CELEBRATING
14 YEARS
QualityThought ®
Transforming Dreams! Redefining Future!

SDET ⚙

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Advanced Software Testing Fundamentals

Advanced Testing Concepts

⇨ Software testing principles & methodologies
⇨ Test design techniques
   (boundary value analysis, equivalence
   partitioning, decision tables)
⇨ Test management and planning
⇨ Risk-based testing and prioritization

Testing Types and Strategies

⇨ Functional and non-functional testing
⇨ Regression testing strategies
⇨ Exploratory testing and session-based testing
⇨ Advanced test case design &
   test data management

Development Skills for SDET

Programming Fundamentals

⇨ Proficiency in programming
   languages (Java, Python, C#, etc.)
⇨ Object-oriented programming (OOP) concepts
⇨ Data structures and algorithms

Software Development Lifecycle (SDLC)

⇨ Agile, Scrum, and Kanban methodologies
⇨ Test-driven development (TDD)
⇨ Behavior-driven development (BDD)
⇨ Continuous integration and
   continuous delivery (CI/CD)

Test Automation

Automation Frameworks and Tools

⇨ Selenium WebDriver
⇨ Appium for mobile testing
⇨ JUnit, TestNG, and Nunit
⇨ Cucumber for BDD

Building Automation Frameworks

⇨ Designing scalable and maintainable
   test automation frameworks
⇨ Page Object Model
   (POM) and other design patterns
⇨ Integrating test automation
   with CI/CD pipelines

Advanced Automation Techniques

⇨ Parallel test execution and grid setup
⇨ Cross-browser and cross-device testing
⇨ API automation testing using tools like
   RestAssured, Postman, and SOAP UI

Performance Testing

Performance Testing Fundamentals

⇨ Importance of performance testing
⇨ Key performance indicators (KPIs) and metrics

Performance Testing Tools

⇨ Jmeter
⇨ Gatling
⇨ LoadRunner

Designing and Executing Performance Tests

⇨ Load, stress, and endurance testing
⇨ Analyzing performance test results and
   identifying bottlenecks

Security Testing

Security Testing Fundamentals

⇨ Importance of security testing
⇨ Common security vulnerabilities
   (OWASP Top 10)

Security Testing Tools

⇨ Burp Suite
⇨ OWASP ZAP
⇨ Nessus

Performing Security Tests

⇨ Penetration testing
⇨ Static and dynamic application
   security testing (SAST/DAST)
⇨ Secure coding practices

DevOps Practices

DevOps Fundamentals

⇨ Understanding DevOps culture and principles
⇨ CI/CD pipelines and best practices

Infrastructure as Code (IaC)

⇨ Tools like Terraform and Ansible
⇨ Automating infrastructure provisioning
   and management

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Monitoring and Logging

⇨ Setting up monitoring and
logging for applications
⇨ Tools like Prometheus, Grafana & ELK stack

Cloud Testing

Cloud Fundamentals

⇨ Introduction to cloud platforms
(AWS, Azure, GCP)
⇨ Cloud service models (IaaS, PaaS, SaaS)

Cloud Testing Strategies

⇨ Testing cloud-native applications
⇨ Cloud performance testing
⇨ Security considerations
in cloud environments

Leadership and Soft Skills

Leadership in Testing

⇨ Leading and mentoring testing teams
⇨ Effective communication and
collaboration with cross-functional teams
⇨ Conflict resolution and stakeholder management

Project Management

⇨ Agile project management
⇨ Risk management and mitigation strategies
⇨ Resource planning and allocation

Advanced Topics and Real-World Projects

Advanced Testing Techniques

⇨ AI and machine learning in testing
⇨ Testing microservices and
containerized applications
⇨ Chaos engineering and resilience testing

Hands-on Projects

⇨ End-to-end automation framework development
⇨ Performance and security testing
for a real-world application
⇨ Setting up a CI/CD pipeline with automated testing

Preparation for the Job Market

Building a Professional Portfolio

⇨ Documenting projects and contributions
⇨ Creating a professional portfolio
showcasing skills and experience

Certifications and Continuous Learning

⇨ ISTQB Advanced Level certifications
⇨ Certified Agile Tester (CAT)
⇨ AWS Certified DevOps Engineer,
Azure DevOps Engineer Expert, or equivalent

Mock Interviews and Resume Preparation

⇨ Conducting mock interviews
⇨ Preparing a professional resume
highlighting relevant skills and experience

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