Testing Exercises:

- What is the primary goal of manual testing?
    - To find defects in software
    - To automate the testing process
    - To reduce the time required for testing
    - To increase the efficiency of developers

    ans: To find defects in software

- Which of the following is NOT a phase of the manual testing process?
    - Test Planning
    - Test Execution
    - Test Automation
    - Test Closure

- Which type of testing involves testing the software as a whole to ensure that all components work together?
    - Unit Testing
    - Integration Testing
    - System Testing
    - Acceptance Testing

    ans: Integration testing

- Which testing technique involves testing a system's functionality without knowing its internal code structure?
    - White-box testing
    - Black-box testing
    - Gray-box testing
    - Glass-box testing

    ans: black- box testing

- What is exploratory testing?
    - Testing based on pre-defined test cases

    - Testing without any specific test cases or plans
    - ans:----------Testing only the critical functionalities
    - Testing performed by an external team

- In which phase of the software development lifecycle is manual testing typically conducted?
    - Requirement Analysis
    - Design
    - Implementation
    - ans:----------Testing

- What is the purpose of regression testing?
    - To validate if the software meets the specified requirements
    - ans:----------To ensure that new changes haven't adversely affected existing functionality
    - To test the software in various operating environments
    - To verify if the software is user-friendly

- Which of the following is NOT a common type of manual testing?
    - ans:----------Functional Testing
    - Performance Testing
    - Security Testing
    - User Acceptance Testing

- What is the main advantage of manual testing over automated testing?
    - Greater test coverage
    - ans:----------Faster execution of tests
    - Human intuition and creativity
    - Consistency in test execution

- What is the purpose of smoke testing?
    - To verify if the software is stable enough for further testing
    - To test the core functionalities of the software
    - ans:----------To test the software in various

browser environments
    - To ensure that the software meets all specified requirements

- What is the purpose of usability testing?
    - To verify if the software performs efficiently under high load
    - ans:----------To ensure that the software is user-friendly and intuitive
    - To test the software across different operating systems
    - To check for security vulnerabilities in the software

- Which testing technique involves executing the test cases in a random order to identify defects?
    - Ad-hoc Testing
    - Boundary Testing
    - Equivalence Partitioning
    - ans:----------Sanity Testing

- What is the main focus of acceptance testing?
    - Validating if the software meets specified requirements
    - ans:----------Testing individual components or modules of the software
    - Evaluating the overall performance of the software
    - Ensuring that the software is compatible with different devices

- Which of the following is NOT a commonly used manual testing technique?
    - Boundary Value Analysis
    - Equivalence Partitioning
    - ans:----------Fuzz Testing
    - Code Coverage Analysis

- What is the purpose of ad-hoc testing?
    - ans:----------To verify if the software performs well under normal conditions
    - To execute pre-defined test cases systematically

    - To test the software without any specific test cases or plans
    - To test the software in different languages and locales

- What is the main advantage of pairwise testing?
    - It ensures that every possible combination of inputs is tested
    - It reduces the number of test cases while providing good coverage
    - It focuses solely on testing user interfaces
    - ans:----------It allows for automated test execution without human intervention

- Which type of testing involves executing test cases in a controlled environment that simulates the production environment?
    - Alpha Testing
    - Beta Testing
    - ans:----------Regression Testing
    - Smoke Testing

- What is the primary purpose of sanity testing?
    - To ensure that the software meets all specified requirements
    - ans:----------To verify if the software is stable enough for further, more comprehensive testing
    - To test the software in a variety of real-world scenarios
    - To evaluate the software's performance under varying load conditions

- Which testing technique involves testing the software's response to unexpected inputs or conditions?
    - Negative Testing
    - Positive Testing
    - ans----------Boundary Testing
    - Equivalence Partitioning

- What is the primary focus of compatibility testing?
    - To verify if the software performs efficiently under high load
    - ans:----------To ensure that the software is compatible with different devices, browsers, and operating systems

    - To test individual components or modules of the software
    - To evaluate the software's security features

- What is the primary goal of regression testing?
    - To ensure that the software meets specified requirements
    - To verify if the software is stable enough for release
    - ans:----------To ensure that new changes haven't introduced defects in existing functionality
    - To test the software in various operating environments

- Which testing technique involves testing the software's ability to recover from crashes or failures?
    - ans:----------Recovery Testing
    - Performance Testing
    - Compatibility Testing
    - Installation Testing

- What is the main focus of localization testing?
    - ans:----------To verify if the software performs efficiently under high load
    - To ensure that the software is compatible with different devices
    - To test the software's behavior in different locales and languages
    - To evaluate the software's security features

- Which of the following is NOT a category of software testing?
    - White-box testing
    - Black-box testing
    - Gray-box testing
    - ans:----------Blue-box testing

- What is the purpose of static testing?
    - ans:----------To verify the software's behavior under varying load conditions
    - To test the software without executing the code
    - To simulate real-world usage scenarios

    - To evaluate the software's compatibility with different devices

- What is the primary focus of boundary testing?
    - To test the software's ability to handle unexpected inputs or conditions
    - ans: ----------To test the software's response to extreme or boundary values
    - To verify if the software meets specified requirements
    - To ensure that the software is user-friendly and intuitive

- What is the purpose of test case prioritization?
    - To ensure that all test cases are executed in a specific order
    - To identify which test cases should be executed first based on their importance
    - ans----------To allocate resources for test case execution
    - To generate additional test cases automatically

- Which testing technique involves testing the software's ability to handle large volumes of data?
- ans: voume testing
    - Volume Testing
    - Stress Testing
    - Load Testing
    - Scalability Testing

- What is the main focus of smoke testing?
    - To verify if the software is stable enough for further testing
    - To test the core functionalities of the software
    - Ans----------To test the software's performance under varying load conditions
    - To test the software's compatibility with different devices

- What is the primary goal of acceptance testing?
    - Ans: ----------To verify if the software meets specified requirements

- To ensure that the software is user-friendly and intuitive
- To identify defects in the software
- To test the software's performance under varying load conditions

- ----------1. Define Software Development Life Cycle (SDLC) and briefly explain its primary phases.

-> it is a structured process that is used to design, devlop, and test good quality software

-> the goal of the sdlc is to deliver high quality, maintainable software that meets users requirements.

1. requirement gathering/ analysis/planning

2. design

3. development

4. testing

5. deployment

6.maintenance.

key phases of sdlc:

1. requirement gathering/ analysis/ planning:

it is the first step where the project goals are defined in it. and understand the requirements of the project.

Business analyst and project manager involves and collect the information from the clients.

2. System Design:

After planning this phase begins. develops to create a blueprint or design for how the software will work.

3. development:

this is where the actual coding happens. developers write the code to create the software based on the design specifications.

4.tseting:

once the software is developed ist tested to find and fix any bugs or issues. this step ensures the software works as expected and meets user requirement.

5.deployment:

after testing the software is released to the users. it is deployed on the production environment. where it becomes acessible to the end users.

6.maintenance:

once the software is in use, it requires ongoing maintenace, that involves fixing bugs, updating the software, and adding new features as needed.

- ----------2. What are the main objectives of the Requirements Gathering phase in SDLC?

-> requirement gathering and analysis in sdlc plays a major step in software development process.
->this is the first step whre the project goals are defined and understanding the requirements of the clients.
-> here, BA(business analyst, project manager)involves and collect the reqirements or information from the clients(endusers)
-> it involves understanding the clients needs and identify their problems.
->it also involves designing solutions. this phase is important to ensure that the final product is perfect.

- ----------3. Explain the significance of the Design phase in the SDLC process.

->after planning, the design phase begins. developers create a blue print or design

for how the software will work
->it is a stage where the software developers define the technical details of the product.
->depending on the project, these details can include screen designs, databases, sketches, system interfaces, and prototypes. clients use these deatils to make final product design.
->create the software's architecture and user interfaces.

- ----------4. Discuss the importance of thorough Testing during the SDLC.

-> once the software is developed. its tested to find and fix any bugs/issues.
->this step ensures tha software works as expected and meets user requirement.
->testing phase is one phase that determines the bugs and errors in an application
->testing can help ensure you are in compliance with any legal obligations and industry-specific standards.
->during this stage, senior engineers or managers are responsible for preparing the test plan.
-> it is to verify that something functions as expected or to identify areas for improvement.
-> testing can be used to access knowledge, skills and abilities

- ----------5. Differentiate between Waterfall and Agile methodologies in SDLC. Highlight the advantages and disadvantages of each.

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-> waterfall model:
1.Development process: it is linear and sequential.
2.flexibility:difficult to make changes once the process starts.
3. feedback:limited feedback, usually at the end of the project.
4. requirements: all requirements are defined at the start.
time to deliver: longer time to get working product.
risk:risk is identifies and addressed late in the process.
customer involvement:low customer involvement.
best for: projects with ckear, unchanging req.

advanatges and disadvantages:
1. simple and easy to understand
2. well structured documentation.

3. well defined req.
4. each phase has clear deliverables and maintainable.

disadvanages:
1. inflexibilty
2. all req are known at the upfornt
3. not suitable for large projects.
4. risk of project failure.

-> agile model :
development process: iterative and incremental
flexibility:highly flexible.
feedback:continuous feedback.
requirements: req evolve and can change during the process.
time to deliver: faster delivery.
risk:risk are contionusly identified.
customer involvement: high.
best for:projects where req are likely to be change.

advantages and disadvantages of agile:
1. flexibilty to changes
2. frequent delivery of working software.
3. customer feedback

disadvantages:
1. can be unpredictable.
2. reqires continuous involvement
3. lack of documentation.

- ----------4. What is the purpose of the Implementation phase in SDLC? How does it differ from the Deployment phase?
- implementation phase/development phase:
- this is where the actual coding happens. developes write the code to create the softare based in design specifications.
- deployment phase:
- after testing the software is released to the users. it is deployed in production environment.where it becomes accessiblke to the end users.

- ----------5. Describe the role of stakeholders in

the SDLC process. How do their involvement and feedback influence project outcomes?

->stakeholders are the people who hjave an interest orinfluence in the software project, such as customers, users, managers, developers, testers, and vendors.

->as they can provide valuble feedback, requirements, resources, and support
->stakeholders dedfine business goals and develop plans that help them to achive goals.

- ----------6. Explain the concept of Iterative Development in the context of SDLC. How does it contribute to project success?
- definition: similar to agile, but the focus is on developing the software through repeated cycles. where each cycle builds on the previous one
- characteristics: allows for changes based on feedback after each iteration.
- usecase:best for projects that can be devloped and improved over time with feedback.
- Advantages and disadvantages:
- 1. flexibility and adaptability
- 2. early delivery of working software
- 3. frequent feedback.
- disadvantages:
- can be time consuming
- requires constant feedbavk
- complex to manage

- ----------7. Discuss the importance of Documentation throughout the SDLC. What types of documents are typically produced at each phase?
- documentation is essential to quality and process control
- there needs to be some level of cohesion. so that you dont look sloppy or uniformed. docukentation encourages knowledge sharing, which empowers our team to understand how processes work and whta finsihed projects.
- it is written or visual information that records processes, procedures, and information.

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- ----------8.How does the Maintenance phase contribute to the overall success and sustainability of a software product? Discuss the activities involved in this phase.
- the maintenace phase is a critical part of the software development life cycle that ensures the longvity and success of your software.
- it involves adding new features, improving user experience or integrating with new technologies, maintenance ewnsure that software remains aligned with the current needs.
- ----------9. Outline the key challenges faced during each phase of the SDLC and propose strategies to mitigate them.

1. requirement changes:

one of the most frequent and frustarting cahllenge in sdlc is dealing with changing or unclear req. from clients, users or stakeholders. thius can lead to rework, delays, scope creep and miscommunication.

- ----------10.Describe the role of Quality Assurance (QA) and Quality Control (QC) in ensuring the reliability and quality of software products during SDLC.
- 1. Qulaity assurance:
- concentarets on analyzing the process within sdlc
- utilkized to analyze set of documents.
- the whole team engaged on the process
- determines if the product fulfills the rrq.
- document review, inspection are used.
- 2. quality control:
- places greater foucs on the quality of the product analysis
- testing team engaged in the software testing
- aseess the reliability of the end product.

- ----------11. Explain the concept of Risk Management in SDLC. How can risks be identified, assessed, and mitigated throughout the software development process?
- it is the systematic process of identifying, asessing and mitigating threats that can affect organization.

- it involves analyzing risks likelihood and impact, developing staretegies to minimize harm, and mnonitoring measures effectiveness
- integrating risk into decision making
- fostring a strong risk cultute
- disclosing risk information

- ----------12. Discuss the importance of Change Management in SDLC. How should changes be managed to minimize disruptions and ensure project success?
- it provides a higher level of control ansconsistency within sdlc
- it access the impact of tha change and identifies risks to helpthe orgabziation manage any potential negative effects on the application .
- it provides the organization with transparency into sdlc
- it allows stakeholders and senior managemnt to understand the track of all chamges made to the application.

- ----------13.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?

- it helps ensures that software development projects are completed siuccessfully.

- it is a comprehensive process that involves planning, organizing, controlling, and monitoring a project from start to finsish.

- skills needed :

- communicatrion

- leadership

- risk management

- adaptability
- problem soving
- time managemnet
- critical thinking.