the sub modules are having any errors that can overcome in the development phase.The importance of Testing

* Testing can provide Software Quality of the product.
* Testing can minimize the cost of bugs.
* It can reduce the errors and developer can overcome it
* It will check whether the application is meeting the client requirement.

1. **Differentiate between Waterfall and Agile methodologies in SDLC. Highlight the advantages and disadvantages of each.**

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| --- | --- | --- |
| **Sno** | **Waterfall** | **Agile** |
| **1** | Waterfall is a sequential and linear approach. | Agile is an iterative and incremental approach |
| **2** | Once the developer starts the application they cannot go backward. | If the developer starts they can modify the application |
| **3** | If there is any change in requirement they can change it in the middle of the application | They can change the application in the middle of the application |
| **4** | Developer will deliver the product after the testing. | Developer will deliver in the form of iterations. |
| **5** | **Advantage:**  Easy to understand  Applicable for Small projects | **Advantages:**  They can deliver in the form iterations.which is easy for the clients.  Applicable for large projects |
| **6** | **Disadvantage:**  Limited to small projects  Whole application is deployed at the last | **Disadvantages:**  There is a overlap of the phases. |

1. **What is the purpose of the Implementation phase in SDLC? How does it differ from the Deployment phase?**

Implementation Phase purpose is to write code or logic for the software application .If the application written by the developer is correct without any errors and if they will not unnecessary code is not written then the application can run smoothly without any errors.It is differ from the deployment phase because in the deployment phase if the client wants any extra features that they can add it later.and also the application is deployed into the environment in the form of phases the whole application is not deployed at once.If the application is runs smoothly and expectations or as client then they will deploy the else.If it is not matching then in the development phase developer will rewrite the code.

1. **Describe the role of stakeholders in the SDLC process. How do their involvement and feedback influence project outcomes?**

The-role of stakeholders in the SDLC process is very important because the data is collected in the requirement phase is by the stakeholders or client or project manager.By taking the data from the stakeholders developer will give the overview of the application.The data is collected from different stakeholder by prioritizing which are important they will choose the best.After the deployment of the application if the client give any feedback regarding the application that they can modify it by deploying the application in the GitHub.For adding new feature in to the application they have repository.

1. **Explain the concept of Iterative Development in the context of SDLC. How does it contribute to project success?**

**Build1:** Requirement design development test deployment maintain

Build 2 Requirement design development test deployment maintain

Build 3 Requirement design development test deployment maintenance

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Build N times

Iterative Development in SDLC is the concept of iterating the phases until the it meet the client requirement.In the initial the client is delivering the basic the outcome of the project.Then the process is iterating.This approach is used for the lengthy applications and also if the application is needed quickly to the client.This model is contribute the overall project success because the phases are repeating iteratively.

In each iteration the developer will get the some outcome and it is delivered to the client based on the feedback they can add features in each iteration.This approach is used for medium to large sized application.

**Advantages:**

Risk is analyzed at the early stage.

Easy for larger projects

Based on feedback they can improve their requirement.

Faster Delivery.

**Disadavantages:**

Integration might be difficult

Time Consuming Process.

1. **Discuss the importance of Documentation throughout the SDLC. What types of documents are typically produced at each phase?**

Documentation throughout the SDLC is very important.Because Documentation can can give an overview in every stage.According to the documentation the developer can follow the steps which are involved in the application.During Training documentation plays a major role because the trainees don’t know any knowledge on the software.By viewing the document they can get basic idea about the application.In the Documentation if there are any risks or gaps are identified that can be minimized in the future development of the application.There are different types of documents will be produced at each phase like SRS,FRS,use cases scenario,code logic.Where each document is having the what are the system requirements and some use cases like it can contain actor,class.In FRS it contains the functional requirement for the project and in the code logic at the time pf implementation.

1. **How does the Maintenance phase contribute to the overall success and sustainability of a software product? Discuss the activities involved in this phase.**

After the devlopment and deployment maintenace phase comes into the picture.Maintenance Phase plays a crucial in SDLC.If the clent gives any feedback or either they want to change application to the another oerating systems,platforms and they can add their features accorning to the client requiremnt. Maintenance phase contribute to the overall success and sustainability of a software product.

The activities involved in the maintenance phase can be categorized in to 4 types :

1. Corrective phase:Whether the appliction is having any errors,defect.
2. Perfective:The developer will add new features in to application.
3. Preventive:The developer will anlyze and rectify the issues or risk that are going to occuring the future.
4. Adaptive:The appliaction sholud be for the different platforms or application.

Example:Whats app app will give updates and add new features ,it can be run in different operating system.

1. **Outline the key challenges faced during each phase of the SDLC and propose strategies to mitigate them.**
2. **Describe the role of Quality Assurance (QA) and Quality Control (QC) in ensuring the reliability and quality of software products during SDLC.**
3. **Explain the concept of Risk Management in SDLC. How can risks be identified, assessed, and mitigated throughout the software development process?**
4. **Discuss the importance of Change Management in SDLC. How should changes be managed to minimize disruptions and ensure project success?**
5. **Describe the role of Project Management in overseeing and coordinating the various activities within the SDLC. What skills are essential for an effective project manager in this context?**