Introduction to Website Testing

Web testing ensures websites work as intended, detect bugs, and meet quality standards, improving user satisfaction and reducing risks.

The Importance of Web Testing

88% users abandon buggy apps and 96% won't report bugs. Web testing is vital to avoid costly rework and bad user experience.

Key Questions in Web Testing

01 **Does it meet requirements?**

Checks if all business and technical requirements are fulfilled by the final product.

02 **Device compatibility**

Ensures the product works correctly on all major devices and platforms.

03 **Handles traffic spikes?**

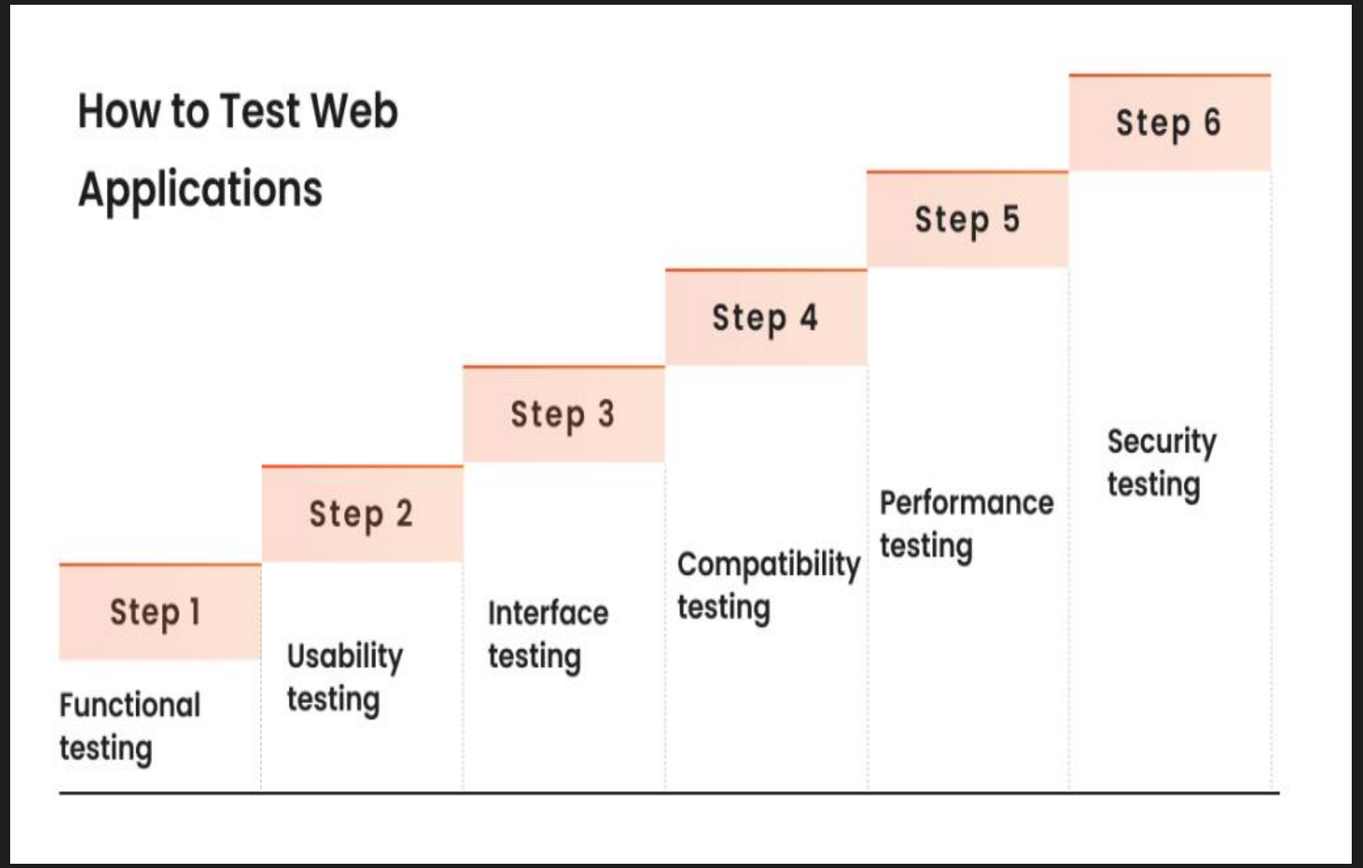
Assesses ability to support large numbers of simultaneous users.

04 **Sensitive data protection**

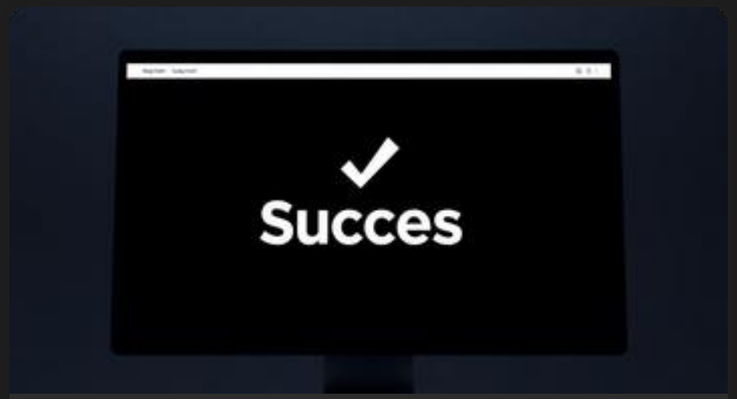
Tests whether unauthorized users can access confidential information.

Types of Website Testing Overview

Website testing includes functionality, usability, interface, compatibility, performance, security, and cross-browser tests.



Understanding Functional Testing

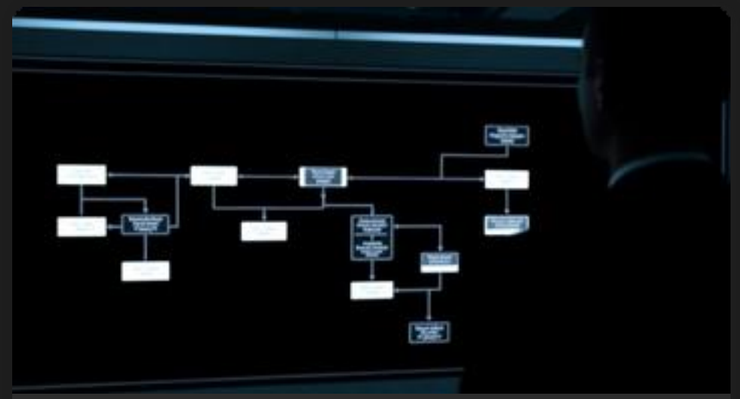


Feature Validation

Checks every website function to ensure it works as intended and meets expectations.

System Responses

Assesses how components respond to user actions and different scenarios.



Business Logic Verification

Confirms application behavior follows the intended business rules and logic.

Functional Testing Activities

01

Database Testing

Verifies data integrity, access, and storage operations work as needed.

02

API Testing

Tests application programming interfaces for correct responses and data flow.

03

User Interface Testing

Checks UI components and forms to ensure correctness and usability.

Checking Business Logic in Functional Tests

01

Simulating user actions

Testers follow various paths, both expected and unexpected, to reveal flaws.

02

Validating logic execution

Ensures site rules and processes execute correctly under real and edge-case scenarios.

Usability Testing Importance

Usability testing checks navigation, readability, and learning curve, improving UX and website success rates.

Usability Testing Activities

01

Navigation Testing

Ensures all menu and navigation elements are clear and easy to use.

02

Element Visibility

Checks if buttons, links, and forms are clear, distinctive, and easily found.

03

Content Quality Assessment

Validates that all content is legible and free of spelling or grammar errors.

User Experience and Content Quality

01

Readability focus

Tests for legible fonts and color schemes, ensuring users can easily read content.

02

Consistent design

Assesses layout and visual consistency across the site for better UX.

Interface Testing Overview

Interface testing checks if the app, web server, and database systems interact seamlessly and as designed.

Interface Testing includes testing of two main segments:

- Web server and application server interface
- Application server and Database server interface

Application Interface Testing

Validates correct request handling and displays errors to authorized users only.

01 **Request Validation**

Ensures requests between client and app are handled accurately without loss.

02 **Error Display Control**

Guarantees error messages are shown only to admins and not end users.

Web Server Interface Testing

Focuses on performance, server responses, and error monitoring.

01 **Server Performance Checks**

Assesses how quickly and reliably the server responds to requests.

02 **Error Detection**

Detects and logs any server-side errors during user sessions.

Database Server Interface Testing

01

Data Storage Validation

Verifies data is stored and retrieved correctly from the database.

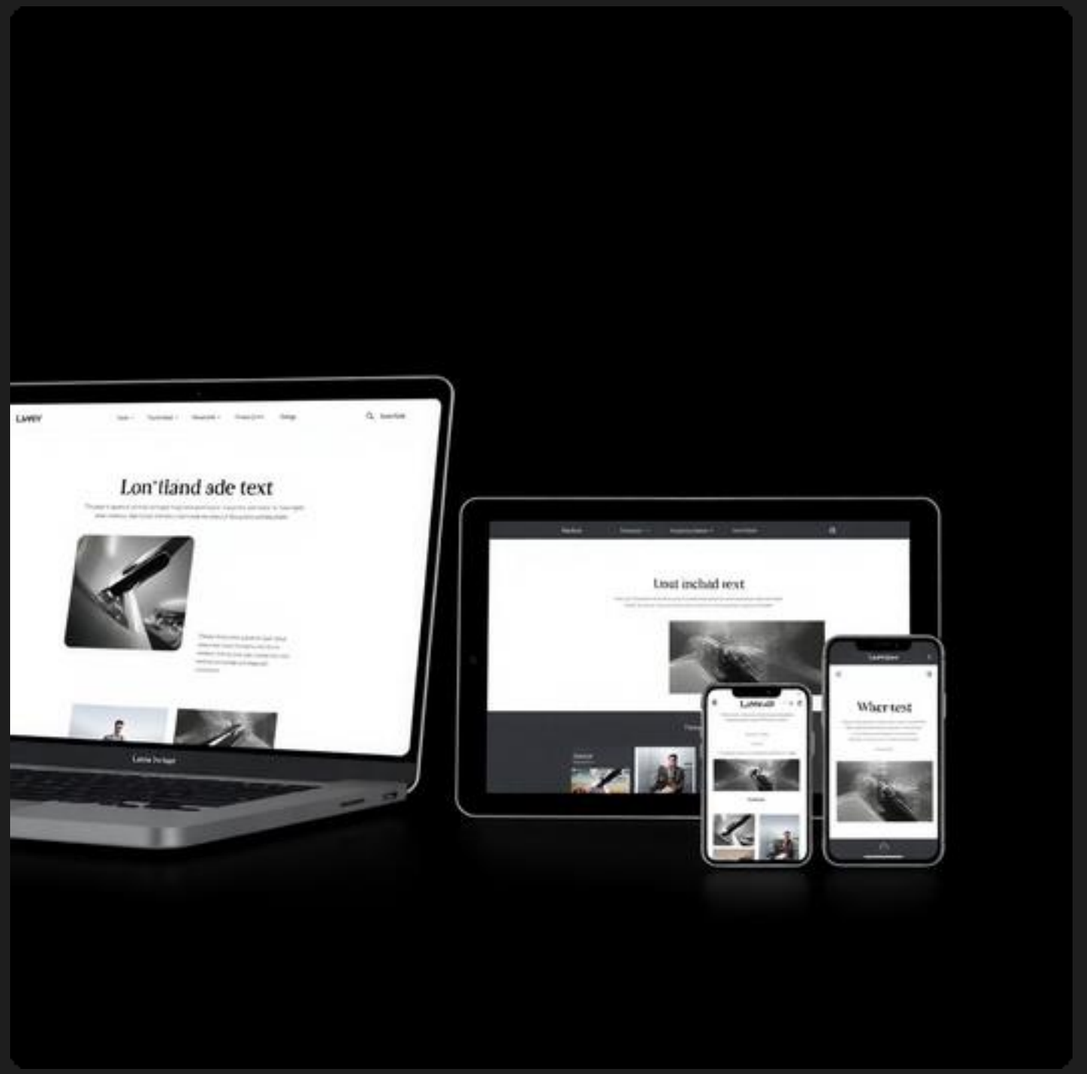
02

Integrity Checks

Confirms no data loss or corruption happens during transactions.

Compatibility Testing Overview

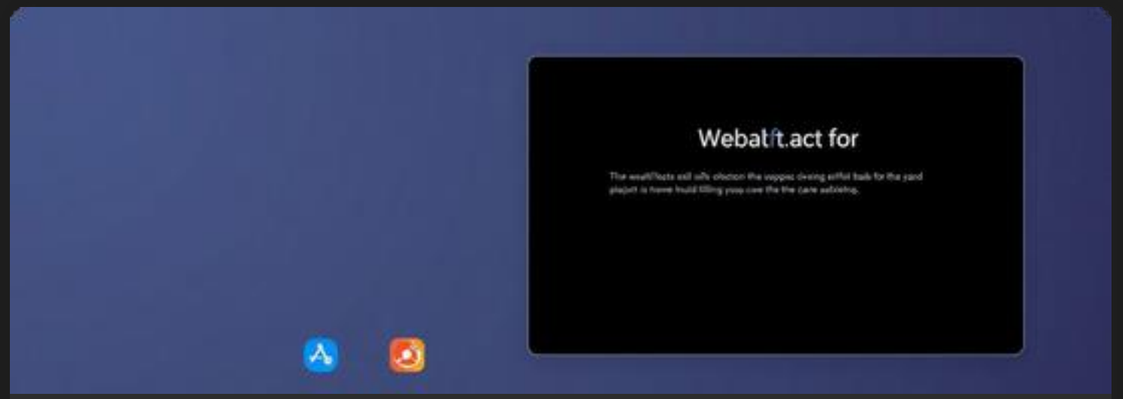
Compatibility testing ensures your site works properly on various browsers, devices, and systems.



Testing Across Browsers and Devices

Browser Variance

Tests if the site renders and functions well on Chrome, Firefox, Safari, and Edge.



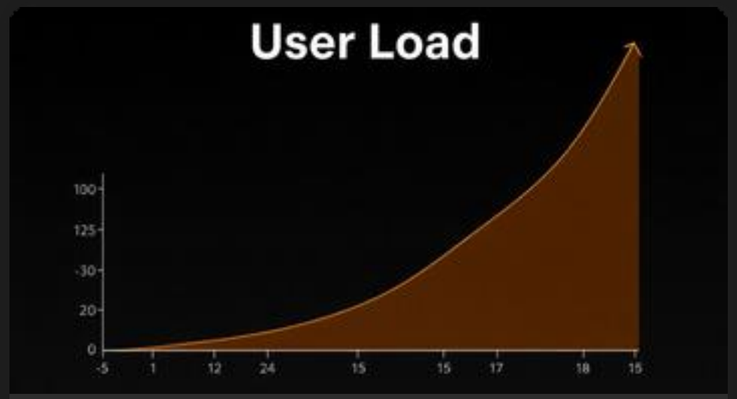
Operating System Differences

Ensures compatibility with Windows, macOS, and Linux environments.

Performance Testing Overview

Performance testing evaluates website speed, stability, and responsiveness under load and different usage conditions.

Types of Performance Testing

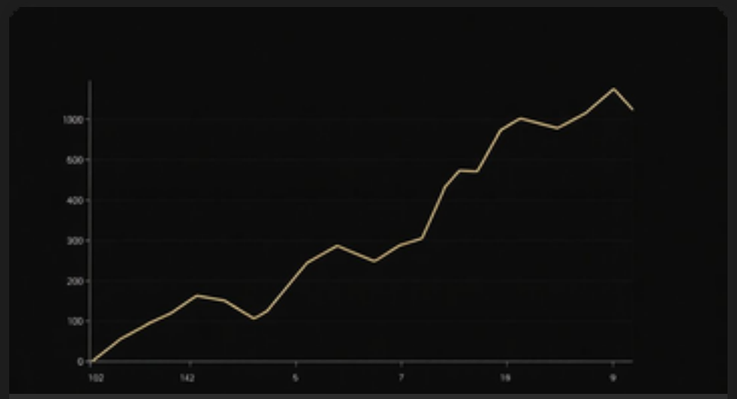


Load Testing

Evaluates response and capacity under typical traffic conditions.

Stress Testing

Checks stability when subjected to heavy, abnormal user load.



Soak/Spike Testing

Tests endurance and sudden burst loads for reliability.

Load Testing Explained

01

Response time checks

Measures website’s speed and responsiveness as user count increases.

02

Capacity analysis

Assesses how many users the website can support without issues.

Stress Testing Explained

01

Extensive request simulation

Sends high traffic levels to determine breaking points and system recovery.

02

Stability validation

Verifies the website’s ability to operate under overload conditions.

Soak and Spike Testing Explained

Checks long-term reliability and reactions to sudden user spikes.

01

Soak Testing

Monitors system stability and memory leaks over extended operation periods.

02

Spike Testing

Assesses system behavior when user load suddenly increases or drops.

Security Testing Overview

Security testing protects data, prevents threats and verifies app resilience against attacks and vulnerabilities.

Vulnerability Assessment

01

Find known weaknesses

Scans for common vulnerabilities like SQL injection, XSS (Cross Site Scripting), and CSRF (Cross Site Request Forgery).

02

Authentication checks

Checks for secure login, password handling, and access controls.

Penetration Testing Approach

01

Simulated real-world attacks

Testers use discovered vulnerabilities to attempt breaching the system.

02

Manual assessment focus

Manual pen tests help spot sophisticated threats automated tools miss.

Code Reviews in Security Testing

01

Source code checks

Identifies insecure coding practices and potential vulnerabilities.

02

Input validation

Ensures data entered by users is validated and sanitized to prevent attacks.

Data Encryption Testing

01

Encryption in transit

Confirms data is secured with HTTPS/TLS during transmission.

02

Encryption at rest

Verifies storage uses algorithms like AES to protect data when stored.

Session Management Testing

01

Session authentication

Tests if sessions are authenticated and properly invalidated after logout.

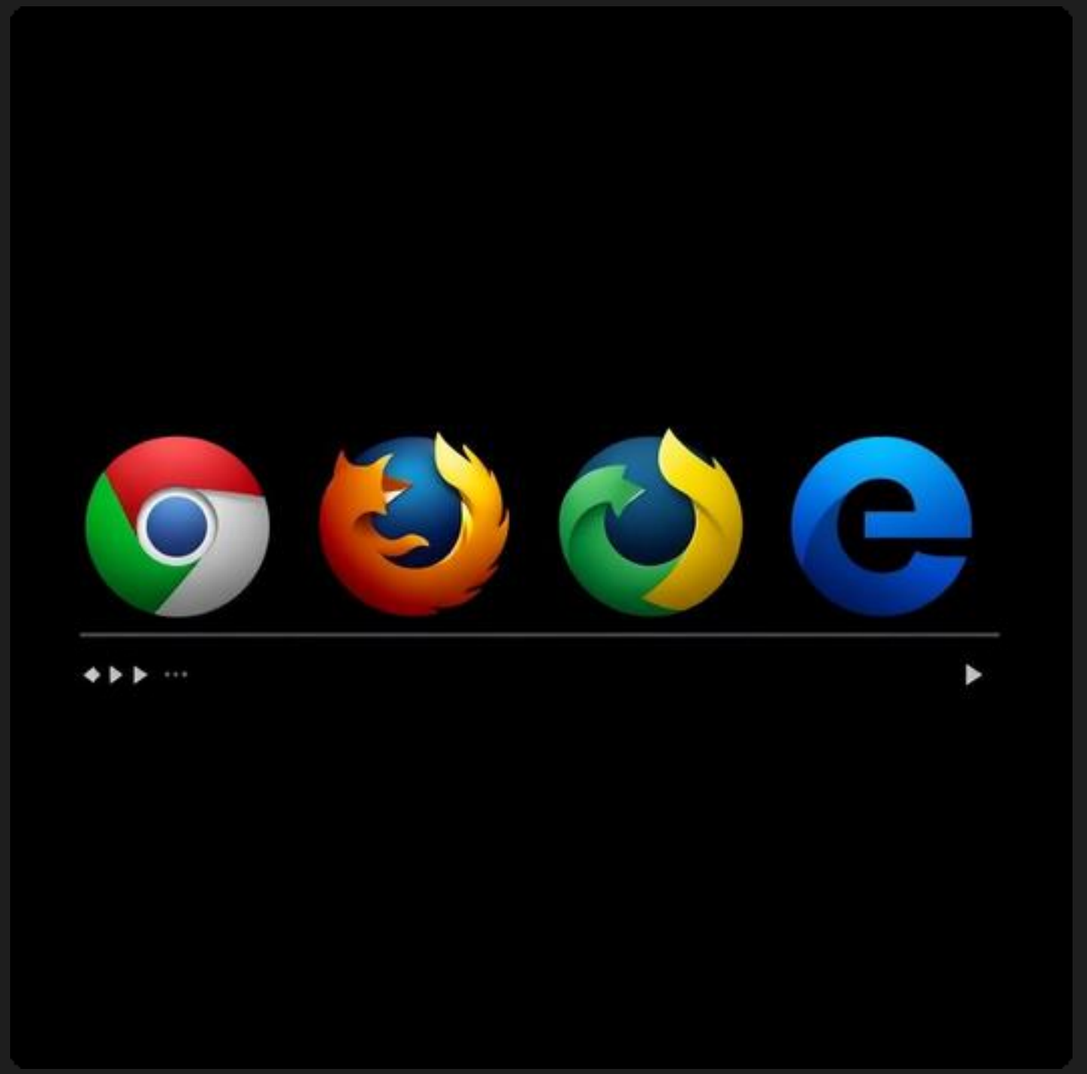
02

Session encryption

Checks if session data is encrypted to prevent hijacking or leaks.

Cross Browser Testing Overview

Cross-browser testing ensures websites function and look consistent across Chrome, Firefox, Safari, Edge, and more.



Popular Browsers for Testing

Google Chrome

Most widely used browser globally for desktop and mobile.

Mozilla Firefox

Popular open-source browser with advanced developer tools.

Safari

Default browser on Apple devices; crucial for Mac and iOS testing.

Edge

Microsoft’s modern browser, replacing Internet Explorer.

Best Practices in Web Testing

01 **Build a holistic test plan**

Document all features, scenarios, and expected results for systematic testing.

02 **Use manual and automated tests**

Combine both approaches for efficiency and thoroughness.

03 **Update tests regularly**

Revise test cases after site changes and collect user feedback.

04 **End-user acceptance**

Allow real users to test builds and share improvement suggestions.