Performance and Load Testing for Web Applications Training Course

Professional Development Training Course Outline

Category	Quality Assurance and ISO standards	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today?ÇÖs fast-paced digital landscape, web applications must deliver seamless performance and high reliability. Performance and load testing play a critical role in ensuring that applications function effectively under different levels of user demand. Performance and Load Testing for Web Applications Training Course provides participants with hands-on knowledge and skills to identify bottlenecks, measure response times, and validate scalability. Using trending tools and methodologies, learners will gain the confidence to design and execute performance testing strategies that align with organizational goals.

This course emphasizes real-world scenarios, focusing on optimizing user experience, reducing downtime, and safeguarding business continuity. By integrating the latest practices in automation testing, cloud performance testing, and DevOps pipelines, participants will learn to implement end-to-end solutions that address modern application challenges. The course is designed for IT professionals, QA engineers, and developers who want to sharpen their expertise in ensuring high-performing and scalable web applications.

Programme Curriculum

Performance and Load Testing for Web Applications Training Course

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Course Objectives

1. Understand fundamental principles of performance and load testing for web applications.
2. Apply trending testing tools such as JMeter, LoadRunner, and Gatling for real-world scenarios.
3. Design test strategies to validate scalability, reliability, and speed of applications.
4. Implement continuous performance testing within DevOps and CI/CD pipelines.
5. Analyze system bottlenecks using monitoring tools and performance dashboards.
6. Optimize server configurations for improved application response times.
7. Conduct stress, spike, endurance, and scalability testing effectively.
8. Gain expertise in cloud-based performance testing and distributed load generation.
9. Utilize automation frameworks for repeatable and efficient performance testing.
10. Develop performance test reports with actionable insights for stakeholders.
11. Enhance user experience by validating frontend and backend performance.
12. Apply case study-based learning to solve real-world application challenges.
13. Achieve organizational resilience by reducing downtime and enhancing scalability.

Organizational Benefits

1. Improved user satisfaction through optimized web application performance.
2. Reduced system downtime and higher operational efficiency.
3. Faster identification and resolution of application bottlenecks.
4. Better alignment between IT operations and business goals.
5. Enhanced application scalability and reliability during peak traffic.
6. Reduced costs of performance failures in production environments.
7. Increased team productivity with automated testing workflows.
8. Stronger DevOps integration for faster release cycles.
9. Improved compliance with industry performance benchmarks.
10. Increased competitive advantage through robust application performance.

Target Audiences

1. Software Test Engineers
2. Quality Assurance Professionals
3. DevOps Engineers
4. Web Developers
5. System Administrators
6. IT Project Managers
7. Performance Test Consultants
8. Cloud Infrastructure Engineers

Course Duration: 10 days

Course Modules

Module 1: Introduction to Performance Testing

- Overview of performance testing concepts
- Importance of load and stress testing
- Key testing metrics: response time, throughput, and concurrency
- Role of performance testing in SDLC
- Case study: Website launch failure due to poor load testing
- Emerging trends in performance testing

Module 2: Load Testing Fundamentals

- Definition and objectives of load testing
- Tools and frameworks overview
- Simulating concurrent users and traffic
- Benchmarking application performance
- Case study: E-commerce platform scaling issues
- Cloud-based load generation techniques

Module 3: Stress and Spike Testing

- Understanding stress testing methodologies
- Differences between stress, load, and spike testing
- Identifying application breakpoints
- Analyzing recovery strategies
- Case study: Banking app stress test failure
- Integrating spike testing with CI/CD pipelines

Module 4: Endurance and Scalability Testing

- Principles of endurance testing
- Evaluating long-term system stability
- Capacity planning strategies
- Identifying memory leaks and resource issues
- Case study: Social media app scalability challenges
- Best practices in scalability planning

Module 5: Performance Testing Tools Overview

- Apache JMeter features and setup
- LoadRunner architecture and usage
- Gatling scripting basics
- Comparison of popular performance testing tools
- Case study: Selecting tools for enterprise testing
- Tool selection best practices

Module 6: JMeter in Action

- Installing and configuring JMeter
- Creating test plans and thread groups
- Parameterization and correlation
- Running distributed load tests
- Case study: Retail website JMeter implementation
- Reporting and dashboard generation

Module 7: LoadRunner in Action

- Installing and configuring LoadRunner
- Recording and replaying scripts
- Creating scenarios and load distribution
- Monitoring system resources
- Case study: Telecom portal tested with LoadRunner
- Integration with ALM tools

Module 8: Performance Metrics and Monitoring

- Identifying key performance indicators
- Server and application monitoring techniques
- Use of APM tools like Dynatrace and New Relic
- Analyzing logs and dashboards
- Case study: Healthcare system monitoring gaps
- Automating performance metric analysis

Module 9: Performance Testing in DevOps

- Role of testing in DevOps pipelines
- Continuous performance testing concepts
- Integration with Jenkins and GitLab
- Automating test execution and reporting
- Case study: CI/CD-driven performance testing success
- Scaling tests in containerized environments

Module 10: Cloud-Based Performance Testing

- Benefits of cloud performance testing
- Tools for cloud-based load testing
- Distributed user simulation from global regions
- Cost considerations and scalability
- Case study: SaaS application tested on cloud platforms
- Emerging practices in cloud testing

Module 11: Automation in Performance Testing

- Automating test case execution
- Scripting reusable scenarios
- Integrating automation with CI/CD pipelines
- Reducing manual effort and error rates
- Case study: Automated tests in financial applications
- Future of AI-driven performance testing

Module 12: Analyzing Bottlenecks

- Identifying CPU, memory, and I/O issues
- Network latency diagnosis
- Database performance optimization
- Root cause analysis strategies
- Case study: Online learning platform bottlenecks

- Tools for system resource analysis

Module 13: Reporting and Documentation

- Creating executive performance reports
- Key elements of test reports
- Data visualization techniques
- Communicating results to stakeholders
- Case study: Government project reporting gaps
- Templates for structured reporting

Module 14: Real-World Case Studies in Performance Testing

- Case study: E-commerce application performance success
- Case study: Financial institution scalability improvements
- Case study: Healthcare application performance optimization
- Lessons learned from global performance testing projects
- Trends in industry-wide performance testing
- Documenting best practices from case studies

Module 15: Capstone Project and Review

- Hands-on performance testing project
- Group collaboration on testing strategies
- Application of tools in real-world simulations
- Analysis and presentation of findings
- Case study: Comprehensive enterprise application project
- Final review and Q&A session

Training Methodology

- Interactive lectures with practical demonstrations
- Hands-on exercises using industry-standard tools
- Group discussions and peer-to-peer learning
- Real-world case study analysis for applied learning
- Continuous assessments and project-based evaluations

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
21 Sep 2026	02 Oct 2026	Online	$2,000
21 Sep 2026	02 Oct 2026	Physical	$3,000
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0

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