

API & Automation Testing

1. Introduction to Software Testing & QA

- **Software Testing fundamentals: why testing matters**
 - **Role of QA in SDLC & STLC (Software Testing Life Cycle)**
 - **Types of testing: functional, regression, smoke, sanity, system test**
 - **Testing principles and basics of automation testing**
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2. Fundamentals of APIs and Web Services

- **What is an API, REST vs SOAP vs GraphQL**
 - **HTTP Methods (GET, POST, PUT, DELETE, PATCH)**
 - **Status codes, headers, and payload basics**
 - **JSON & XML data formats interpretation**
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3. Manual API Testing with Postman

- **Installing and setting up Postman**
 - **Collection creation, environments & variables**
 - **Sending API requests manually**
 - **Response validation: assertions and schema checks**
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4. Advanced API Testing Concepts

- **Authentication: Basic, Token/OAuth**
- **Query, path, and form parameters**
- **Handling dynamic data in API tests**
- **API mocking and virtualized testing**

5. API Test Automation with Postman + Newman

- Automated test scripting with Postman
- Running collections with Newman CLI
- Generating HTML reports
- Integrating Postman/Newman into CI/CD pipelines

6. Introduction to Automation & Selenium Basics

- What is automation testing? Scope and benefits
- Introduction to Selenium suite: IDE, WebDriver, Grid
- Setting up automation environment with IDE (Eclipse/IntelliJ)

7. Core Java for Automation Testers

- Java basics: variables, control flow
- Object-oriented programming (OOP) concepts
- Collections, exception handling
- File I/O for test utilities

8. Selenium WebDriver & UI Automation

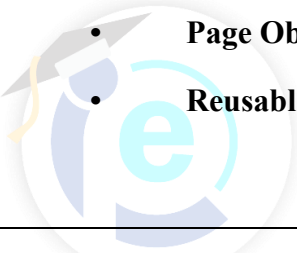
- Locators (ID, Name, XPATH, CSS)
- Browser automation commands
- Handling alerts, frames, waits
- Basic test scripts and navigation

9. TestNG Framework and Reporting

- **TestNG basics and annotations**
- **Parallel execution**
- **Test suites and configurations**
- **Generating test reports**

10. Designing Automation Frameworks

- **What are frameworks? Why do we need them**
- **Modular, Data-Driven, Keyword-Driven & Hybrid frameworks**
- **Page Object Model (POM) design**
- **Reusable utilities and config files**



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11. API Automation with Rest Assured (Java)

- **Rest Assured setup with Maven/Gradle**
- **Automating API tests in Java**
- **JSON parsing and validation**
- **Authentication and API chaining**

12. Framework Integration (API + UI Testing)

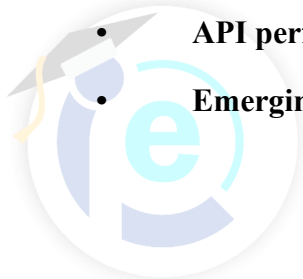
- **Combining API tests and Selenium tests in one project**
- **Shared test data and utilities**
- **Cross-module execution with TestNG/JUnit**
- **Best practices for full-stack automation**

13. CI/CD Integration & DevOps Basics for Testing

- Version control with Git & GitHub
- Jenkins basics: jobs, pipelines
- Integrating tests into CI/CD pipelines
- Scheduling test execution and reporting

14. Real-World Projects, Best Practices & Trends

- Live project work: testing a REST API
- Understanding real-time test challenges
- API performance basics and security testing
- Emerging tools and framework trends



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