

Test Cases of <https://www.saucedemo.com/>

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Functional testing:

Test Case 1: Successful Login

Description: Verify that a user can log in with valid credentials.

- **Preconditions:** User has a valid username and password.
- **Test Data:**
 - Username: standard_user
 - Password: secret_sauce

Steps:

1. Navigate to <https://www.saucedemo.com/>
2. Enter the username in the "Username" field.
3. Enter the password in the "Password" field.
4. Click the "Login" button.

Expected Result:

- User should be redirected to the products page displaying various items for sale.
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Test Case 2: Invalid Login Attempt

Description: Verify that the user cannot log in with invalid credentials.

- **Preconditions:** User does not have valid credentials.
- **Test Data:**
 - Username: invalid_user
 - Password: invalid_password

Steps:

1. Navigate to <https://www.saucedemo.com/>
2. Enter the invalid username in the "Username" field.
3. Enter the invalid password in the "Password" field.
4. Click the "Login" button.

Expected Result:

- An error message should appear stating: "Username and password do not match any user in this service."

Test Case 3: Add Item to Cart

Description: Verify that an item can be successfully added to the cart.

- **Preconditions:** User must be logged in.

Steps:

1. From the products page, select an item and click the "Add to cart" button associated with the item.
2. Navigate to the cart by clicking on the cart icon in the top-right corner.

Expected Result:

- The item should appear in the cart with the correct name and price.
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Test Case 4: Remove Item from Cart

Description: Verify that an item can be removed from the cart.

- **Preconditions:** User must be logged in and have at least one item in the cart.

Steps:

1. Navigate to the cart by clicking on the cart icon in the top-right corner.
2. Click the "Remove" button next to the item in the cart.

Expected Result:

- The item should be removed from the cart, and the cart should show as empty (if no other items are present).
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Test Case 5: Log Out Functionality

Description: Verify that the user can log out successfully.

- **Preconditions:** User must be logged in.

Steps:

1. Click the menu button (hamburger icon) on the top-left of the screen.
2. Select the "Logout" option from the menu.

Expected Result:

- The user should be logged out and redirected to the login page.

Test Case 6: Checkout Process

Description: Verify the complete checkout process.

- **Preconditions:** User must be logged in and have items in the cart.

Steps:

1. Navigate to the cart and click on the "Checkout" button.
2. Enter valid shipping information (First Name, Last Name, Postal Code) and click "Continue."
3. Review the order and click "Finish."

Expected Result:

- The order should be successfully placed, and a confirmation message should appear.
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Test Case 7: Verify Inventory Sorting

Description: Verify that sorting functionality on the products page works correctly.

Steps:

1. Log in to the website using valid credentials.
2. From the products page, select a sorting option (e.g., "Price (low to high)").
3. Verify the products are displayed in the correct order based on the selected sorting option.

Expected Result:

- Products should be sorted in the correct order (e.g., prices listed from low to high when that option is selected).
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Test Case 8: Cancel Checkout Process

Description: Verify that clicking the "Cancel" button on the **Checkout: Overview** page aborts the checkout process and navigates the user back to the cart without completing the order.

- **Preconditions:** User must be logged in and have at least one item in the cart.

Steps:

1. Navigate to the cart by clicking on the cart icon.
2. Click the "Checkout" button.
3. Enter valid shipping information (First Name, Last Name, Postal Code), then click "Continue."
4. On the **Checkout: Overview** page, click the "Cancel" button.

Expected Result:

- The user should be redirected back to the main page.
- The items in the cart should remain intact.

Test Case 9: Attempt to Submit Empty Shipping Information

Description: Test what happens when the user attempts to proceed to the next step of the checkout process without filling in any shipping information.

Steps:

1. Log in to the website with valid credentials.
2. Add items to the cart and navigate to the checkout process.
3. On the shipping information page, click "Continue" without filling in the First Name, Last Name, or Postal Code fields.

Expected Result:

- The user should see an error message indicating that the required fields are missing and should not be able to proceed to the next step of the checkout.
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Test Case 10: Attempt to Submit Empty Cart

Description: Test what happens when the user attempts to proceed to the next step of the checkout process without products in the cart.

Steps:

1. Log in to the website with valid credentials.
2. Add items to the cart and navigate to the cart by clicking on the cart icon.
3. Remove the item from the cart
4. Click the "Checkout" button.

Expected Result:

- The user should see an error message indicating that cart is empty and should not be able to proceed to the next step of the checkout.
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Test Case 11: Perform Checkout with Browser's Back Button

Description: Test what happens if the user navigates backward using the browser's back button during the checkout process.

Steps:

1. Log in to the website and add items to the cart.
2. Begin the checkout process and proceed to the **Checkout: Overview** step.
3. Instead of completing the checkout, click the browser's "Back" button to navigate to the previous page.

Expected Result:

- The system should either warn the user about leaving the checkout process or handle the navigation gracefully, keeping the cart intact and allowing the user to resume the process from where they left off.

Non-Functional testing:

Security and Reliability testing

Test Case 12: SQL Injection Attempt in Login Field

Description: Verify whether the login form is vulnerable to **SQL injection attacks** by entering potentially malicious input.

Steps:

1. Navigate to the login page.
2. In the username field, input a SQL injection string:
`admin OR '1'='1'`
3. Leave the password field blank or enter any text.
4. Attempt to log in.

Expected Result:

- The system should sanitize the input and prevent the SQL injection attempt.
 - An error message should appear, indicating that the credentials are incorrect.
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Test Case 13: Add Items to Cart and Modify Cart Data via Developer Tools

Description: Try modifying the cart data directly from the browser's developer tools to test the security of client-side operations.

Steps:

1. Log in and add items to the cart.
2. Open the browser's developer tools and inspect the cart object
3. Modify values such as the price or quantity.
4. Refresh the page or try to proceed with the checkout.

Expected Result:

- The system should validate data server-side and reject any tampered data.
- Proper validation should prevent manipulation of cart information.

Test Case 14: Session Expiry During Checkout

Description: Test what happens when the user session expires while they are in the middle of the checkout process.

Steps:

1. Log in and begin the checkout process.
2. Wait for the session to expire or manually delete session cookies (using developer tools).
3. Try to complete the checkout process after the session expires.

Expected Result:

- The user should be prompted to log in again.
 - The checkout process should either resume from where it was left off or inform the user that the session has expired.
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Test Case 15: Cross-Browser Compatibility

Description: Verify that the website functions correctly and consistently across different web browsers.

Browsers to Test:

- Google Chrome (latest version)
- Mozilla Firefox (latest version)
- Microsoft Edge (latest version)
- Safari (latest version on macOS)
- Opera (latest version)

Steps:

1. Open the website <https://www.saucedemo.com/> in each of the specified browsers.
2. Perform the following actions in each browser:
 1. Log in using valid credentials.
 2. Add an item to the cart.
 3. Proceed to the checkout and fill in shipping information.
 4. Cancel the checkout process.
 5. Log out from the website.
3. Verify the page layout, button functionality, and overall behavior in each browser.

Expected Result:

- The website should display and function correctly across all tested browsers without layout issues, broken features, or inconsistent behavior.
- The user should be able to perform all actions (login, add to cart, checkout, cancel, and logout) without browser-specific errors.

Recovery Testing

Test Case 16: Network Disconnection During Checkout

Description: Simulate a network disconnection at various stages of the checkout process to see how the application handles incomplete actions.

Steps:

1. Log in and add items to the cart.
2. Begin the checkout process by entering shipping information.
3. Before proceeding to the **Checkout: Overview** page, disconnect the network connection.
4. Reconnect and try to continue the checkout process.

Expected Result:

- The system should handle the network error gracefully, showing appropriate error messages and allowing the user to retry the action once the connection is restored.

Accessibility and Usability Testing

Test Case 17: Autofill and Accessibility Checks

Description: Test the behavior of the checkout form with browser autofill

Steps:

1. Use the browser's autofill feature to complete the checkout form with previously saved information.

Expected Result:

- The form fields should autofill correctly

Performance and Stress Testing

Test Case 18: Page Load Performance

Description: Verify that the page loads within an acceptable time frame under normal conditions and performs efficiently when navigating between key sections (e.g., login page, product page, cart).

Steps:

1. Open the website <https://www.saucedemo.com> in a browser with no caching enabled.
2. Use a performance monitoring tool (Chrome DevTools) to capture the following metrics:
 1. Time to First Byte (TTFB)
 2. First Contentful Paint (FCP)
 3. Largest Contentful Paint (LCP)
 4. Time to Interactive (TTI)
 5. Total Blocking Time (TBT)

6. Cumulative Layout Shift (CLS)
3. Perform actions such as:
 1. Logging in with valid credentials.
 2. Navigating to the products page.
 3. Adding an item to the cart.
 4. Proceeding to the checkout page.
 5. Logging out.
4. Capture and record the page load times and overall performance during each navigation step.
5. Repeat the test under different network conditions (e.g., 3G, 4G, and high-speed Wi-Fi) to simulate real-world user experiences.

Expected Result:

- **Time to First Byte (TTFB):** Should be less than 200ms.
- **First Contentful Paint (FCP):** Should be less than 1.5 seconds on fast connections.
- **Largest Contentful Paint (LCP):** Should be less than 2.5 seconds for fast experiences.
- **Time to Interactive (TTI):** Should be less than 5 seconds.
- **Total Blocking Time (TBT):** Should be under 300ms.
- **Cumulative Layout Shift (CLS):** Should be less than 0.1 (no significant shifts in page layout during loading).

Test Case 19: Stress Testing

Description: Test how the website performs under high user load and how efficiently it can handle multiple concurrent users.

Steps:

1. Use a load testing tool like **Apache Jmeter** to simulate multiple users accessing the website.
2. Start by simulating 50 users accessing the site concurrently, increasing in increments (e.g., 100, 200, 500 users).
3. Measure the following parameters:
 1. Response time under load.
 2. Peak load the server can handle before failing or becoming unresponsive.
 3. Time to recover after high-load conditions.
4. Focus on critical actions such as:
 1. Logging in.
 2. Adding items to the cart.
 3. Proceeding through the checkout process.
 4. Navigating between product categories.
5. Record server response times, errors, and timeouts.

Expected Result:

- The site should handle up to a specified number of concurrent users (based on expected usage) without significant degradation in performance.
- **Response time** should remain acceptable (e.g., below 3 seconds for most user interactions) even under heavy load.