



# Selenium Basics & WebDriver Essentials

1. What is Selenium and its core components?
2. Difference between Selenium IDE, RC, WebDriver, and Grid
3. What are the limitations of Selenium?
4. Types of locators used in Selenium
5. Difference between findElement() and findElements()
6. Difference between driver.close() and driver.quit()
7. What is Page Object Model (POM)?
8. How to handle dropdowns in Selenium
9. How to switch between frames and iframes
10. Handling alerts and JavaScript popups
11. How do you capture screenshots in Selenium?
12. How to perform mouse hover using Actions class
13. What are different types of waits in Selenium?
14. Explain synchronization in Selenium
15. What is the difference between implicit, explicit, and fluent wait?

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# XPath, Locators & Dynamic Elements

1. What is XPath and its types?
2. Difference between XPath and CSS Selector
3. Write XPath for selecting element with specific text
4. How to handle dynamic elements with XPath
5. Use of contains(), starts-with() in XPath
6. What are XPath axes like following-sibling, preceding?
7. Difference between absolute and relative XPath
8. How do you validate presence of an element?
9. How to handle StaleElementReferenceException?
10. What causes ElementNotInteractableException?
11. What is JavaScriptExecutor and how is it used?
12. How to handle calendar date pickers?
13. How do you verify tooltip text?
14. How to use isDisplayed, isEnabled, isSelected?
15. Handling multiple elements with similar attributes

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# Selenium Coding Challenges

1. Login automation using POM
2. Click all checkboxes on a page
3. Handle file upload with Selenium
4. Switch between multiple tabs
5. Scroll into view using JavaScriptExecutor
6. Write custom wait using FluentWait
7. Capture all links and validate them
8. Highlight a WebElement
9. Extract table data dynamically
10. Validate broken links
11. Capture and save screenshots on failure
12. Retry failed test case
13. Handle auto-suggest dropdowns
14. Scroll and validate lazy-loaded content
15. Implement soft assertions

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# Advanced Selenium Practices

1. How do you test responsive layouts in Selenium?
2. What is headless browser testing and when is it useful?
3. How do you test across multiple browsers using WebDriver?
4. What is RemoteWebDriver and when do you use it?
5. How do you run Selenium tests on a Selenium Grid?
6. How do you automate CAPTCHA-based logins?
7. How do you validate email verification links sent during signup?
8. How do you implement retry logic in test cases?
9. What is self-healing in automation and is it possible with Selenium?
10. How do you implement test case versioning?
11. How do you test scenarios with third-party iFrames?
12. How do you maintain cross-environment configurations?
13. How do you dynamically create test reports after every run?
14. What's the role of annotations in framework optimization?
15. How do you handle file downloads using Selenium?

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# Core Java Concepts

1. Difference between ArrayList and LinkedList
2. HashMap vs Hashtable
3. Exception handling types in Java
4. Checked vs Unchecked exceptions
5. What is method overloading vs overriding
6. Use of this and super keywords
7. Abstraction and Interface
8. Polymorphism types
9. What are access modifiers?
10. Wrapper classes and autoboxing
11. Use of static and final keywords
12. Java Collections hierarchy
13. Comparator vs Comparable
14. Lambda expressions in Java
15. Threading and Synchronization basics

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# Java Coding Exercises

1. Reverse a string
2. Find duplicates in an array
3. Count frequency of characters
4. Sort a list alphabetically
5. Palindrome check for strings
6. Binary search implementation
7. Merge two sorted arrays
8. Convert HashMap to List
9. Find second highest number in array
10. Custom exception class
11. Remove duplicates from a list
12. Swap two numbers without third variable
13. Factorial using recursion
14. Print Fibonacci series
15. Count vowels in a string

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# TestNG Essentials

1. What is TestNG and why use it?
2. Annotations used in TestNG
3. TestNG vs JUnit
4. How to group test cases
5. TestNG suite XML configuration
6. How to skip a test
7. Parallel execution in TestNG
8. Use of DataProvider
9. Listeners and ITestListener interface
10. Retry failed tests
11. Execution order control
12. Prioritization of test cases
13. Dependency between methods
14. Parameterization using XML
15. Custom annotations in TestNG

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# Maven for Test Automation

1. What is Maven?
2. Structure of pom.xml
3. Scope of dependencies
4. Life cycle phases in Maven
5. Maven commands: clean, install, test
6. What is a parent POM?
7. Inheritance in Maven
8. Adding dependencies from Maven Central
9. Maven Surefire Plugin
10. Running TestNG from Maven
11. Profiles in Maven
12. Maven with Jenkins
13. Excluding tests in Maven build
14. What is a repository in Maven?
15. Local vs remote repository

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# Cucumber & BDD

1. What is Cucumber?
2. What is Gherkin syntax?
3. Structure of a feature file
4. Step definition in Cucumber
5. Scenario Outline usage
6. Background keyword in Cucumber
7. Hooks – Before and After
8. Tagging and filtering scenarios
9. Cucumber with TestNG
10. Data tables in Cucumber
11. Generating Cucumber HTML reports
12. Reusable steps in Cucumber
13. Runner class and glue code
14. Cucumber options and annotations
15. Integrating Cucumber in Maven project

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# Git & Version Control

1. What is Git and why use it?
2. git init, git clone, git status
3. git add, git commit
4. git push, git pull
5. Difference between fetch and pull
6. Creating and switching branches
7. Merging branches
8. Resolving merge conflicts
9. git stash usage
10. GitHub vs GitLab
11. Creating pull requests
12. Reverting a commit
13. .gitignore file
14. Forking a repository
15. Setting upstream remote

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# Agile, Scrum & QA Process

1. What is Agile methodology?
2. Agile vs Waterfall
3. Scrum roles: PO, SM, Dev Team
4. Sprint planning purpose
5. Daily Stand-up
6. Sprint Review
7. Sprint Retrospective
8. What is a user story?
9. Definition of Done (DoD)
10. Product backlog vs sprint backlog
11. Story points estimation
12. Velocity tracking
13. Burndown charts
14. Acceptance criteria
15. Agile testing pyramid

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# STLC & Bug Lifecycle

1. What is STLC?
2. Phases of STLC
3. Requirement analysis in STLC
4. Test planning and strategy
5. Test case development
6. Test data preparation
7. Test execution phase
8. Entry and exit criteria
9. Test closure activities
10. What is defect lifecycle?
11. States of a defect
12. Severity vs Priority
13. How to report a bug
14. Duplicate and invalid bugs
15. Bug triage process

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# Framework Design & CI/CD

1. What is a test automation framework?
2. Types of frameworks: POM, hybrid, data-driven
3. Folder structure in a Selenium framework
4. What is PageFactory?
5. Config file management
6. Reusable utility classes
7. Data handling via Excel/JSON
8. Logging using Log4j
9. Exception handling in frameworks
10. Test reports (Extent/Allure)
11. How to make your framework scalable
12. Version control integration
13. Modularizing your tests
14. Running tests in parallel
15. Framework CI/CD readiness

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# Jenkins & CI/CD

1. What is Jenkins?
2. How to set up a Jenkins job?
3. Trigger builds using Git
4. Run Maven project in Jenkins
5. Generate TestNG reports in Jenkins
6. Email notifications after builds
7. Pipeline jobs vs freestyle jobs
8. Jenkins plugins used in test automation
9. Scheduling builds (cron)
10. Handling test failures
11. How to archive artifacts?
12. Slack/email integration
13. Jenkinsfile basics
14. Shared libraries in Jenkins
15. Running parallel jobs

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# REST Assured with Java

1. What is Rest Assured?
2. How to perform a GET request
3. How to send POST request with payload
4. Validating status code and response body
5. Using path and query parameters
6. Setting headers and cookies
7. Response JSON parsing
8. JSON schema validation
9. Request chaining
10. Token-based authentication
11. Data-driven API testing
12. Assertions in Rest Assured
13. Logging requests and responses
14. Using POJOs in API tests
15. Integration of Rest Assured with TestNG

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# Real-World Testing Challenges

1. Tell me about your recent testing project
2. What was the most difficult bug you've found?
3. How did you convince a developer it was a bug?
4. What do you do when requirements are unclear?
5. How do you handle flaky tests?
6. Have you ever disagreed with a developer?
7. How do you prioritize test cases?
8. What would you do if deadlines are too tight?
9. How do you test features with no UI?
10. How do you ensure test coverage?
11. What if the test environment is unstable?
12. What's your QA strategy in a fast-paced release cycle?
13. How do you handle production defects?
14. What are your daily activities as an Automation Engineer?
15. How do you manage communication with cross-functional teams?

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# Test Strategy, Estimations & Metrics

1. How do you estimate effort for automation?
2. What are the key components of a test strategy document?
3. What metrics do you track in test automation?
4. What is test effectiveness and how do you measure it?
5. How do you track test coverage in automation?
6. How do you calculate ROI of automation?
7. How do you handle resource allocation in agile QA?
8. What is the difference between a smoke and sanity suite?
9. How do you decide the regression suite scope?
10. How do you identify redundant test cases?
11. How do you deal with unstable test scripts in CI?
12. What KPIs do you show to stakeholders?
13. How often should you refactor your automation scripts?
14. What is flaky test analysis and how do you conduct it?
15. What is the role of traceability matrix in QA?

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# Common Automation Pitfalls & Solutions

1. What are common causes of flaky tests?
2. How do you handle dynamic timeouts in test execution?
3. Why should you avoid hardcoded values in test scripts?
4. How do you avoid test duplication?
5. How do you isolate test data for parallel test execution?
6. What is test dependency and how to avoid it?
7. Why is test data management important in automation?
8. How do you clean up after test runs?
9. How do you deal with inconsistent test environments?
10. How do you implement validation for negative test cases?
11. What's the risk of over-automation?
12. How do you ensure reusability in test methods?
13. What is the best practice for managing test credentials?
14. Why should tests be atomic?
15. How do you handle language/localization testing?

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# Exploratory, Usability & Non-Functional Testing

1. What is exploratory testing and when do you use it?
2. What's the difference between exploratory and ad-hoc testing?
3. What is usability testing in QA?
4. How do you approach cross-browser UI consistency testing?
5. How do you test mobile web applications using Selenium?
6. What is accessibility testing and why is it important?
7. How do you check loading times via automation?
8. How do you validate image rendering via UI tests?
9. What is performance testing and how does it differ from automation?
10. Can Selenium be used for load testing?
11. What tools are best for performance testing?
12. How do you integrate Selenium with JMeter?
13. What non-functional aspects have you tested?
14. How do you handle localization and internationalization testing?
15. How do you perform session timeout testing?

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# QA Mindset, Team Collaboration & Growth

1. What does quality mean to you as a QA engineer?
2. How do you ensure quality beyond automation?
3. How do you build trust with developers?
4. What is your approach to giving feedback in peer reviews?
5. How do you stay current with new automation trends?
6. How do you upskill your QA team?
7. What's your role in the sprint retrospective as a QA?
8. How do you balance manual and automation tasks?
9. What was your proudest QA contribution?
10. How do you contribute to a bug prevention mindset?
11. How do you help developers write testable code?
12. How do you maintain consistency in test reports?
13. What books, blogs, or courses have shaped your QA thinking?
14. How do you mentor junior testers?
15. Where do you see your career in QA heading?

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