# Test Strategy Document

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## Objective

Test the end-to-end functionality, usability, and performance of [Product Name] to ensure it meets all business, functional, and technical requirements as defined in the specification document.

## Scope

In Scope:

• Customer Workflows: Login / Sign-up, Dashboard Analytics, Campaign Creation and A/B Variant Testing, Conversion Tracking and Reporting  
• Account Management  
• Integration with analytics and database APIs  
• Web and mobile interfaces

Out of Scope:

• Deprecated modules  
• Third-party payment gateways (if not integrated)  
• Native app push notifications

## Focus Areas

* Functional Correctness – Verify all user stories and acceptance criteria.
* UI/Navigation – Check page flow, layout, and alignment.
* Performance – Conduct load and stress testing under high concurrency.
* Security – Validate OWASP Top 10 vulnerabilities and data protection compliance.
* Compatibility – Ensure multi-browser and device support.
* Usability – Accessibility compliance (WCAG 2.1 AA) and intuitive workflows.

## Approach

Testing Levels:

* Unit Testing – Validate individual code modules using frameworks (JUnit, Pytest).
* Integration Testing – Validate data flow and API communication between frontend and backend.
* System Testing – Validate end-to-end workflows across all modules.
* Security Testing – Identify vulnerabilities using OWASP, SSL, and penetration testing.
* Performance Testing – Conduct load, stress, and endurance testing with JMeter / Locust.

Techniques Used:

* Black Box Testing – UI, Functional, and Regression.
* White Box Testing – Code logic and API response validation.
* Exploratory Testing – Ad-hoc workflow and usability checks.
* Regression Testing – Automated re-runs post deployment.

Automation Scope:

* Tools: Selenium, Cypress, Pytest, Postman, Jenkins CI/CD.
* Framework: Page Object Model integrated with GitHub Actions.
* Target: 70% automation coverage.

Performance Testing Tools: JMeter, Locust, k6.

Security Standards: OWASP Top 10, GDPR/CCPA, HTTPS/TLS validation.

Cross-Browser Testing: Chrome, Edge, Firefox, Safari.

Usability Testing: Conducted with 5–10 real users focusing on navigation and clarity.

## Deliverables

* Functional Test Reports
* Automation Execution Reports
* Performance Benchmark Results
* Security Assessment Report
* UAT Sign-off Report
* Test Coverage and Defect Summary
* Automation Test Suite and CI Reports

## Team & Schedule

* QA Lead – Planning, Test Strategy, Review, and Sign-off.
* QA Engineers – Test design, execution, and defect logging.
* Automation Engineers – Script development, CI/CD integration.
* Performance Engineer – Load and stress test execution.
* Security Engineer – Penetration and vulnerability testing.

### Schedule

* Week 1–2: Unit and Integration Testing.
* Week 3–4: Functional and Regression Testing.
* Week 5: Performance and Security Testing.
* Week 6: Compatibility, Usability, and UAT.
* Week 7: Final Regression & Sign-off.

## Entry & Exit Criteria

Entry Criteria:

* Approved Test Plan and Requirements Document.
* Stable QA environment and test data available.
* All test cases reviewed and baselined.

Exit Criteria:

* All planned test cases executed successfully.
* 95% or higher test coverage achieved.
* No open critical or high-severity defects.
* Test Summary reviewed and approved by stakeholders.

## Risks & Mitigation

- Risk: Test environment delays  
 Impact: High  
 Mitigation: Maintain secondary QA instance.

- Risk: API dependency unavailability  
 Impact: Medium  
 Mitigation: Use mock servers for interim validation.

- Risk: Frequent UI changes  
 Impact: High  
 Mitigation: Automate regression suite early.

- Risk: Inadequate test data  
 Impact: Medium  
 Mitigation: Create reusable data generation scripts.

## Tools & Environment

* Test Management – Jira / TestRail
* Automation – Selenium, Pytest, Jenkins
* API Testing – Postman, Newman
* Performance – JMeter, Locust
* Security – OWASP ZAP, Burp Suite
* Reporting – Allure, Extent Reports

## Reporting Metrics

* Test Case Execution Rate (%)
* Defect Density (Defects/KLOC)
* Defect Leakage (%)
* Mean Time to Fix Defects
* Automation Pass Rate (%)
* Performance SLA Adherence (%)

## Sign-off Criteria

Testing will be considered complete when all exit criteria are met, UAT is signed off, and no critical or unresolved defects remain open.