What is the main purpose of unit testing?

1. To test the entire application as a whole.
2. To test individual components or functions in isolation
3. To test the user interface of an application
4. To test the network connectivity

Which of the following is a characteristic of a good unit test?

1. It depends on external systems like databases
2. It is slow and tests multiple modules at once
3. It runs quickly and independently of other tests
4. It modifies the production database

Which testing framework is commonly used for unit testing in Java?

1. Selenium
2. JUnit
3. Postman
4. LoadRunner

Which of the following characteristics make a unit test effective?

1. It has external dependencies to test real-world scenarios
2. It runs in isolation and executes quickly
3. It modifies the state of shared resources to test integration
4. It is written after the production code is completed

Which technique helps improve the reliability of unit tests?

1. Writing tests that depend on execution order
2. Running tests only before deployment
3. Using real databases instead of in-memory databases
4. Mocking dependencies to isolate the unit being tested

Which of the following best describes "code quality"?

1. Code that is written quickly and efficiently
2. Code that is easy to read, maintain, and has minimal bugs
3. Code that uses complex logic and fewer comments
4. Code that requires extensive documentation to understand

Which of the following helps improve code quality?

1. Ignoring compiler warnings
2. Avoiding code reviews
3. Writing self-explanatory and well-structured code
4. Using global variables excessively

Which tool is commonly used for static code analysis?

1. **Jenkins** continuous integration/continuous delivery (CI/CD) too
2. **Kubernetes** orchestration tool for managing containerized applications
3. **Docker** ontainerization platform used to package and deploy applications
4. **SonarQube**

Which of the following is a key metric used to assess code quality?

1. Number of commits in a repository
2. File size of the codebase
3. Cyclomatic complexity of functions

measures the complexity of a program's control flow by counting the number of linearly independent paths through the code

4. Number of developers working on a project

choosing quick, easy solutions over better, more robust ones

How does technical debt impact code quality in the long term?

1. It makes future maintenance harder and increases development cost
2. It improves performance as the codebase grows
3. It speeds up the release cycle without affecting quality

slowdown feature development

4. It reduces the need for code refactoring

What is the primary goal of a code review?

1. To criticize the developer's coding style
2. To reduce the time spent writing code
3. To ensure that only one developer works on a project
4. To ensure code follows best practices and is free of errors

Who should perform a code review?

1. Any team member with experience in the project
2. Only the original developer
3. Only the team lead
4. Only testers and QA engineers

Which of the following is an incorrect statement about code reviews?

1. Improves code quality
2. Helps developers learn best practices
3. Slows down the development process significantly
4. Reduces bugs in production

Which of the following should be prioritized during a code review?

1. Formatting and indentation over logical correctness
2. Rejecting any code that does not use the reviewer's personal coding style
3. Checking for security vulnerabilities and maintainability
4. Delaying the review process until all code is finalized

What is the benefit of pair programming in code reviews?

1. It reduces communication among developers
2. It forces developers to work on the same task for efficiency
3. It replaces the need for automated testing
4. It helps catch issues early and improves code collaboration

Which of the following is a distributed version control system?

1. Git
2. SVN
3. CVS
4. Microsoft Word Track Changes

What is the purpose of a commit in Git?

1. To permanently delete all previous changes
2. To save changes to the local repository
3. To merge all branches into one
4. To reset the repository

What is a Git branch used for?

1. To organize unrelated projects into separate folders
2. To work on different features or fixes independently
3. To permanently delete old commits
4. To store logs of the application

What is the purpose of a "rebase" operation in Git?

1. It integrates changes by moving a branch to the latest commit of another branch
2. It permanently deletes all previous commits in a branch
3. It merges a branch without preserving commit history
4. It forces a rollback to the initial commit of a repository

Why is it important to use feature branches in version control?

1. To increase the size of the repository for better performance
2. To allow multiple developers to work on the same feature without affecting the main branch
3. To automatically merge all changes without review
4. To replace the need for unit tests in a project

What is the main goal of Continuous Integration (CI)?

1. To merge code frequently and test it automatically
2. To manually review every change before merging
3. To deploy code once a month
4. To replace developers with automation

Which of the following tools is commonly used for CI/CD?

1. Jenkins
2. Photoshop
3. Excel
4. Apache Kafka

Which of the following is NOT an advantage of Continuous Integration?

1. Faster detection of bugs
2. Automated testing of new code changes
3. Reduces collaboration between team members

enhance collaboration among team members by encouraging frequent code integration, automated testing, and shared responsibility for maintaining a stable codebase.

4. Speeds up software delivery

Which of the following challenges can arise in Continuous Integration (CI)?

1. Frequent integration prevents finding bugs early
2. CI completely eliminates the need for manual testing
3. Merge conflicts and broken builds if developers do not push frequently
4. CI makes debugging more difficult by reducing test coverage

How does Continuous Deployment (CD) differ from Continuous Integration (CI)?

1. CD focuses only on code merging, while CI automates production deployment
2. CI stops at testing, whereas CD automates the release of software to production
3. CD is a manual process, while CI is fully automated
4. CD and CI are identical and interchangeable

Which practice ensures that every developer's code is regularly tested and integrated into a shared repository?

1. Waterfall Development
2. Continuous Integration
3. Manual Deployment
4. Code Obfuscation

That's All Folks!