

5. Create a test plan for testing the performance and scalability of a web service, including test scenarios, test environment setup, and performance metrics to be measured

Test Plan (Bookstore Web Service)

Objective

In this document, we define the Test Plan for the Bookstore web service, ensuring performance and scalability under various conditions.

- Measure system response time under normal and peak loads.
 - Assess system stability and reliability under stress.
 - Identify potential performance bottlenecks.
 - Ensure the system scales effectively with increased load.
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Scope

Features & Functionalities to be Tested:

- User login and authentication
- Book search functionality
- Adding books to the cart
- Checkout process
- Database performance

Types of Testing Performed:

- Load Testing
- Stress Testing
- Soak Testing
- Scalability Testing

Testing Environments:

- Different browsers: Chrome, Firefox, Edge
- Various devices: Desktop, Mobile, Tablet
- Multiple network conditions: Wi-Fi, 4G, 5G

Success Criteria:

- Response time less than 2 or 3 sec under normal load
- No system crashes under stress testing
- 95% feature should work
- User satisfaction ratings above 85%

Roles & Responsibilities:

- Test Lead: Check the testing process
 - Test Engineers: Prepare and Execute test cases
 - Developers: Fix defects
 - Business Analysts: Define requirements
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Inclusions

- User Login
- Book Search
- Cart Functionality
- Checkout Process

Exclusions:

- Blog Section
 - Customer Support Chat Widget
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Test Environments

Name	Environment URL
QA	qa.bookstore.com
UAT	uat.bookstore.com
Prod	app.bookstore.com

Operating Systems & Browsers:

- Windows 10 – Chrome, Firefox, Edge
- macOS – Safari
- Android – Chrome
- iOS – Safari

Defect Reporting Procedure

1. Identify defects based on deviation from expected outcome.
2. Mention the defect in JIRA with steps to reproduce, screenshots, and severity.
3. Assign the defect to the relevant developer.
4. Track defect resolution and retest.

Defect Area	POC
Frontend	Ram
Backend	Shyam
Database	Raj

Test Schedule

Task	Time Duration
Test Plan Creation	
Test Case Development	
Test Execution	
Report Submission	

Test Deliverables

- Test Plan Document
- Test Scenarios & Cases
- Performance Test Reports
- Defect Reports

Entry & Exit Criteria

- Entry: Requirement documents received,
Web service is in a staging environment,
Performance testing tools are set up and confirmed.
 - Exit: All test scenarios are executed successfully, No major performance issues left.
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Performance Metrics to be Measured

- Response Time (Average, Min, Max)
 - Page Load Time (less than 2 or 3 sec)
 - Transactions Per Second (TPS)
 - Error/Crash Rate
 - User Load Handling
 - CPU, Memory, and Network Utilization
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Test Case Scenarios

1. **Load Testing**
 - Use multiple users who are available at the same time
 - Measure response time and error rates
 2. **Stress Testing**
 - Gradually increase the load until the system breaks or crash
 - Identify at which point failure occurs
 3. **Scalability Testing**
 - Test system performance by adding step-by-step user loads
 - Evaluate load balancing and scaling mechanisms
 4. **Endurance Testing**
 - Run tests for prolonged durations (8+ hours)
 - Monitor system stability and resource leaks
 5. **Spike Testing**
 - Test system under sudden increase in load
 - Identify issues occurring in web application
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Tools

- JIRA (Bug Tracking)
 - Apache JMeter (Performance Testing)
 - Postman (API Testing)
 - Excel & Word (Documentation)
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Risks & Mitigations

Risk	Mitigation
Server Downtime	Backup servers in place
High Traffic Issues	Load balancers configured
Lack in resource	Backup resources in place

Approvals

- Test Plan Approval: Required from QA Lead & Project Manager
 - Test Scenarios & Cases Approval: Required from Business Analysts
 - Test Reports Approval: Required from Client
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Screenshots

(Screenshots of JIRA test cases, test execution logs, and performance reports will be included here)

End of Document