Advance Software Engineering

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#### Question 1: Create the testing plan that has the test cases needed to test the MenuHamburger-Button for BestBuy Homepage ( https://www.bestbuy.com/ ); Consider the elements in the Menu-Hamburger-Button, and 3 elements of each one of these menu-items/sub-menus in level 1 menu. And then for every menu item in level 2, select any 2 menu items.

Answer:

## Test Plan:

Objective: To ensure the functionality of Menu Hamburger Button is working correctly, also its menu items and sub-menus are displayed and working as expected.

Scope: The test cases will focus on verifying the accessibility and proper functionality of the menu items and sub-menu items within the Menu hamburger button of Best Buy page. The plan includes functional, usability, accessibility, performance, security, and compatibility testing.

Test Environment: Desktop and mobile chrome browser.

### Test Cases:

Test Case 1:

Objective: Test the functionality and navigation of the Hamburger-Button Display

1. Click on the Menu-Hamburger-Button.
2. Verify that the menu opens and is displayed correctly.
3. Check that the menu overlay covers the entire screen and obscures the underlying content.

Test Case 2:

Objective: Test the functionality and navigation of the Menu-Hamburger-Button Closure

1. Open the menu by clicking the Menu-Hamburger-Button.
2. Click on the Menu-Hamburger-Button again.
3. Ensure that the menu closes and disappears, restoring the original view of the homepage.

Test Case 3:

Objective: Test the functionality and navigation of the Menu Item Appliances

1. Verify that the menu item is visible and has correct labeling.

2. Check if clicking the menu item, opens the sub-menu at the same position with the same heading.

3. Check if the labeling of the first two sub-menus is correct.

Test Case 4:

Objective: Test the functionality and navigation of the Menu Item Audio:

1. Open the menu by clicking the Menu-Hamburger-Button.
2. Verify that the menu item is visible and has correct labeling.
3. Check if clicking the menu item, opens the sub-menu at the same position with the same heading.
4. Check if the labeling of the first two sub-menus is correct.

Test Case 5:

Objective: Test the functionality and navigation of the Menu Item Video Games.

1. Open the menu by clicking the Menu-Hamburger-Button.
2. Verify that the menu item is visible and has correct labeling.
3. Check if clicking the menu item, opens the sub-menu at the same position with the same heading.
4. Check if the labeling of the first two sub-menus is correct.

Test Case 6:

Objective: Test the functionality and navigation of the Menu Item Deals

1. Open the menu by clicking the Menu-Hamburger-Button.
2. Verify that the menu item is visible and has correct labeling i.e Deals.
3. Check if clicking the menu item, opens an extendable sub-menu.
4. Check if the labeling of the first two sub-menus is correct.

Test Case 7:

Objective: Test the functionality and navigation of the Menu Item Support And Services

1. Open the menu by clicking the Menu-Hamburger-Button.
2. Verify that the menu item is visible and has correct labeling i.e Support And Services
3. Check if clicking the menu item, opens an extendable sub-menu.
4. Check if the labeling of the first two sub-menus is correct.

Test Case 8:

Objective: Test the functionality and navigation of the Menu Item Brands

1. Open the menu by clicking the Menu-Hamburger-Button.
2. Verify that the menu item is visible and has correct labeling i.e Brands
3. Check if clicking the menu item, opens an extendable sub-menu.
4. Check if the labeling of the first two sub-menus is correct.

Test Case 9:

Objective: Verify that the "Daily Deals" submenu item under "Deals" is accessible, clickable, and navigates to the correct page.

1. Click on the hamburger menu.
2. Click on the 'Deals' menu item.
3. Locate and click on the "Daily Deals" submenu item

Test Case 10:

Objective: Test the functionality and navigation of the "Weekly Ad" submenu item under "Deals".

1. Access the hamburger menu.
2. Select 'Deals'.
3. Click on the "Weekly Ad" submenu item.

Test Case 11:

Objective: Ensure that the "Outlet Deals" submenu item under "Deals" works correctly and leads to the right page.

1. Open the hamburger menu.
2. Click on 'Deals'.
3. Select the "Outlet Deals" submenu item.

Test Case 12:

Objective: Verify that the "Visit our Support Center" link under "Support & Services" is functional and navigates to the correct page.

1. Click on the hamburger menu.
2. Click on 'Support & Services'.
3. Locate and click on the "Visit our Support Center" link.

Test Case 13:

Objective: Test the functionality and navigation of the "Repair & Tech Services" link under "Support & Services".

1. Open the hamburger menu.
2. Select 'Support & Services'.
3. Click on the "Repair & Tech Services" link.

Test Case 14:

Objective: To ensure that the "Apple" link in the "Brands" submenu functions correctly and navigates to the appropriate page.

1. Open the hamburger menu.
2. Click on 'Brands'.
3. Select the "Apple" link

Test Case 15:

Objective: Test the functionality and correct redirection of the "Samsung" link within the "Brands" submenu.

1. Click on the hamburger menu.
2. Access 'Brands'.
3. Click on the "Samsung" link.

Test Case 16:

Objective: To validate the functionality and navigation of the "Major Kitchen Appliances" category link.

1. Open the hamburger menu.
2. Click on 'Appliances'.
3. Select the "Major Kitchen Appliances" category.
4. Check If the Extended submenu opens.

Test Case 17:

Objective: Ensure that the "Luxury Kitchen Appliances" category link operates correctly and leads to the correct page.

1. Open the hamburger menu.
2. Navigate to the 'Appliances' submenu.
3. Select "Luxury Kitchen Appliances".
4. Check If the Extended submenu opens.

Test Case 18: Menu Opening Speed

Objective: Measure the speed of the hamburger menu opening.

1. Click on the Menu-Hamburger-Button.
2. Measure the time taken from click to full menu display.

Test Case 19: Submenu Loading Speed

Objective: Evaluate the loading speed of submenus.

1. Open a primary menu item (e.g., 'Deals').
2. Measure the time taken for the submenu content to load.

Test Case 20: Menu Responsiveness on Different Devices

Objective: Ensure the menu is responsive across various devices.

1. Access the website on different devices (e.g., mobile, tablet, desktop).
2. Check for menu responsiveness and load times.

Test Case 21:

Menu Item Visibility and Accessibility

Objective: Test for clear visibility and accessibility of menu items.

1. Open the hamburger menu.
2. Verify that all menu items are visible and easily accessible.

Test Case 22:

Touch Target Size on Mobile Devices

Objective: Ensure menu items are easily clickable on mobile devices.

1. Access the menu on a mobile device.
2. Check if the menu items have an adequate touch target size.

Test Case 23: Readability and Contrast

Objective: Verify text readability and contrast in the menu.

1. Open the hamburger menu.
2. Check for adequate contrast and font size for readability.

Test Case 24: Menu Interaction Feedback

Objective: Test for visual or auditory feedback during menu interactions.

1. Click on various menu items.
2. Observe for any visual or auditory feedback (e.g., color change on hover).

Test Case 25: Consistency in Design and Layout

Objective: Ensure consistency in the menu’s design and layout.

1. Navigate through different menu items.
2. Check for consistent design elements and layouts across all menus and submenus.

Test Case 26: Error Handling on Menu Load Failure

Objective: Test the behavior of the menu in case of loading failure.

1. Simulate a failure in menu loading (e.g., via network throttling).
2. Check how the menu handles the error (e.g., error messages, retry options).

Test Case 27: User Experience on First Interaction

Objective: Assess the user experience during the first interaction with the menu.

1. Document the experience of first-time users interacting with the menu.
2. Gather feedback on intuitiveness and ease of navigation.

Test Case 28: Menu Closing Mechanism

Objective: Evaluate the intuitiveness of the menu closing mechanism.

1. Open and then close the hamburger menu.
2. Assess the ease and intuitiveness of closing the menu (e.g., clicking outside the menu, using a close button).

#### Question 2: Use the 10-point scale (10 for the most important test cases and 1 for the least) to assign a test score for every test case you identified in your testing plan.

Test Case 1 (Hamburger-Button Display): 8

Test Case 2 (Menu-Hamburger-Button Closure): 8

Test Case 3 (Menu Item Appliances): 7

Test Case 4 (Menu Item Audio): 7

Test Case 5 (Menu Item Video Games): 7

Test Case 6 (Menu Item Deals): 7

Test Case 7 (Menu Item Support And Services): 7

Test Case 8 (Menu Item Brands): 7

Test Case 9 (Daily Deals Submenu Item): 6=

Test Case 10 (Weekly Ad Submenu Item): 6

Test Case 11 (Outlet Deals Submenu Item): 6

Test Case 12 (Visit our Support Center Link): 6

Test Case 13 (Repair & Tech Services Link): 6

Test Case 14 (Apple Link in Brands Submenu): 6

Test Case 15 (Samsung Link in Brands Submenu): 6

Test Case 16 (Major Kitchen Appliances Category): 6

Test Case 17 (Luxury Kitchen Appliances Category): 6

Test Case 18 (Menu Opening Speed): 9

Test Case 19 (Submenu Loading Speed): 8

Test Case 20 (Menu Responsiveness on Different Devices): 10

Test Case 21 (Menu Item Visibility and Accessibility): 10

Test Case 22 (Touch Target Size on Mobile Devices): 9

Test Case 23 (Readability and Contrast): 8

Test Case 24 (Menu Interaction Feedback): 7

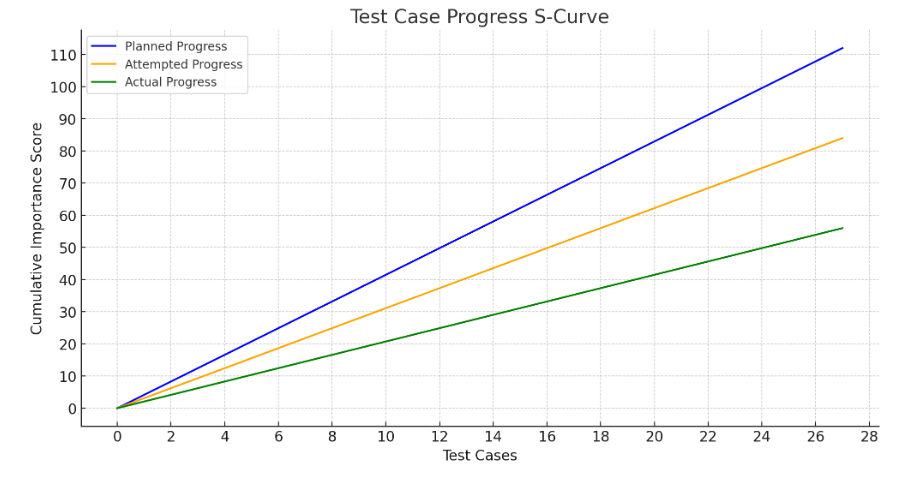
Test Case 25 (Consistency in Design and Layout): 8

Test Case 26 (Error Handling on Menu Load Failure): 9

Test Case 27 (User Experience on First Interaction): 9

Test Case 28 (Menu Closing Mechanism): 8

Question 3: Create the S-Curve chart to track Test Progress (use the test points calculated for every test case listed the prior requirement) with bars to represent Planned, Attempted, and Actual test cases.



Attempted progress is 75% of the planned, which is very close to the realistic percentage, where actual progress in 50% of the planned progress.

#### Question 4: Inspect the Menu WebElement of BestBuy Homepage and identify/document all WebElements/Sections in the Menu HamburgerButton.

### 1. Hamburger Menu Button (<button>):

Serves as the interactive element to open the hamburger menu. Clicking this button would expand or collapse the hamburger menu.

### 2. Hamburger Menu Icon (<svg>):

Provides a visual representation (icon) for the menu button. Displays the three horizontal lines icon (hamburger icon).

### 3. Main Menu Container (<div>):

Acts as the primary container for the entire menu. Contains the entire structure of the dropdown menu.

### 4. Menu List Wrapper (<div>):

Provides a structural and potentially styled wrapper for the menu list. Encloses the menu list, possibly adding styles or animations.

### 5. Menu List (<ul>):

Organizes the menu items in a list format. Holds the list of menu items (<li>) in an unordered list.

### 6. Menu Items (<li>):

Represents individual items within the menu list. Each list item represents a clickable option in the menu.

### 7. Menu Item Buttons (<button>):

Acts as clickable elements within each menu item, potentially leading to submenus or links. Clicking these buttons may navigate to different pages or expand submenus.

### 8. Submenu Indicator Icons (<svg>):

Indicates the presence of a submenu or additional options. An arrow or caret icon suggesting more content is available.

### 9. Separators and Headings (<li>, <h2>):

Provides visual separation (<li>) and categorical headings (<h2>) within the menu. Distinguish between different sections or categories in the menu.

### 10. Close Button of the Menu (<button>):

Allows users to close the hamburger menu. Clicking this button would collapse the menu.

### 11. Close Button Icon (<svg>):

Visual representation for the close action. Displays a cross ('X') icon indicating the close functionality.

#### Question 5: Name the most suitable locators and strategies to find/locate every WebElement within the Menu Hamburger-Button of BestBuy homepage.

## 1. Hamburger Menu Button (<button>):

Locator: CSS Selector or XPath.

Strategy: Use the class attribute or specific aria-label, e.g., button.hamburger-menu-button or //button[@aria-label='Menu'].

## 2. Hamburger Menu Icon (<svg>):

Locator: CSS Selector or XPath.

Strategy: Look for the SVG inside the button, e.g., button.hamburger-menu-button svg.

## 3. Main Menu Container (<div>):

Locator: CSS Selector or ID.

Strategy: Use the class or id attribute, e.g., div.hamburger-menu-flyout or #flyout-container.

## 4. Menu List Wrapper (<div>):

Locator: CSS Selector.

Strategy: Use the class attribute, e.g., div.hamburger-menu-flyout-list-wrapper.

## 5. Menu List (<ul>):

Locator: CSS Selector.

Strategy: Use the class attribute, e.g., ul.hamburger-menu-flyout-list.

## 6. Menu Items (<li>):

Locator: CSS Selector or XPath.

Strategy: Use the class attribute, e.g., li.liDropdownList.

## 7. Menu Item Buttons (<button>):

Locator: CSS Selector or XPath.

Strategy: Locate buttons within list items, e.g., li.liDropdownList > button.

## 8. Submenu Indicator Icons (<svg>):

Locator: CSS Selector or XPath.

Strategy: Locate SVGs within the buttons, e.g., button > svg.caret-right.

## 9. Separators and Headings (<li>, <h2>):

Locator: CSS Selector or XPath.

Strategy: Use class or data attributes, e.g., li.separateThis, h2.featured-section.

## 10. Close Button of the Menu (<button>):

Locator: CSS Selector or XPath.

Strategy: Look for the class or type attribute, e.g., button.close-button-flyout.

## 11. Close Button Icon (<svg>):

Locator: CSS Selector or XPath.

Strategy: Locate SVG inside the close button, e.g., button.close-button-flyout > svg

#### Question 6:

### Hamburger Menu Button:

Element: <button class="c-button-unstyled hamburger-menu-button">

Reason: Initial element to interact with to open the menu, might not be immediately clickable if the page is still loading.

### Menu List Items:

Elements: Buttons within <li class="liDropdownList">

Reason: These menu items might not be immediately visible or interactable until the menu is fully expanded.

### Caret Icons for Submenus:

Elements: SVG within buttons, e.g., <svg class="caret-right hamburger-menu-flyout-item-caret">

Reason: The caret icons indicate expandable submenus, which might load content dynamically.

### Featured Section Heading:

Element: <h2 class="featured-section">

Reason: The content under this section could be dynamic and may require a wait to ensure it's loaded.

### Close Button of the Flyout Menu:

Element: <button class="c-button-unstyled close-button-flyout menuCloseBtn">

Reason: Essential for closing the menu, its state might change dynamically depending on the loading status of the menu.

### Submenu Items:

Elements: Subsequent buttons or links in deeper levels of the menu.

Reason: If the menu has multiple levels, the deeper levels might load asynchronously based on user interaction with higher-level menu items.

### Dynamic Content Sections:

Elements: Any dynamically loaded content sections within the menu.

Reason: Parts of the menu might be populated based on user data or other asynchronous events