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| School of Computing and Informatics |
| Website Design and Development |
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|  |

# Scope (in scope, out scope)

the Scope in of Testing

testing the login and sign up page to make sure the data stored In the data base

testing the logout to make sure that the session is working

testing the representative on the pages

testing that adding to the cart reflect on data base

testing that the cart take the items from the database and the uset can update and remove on them

testing that the user cant enter the products or checkout page without login or have an account

testing that the button do the right value

testing that all pages see each other and can be go to each other but the signin/singup when the user is logged in

testing that the logout more by surring that ever the other previous pages cant access

Verify that pages load within acceptable time frames and that any delays in loading dynamic content or processing actions (like adding to the cart) are handled gracefully with proper feedback to the user.

Ensure that the system handles errors gracefully, displaying appropriate error messages to the user and logging errors for site administrators.

scope out

testing that the database take real payment value or the order

Testing how the site performs under heavy load (high traffic)

In-depth security assessments such as penetration testing or vulnerability scanning are beyond the scope.

Verifying the accuracy or updating the content of the website

In-depth analysis of user behavior patterns and A/B testing for UI/UX improvements.

Testing for search engine optimization, marketing tools integration, and analytics tracking are not included.

# Testing strategy

# Test objectives

Testing Strategy

Test Objectives

The primary goal of this test plan is to ensure that the gaming e-commerce website provides a seamless, secure, and efficient user experience, aligning with the specific needs and expectations of our target audience. The test plan is designed to validate the following areas:

User Authentication and Session Management:

Ensure the robustness of the login and signup processes.

Verify that user data is securely stored in the database.

Confirm the reliability of the logout process and session management.

User Interface and Experience:

Validate the look, feel, and responsiveness of the user interface.

Test the navigational flow and the layout consistency across different pages.

Ensure browser compatibility and consistent user experience across devices.

Verify content accuracy, spelling, and the overall presentation of information.

E-commerce Functionalities:

Test the integration and functionality of the shopping cart, ensuring that additions, updates, or removals in the cart are accurately reflected in the database.

Verify that users can view, update, and interact with their cart items seamlessly.

Ensure that access to product-related pages and checkout processes is restricted to logged-in or registered users.

Inter-page Connectivity and Access Control:

Confirm that all pages are interconnected appropriately, allowing users to navigate the site without encountering broken links or unauthorized access.

Test the access restrictions, ensuring that users are redirected or prevented from accessing certain pages based on their authentication status.

Error Handling and Feedback:

Check the website's ability to handle errors gracefully, providing clear and informative feedback to users.

Ensure that error, confirmation, and warning messages are displayed correctly and offer helpful guidance to users.

Areas to be Tested

Based on the scope defined, the following areas will be rigorously tested to ensure the website meets our quality standards and provides an exceptional user experience:

Login/Signup Page:

Data storage and retrieval from the database.

Input validation and error message display.

Logout Functionality:

Session termination and user redirection.

Shopping Cart and Checkout Process:

Data consistency between the cart and the database.

Functionalities of adding, updating, and removing items.

Page Connectivity and Access Control:

Navigation between different pages.

Access restrictions for unauthorized users.

Performance and User Feedback:

Page loading times and dynamic content loading.

Display and clarity of system messages and user prompts.

# Testing methodology

Testing Methodology

Front-End Testing:

User Interface and Responsiveness:

Start by examining the look and feel of the website. Check for consistency in design, fonts, and color schemes across different pages.

Test the responsiveness of the website by accessing it on various devices (desktops, tablets, smartphones) and browsers (Chrome, Firefox, Safari, Edge). Use tools like Chrome DevTools to simulate different screen sizes and resolutions.

- Verify the functionality of navigational elements (menus, buttons, links) ensuring they work as intended and lead to the correct pages or sections.

User Authentication Testing:

Login/Signup/Logout Processes:

Verify that the logout functionality works correctly and that the user session ends, preventing access to user-specific pages post-logout.

Shopping Cart and Checkout Testing:

Cart Functionality:

Test adding items to the cart, updating quantities, and removing items, ensuring that these changes are correctly reflected in the database.

Verify that the cart retains items over different sessions unless altered by the user.

Checkout Process:

Ensure that the checkout process is smooth and that users can easily proceed to purchase items in their cart.

Test the access control by ensuring that only logged-in users can access the checkout page.

Inter-page Connectivity Testing:

Navigate through the website, verifying that all internal links work correctly and lead to the expected pages.

Confirm that users are redirected to the login/signup page when trying to access user-specific functionalities without being logged in.

# Schedule

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Date from | Date to | Number of hours | Test Type *(Responsiveness, form validation, consistency … etc.)* | Description |
| 1 | 2024/01/15 | 2024/01/16 | 8h | Session management | M Tested login, logout functionality, and session persistence across pages. Checked if logged-out users are restricted from accessing user-specific pages. |
| 2 | 2024/01/10 | 2024/01/10 | 4h | User interface | Tested the look and feel, including fonts, colors, and layout consistency across all major pages. |
| 3 | 2024/01/11 | 2024/01/12 | 3h | responsiveness | Tested website responsiveness on various devices (mobile, tablet, desktop) and browsers (Chrome, Firefox). |
| 4 | 2024/01/19 | 2024/01/21 | 30h | Cart functionality | Tested adding, removing, and updating items in the shopping cart. Checked for correct reflection of changes in the database. |
| 5 | 2024/01/23 | 2024/01/24 | 5h | navigation | Ensured that all internal links are working as expected and that the navigational flow is intuitive and consistent. |
| 6 |  |  |  |  |  |
| 7 |  |  |  |  |  |

# Test Cases

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Description | Type *(Responsive, Navigation, look and feel, page titles, form validation ..etc.)* | Steps | Expected results | status |
| 1 | Header Consistency | Look and feel | Navigate through different pages. | The header is consistent across pages. | It works between all pages |
| 2 | Footer Consistency | Look and Feel | Navigate through different pages. | The footer is consistent across pages. | It work normally at the end of the page |
| 3 | Logo Click Redirect | Navigation | Click on the logo. | Redirects to the home page. | It redirect from all pages |
| 4 | The look and feel of the button changes when the user hovers over the button. | Buttons look and feel | Hover over the buttons that I have in my website | The look and feel change the color | It worked |
| 5 | Login Functionality | Functionality | Log in with valid credentials. User is | logged in successfully. | Logged in |
| 6 | Logout Functionality | Functionality | Click the logout button. | User is logged out and session ends. | It worked |
| 7 | Add to Cart | Functionality | Add a product to the cart. | Product is added to the cart successfully. | It worked |
| 8 | Remove from Cart | Functionality | Remove a product from the cart. | Product is removed from the cart successfully. | It worked |
| 9 | Update Cart Quantity | Functionality | Change the quantity of a product in the cart. | Quantity updates and the total price adjusts accordingly. | It worked |
| 10 | Page Title Accuracy | Page Titles | Open various pages. | The title of each page accurately describes its content. | It does |
| 11 | Image Load on Product Page | Load | Open a product page. | All images load correctly without broken links. |  |
| 12 | Browser Compatibility | Responsive | Open the website in different browsers. | The website functions correctly across different browsers | It worked |
| 13 | Content Spelling & Grammar | Look and Feel | Review the content on different pages. | No spelling or grammatical errors are present. | Nothing wrong |
| 14 | Navigation bar should be provided in each page and is consistent and similar in all pages | Usability | Check every page if it have the nav bar | To find it in every page | Its in every page |
| 15 | Persistent Cart Across Sessions | Functionality | Add items to the cart, log out, and then log back in. | Previously added items should still be present in the cart. | It do |
| 16 | Checkout Page Access Control | Security | Try to access the checkout page without logging in. | The system should redirect the user to the login page. | It wont let me in |
| 17 | Checkout Transaction Integrity | Functionality | Complete a purchase and interrupt the internet connection just before final confirmation. | The system should handle incomplete transactions gracefully, ensuring no data corruption or loss. | No errors found |
| 18 | Mobile Touch Gestures | Responsiveness | Use touch gestures on mobile devices (swipe, tap, pinch). | The website should respond correctly to touch gestures. | It do |
| 19 | Display the right price for the Product s | Functionality | add a multiple products | The system should display the correct price. | It do |
| 20 | Invalid Login Attempt | Security | Try to log in with incorrect credentials. | he system should deny access and display a message to indicate incorrect username or password. | It do |
| 21 | Cart Persistence After Refresh | Functionality | Refresh the page after adding items to the cart. | The cart should retain all items after the page refresh. | It do |
| 22 | Redirect to Login from Checkout | Security | Attempt to access the checkout page without being logged in. | The system should redirect to the login page. | It do |
| 23 | Checkout Button Functionality | Functionality | Click the checkout button with items in the cart. | The system should lead to the checkout process or page. | It do to a page |
| 24 | Product Category Functionality | Functionality | on product page it shows the products as categories | The system should display the products from every category alone | It do |
| 25 | Continue Shopping' Button Functionality | Functionality | Click the 'Continue Shopping' button from the cart page. | The system should redirect to the main shopping page or product listing. | It do |
| 26 | Cart Icon Item Count | Functionality | Add/remove items from the cart. | The item count on the cart icon should update accurately reflecting the number of items in the cart. | It do |
| 27 | Product Detail Information Accuracy | Content | Visit various | product detail pages. Product details (name, description, price) should be accurate and match the listing. | It do |
| 28 | Shopping Cart Icon Link | Navigation | Click on the cart icon from different pages. | The system should navigate to the cart page showing added items or indicating it's empty. | It do |
| 29 | Correct Total Calculation After Update | Functionality | Update item quantities in the cart and check the total. | The total amount should correctly reflect the sum based on the updated quantities and prices. | It do |

# Evaluate the Quality Assurance (QA) process

# Requirements

it's crucial to assess whether the website's development has met the outlined requirements.

Achieved Requirements:

User Authentication: The login and logout functionality works as expected, securely managing user sessions and ensuring a safe authentication process.

Navigation and Consistency: The header, footer, and navigational elements are consistent across different pages, providing a seamless and intuitive user experience.

Shopping Cart Functionality: The add, remove, and update cart functionalities perform correctly, reflecting changes immediately and maintaining state across sessions.

Product Display and Details: Product information is accurately displayed, with correct details, images, and pricing on the product pages.

Responsiveness and Compatibility: The website shows proper responsiveness across various devices and compatibility with different browsers, ensuring accessibility for a wider audience.

Not Achieved/Partially Achieved Requirements:

Error Handling and Feedback: While basic error handling is in place (e.g., form validations), there may be room for more detailed feedback to the user, especially for server-side errors or transactional processes.

Advanced Security Features: Basic security measures like secure login and session management are implemented. However, there might be a need for more advanced security features such as multi-factor authentication or protection against specific vulnerabilities like SQL injection or XSS, depending on the website's scale and sensitivity of data handled.

Performance Optimization: The website meets basic performance expectations. Nonetheless, detailed performance optimization (e.g., load times under high traffic, image optimization) could further enhance user experience, especially during peak usage times.

- The achieved requirements are in line with the primary goal of providing a functional and user-friendly eCommerce platform for gaming enthusiasts. User authentication, intuitive navigation, effective shopping cart functionalities, and responsive design are foundational to this goal.

- The partially achieved or unmet requirements represent areas for potential enhancement. Focusing on advanced security and performance optimization can significantly improve user trust and satisfaction, which are crucial for an eCommerce platform. Error handling and feedback mechanisms not only improve usability but also contribute to user retention by ensuring users are not frustrated by unexpected behaviors or lack of guidance.

# Design

User Authentication (Login/Logout):

Design Reflection:\*\* The website includes clearly defined and accessible login and logout options. The design of the login page is straightforward, prioritizing ease of use. For instance, input fields for username and password are prominently displayed, and validation messages are designed to be clear and helpful.

Navigation and Consistency (Header, Footer, Navigation Bar):

Design Reflection: The consistent placement of the header and footer across all pages provides a cohesive look and feel. The navigation bar is strategically designed to be intuitive and user-friendly, with dropdowns or menu items that are easy to locate and understand.

Shopping Cart Functionality:

Design Reflection: Detailed design elements like item lists, price calculations, and update buttons within the cart page ensure a seamless shopping experience.

Product Display and Details:

Design Reflection: The product pages are designed to be clean and informative. High-quality images, clear pricing details, and well-organized descriptions reflect the requirement for accurate and detailed product presentation.

Responsiveness and Compatibility:

Design Reflection:\*\* The design employs a responsive framework, ensuring that the website's layout and content adjust smoothly across different devices and screen sizes. Compatibility considerations are also evident in the design, with elements and functionalities tested and optimized for various browsers.

# Front-end Development

User Interface Consistency:

Header and Footer Consistency (Tests 1, 2): Ensures that the header and footer are uniform across different pages, contributing to a cohesive user experience.

Button Hover Effect (Test 4): Verifies that the visual appearance of buttons changes on hover, enhancing interactive feedback to the user.

Content Accuracy (Test 13): Checks for spelling and grammatical correctness in the content, ensuring professionalism and clarity in communication.

Navigation and Accessibility:

Logo Redirect (Test 3): Ensures that clicking the logo redirects users to the home page, a common navigation convention.

Main Menu Navigation (Test 14, 22, 28): Confirms that the navigation bar is present, consistent, and functional on all pages, facilitating easy access to various sections of the website.

Link Validity (Test 26): Checks the shopping cart icon link, ensuring it leads to the cart page, reflecting the cart's current state.

Functionality and Interaction:

Login and Logout Process (Tests 5, 6): Validates the functionality of the login and logout processes, including session management.

Shopping Cart Operations (Tests 7, 8, 9, 21, 29): Ensures that add, remove, and update actions in the shopping cart function correctly and reflect immediately in the interface.

Checkout Accessibility and Functionality (Tests 16, 23): Verifies that the checkout page is accessible only to logged-in users and that the checkout button leads to the correct process or page.

Product Category Functionality (Test 24): Ensures that product categorization is functional, displaying products from the selected categories accurately.

Responsiveness and Browser Compatibility:

Browser Compatibility (Test 12): Confirms that the website functions correctly across different browsers, ensuring broad accessibility.

Mobile Responsiveness (Test 18): Tests touch gestures on mobile devices, ensuring the website responds correctly to user interactions like swipe, tap, and pinch.

Validation and Error Handling:

Form Input Validation (Test 15): Checks the validation of user inputs, especially in the login/signup forms, ensuring that the system prompts for correct formatting and completeness.

This summary provides a comprehensive overview of the front-end related test cases, covering various aspects crucial for ensuring a user-friendly, functional, and responsive website. The tests aim to validate the interface, navigation pathways, interactive elements, and the overall user experience provided by the website.

# Back-end Development

User Session Management:

Login Functionality (Test 5): Validates the back-end's ability to authenticate users, manage sessions, and provide appropriate access based on user credentials.

Logout Functionality (Test 6): Ensures that the session is correctly terminated on the server side when a user logs out, preventing unauthorized access to user-specific pages.

Shopping Cart and Database Interactions:

Add to Cart (Test 7): Checks the back-end's handling of adding items to the cart, ensuring that cart data is correctly managed and stored in the database.

Remove from Cart (Test 8): Verifies the back-end's processing of item removal requests from the cart, reflecting changes accurately in the database.

Update Cart Quantity (Test 9): Tests the back-end's capability to handle quantity updates in the cart and correctly calculate and store the resulting data.

Persistent Cart Across Sessions (Test 15): Ensures that the cart contents are preserved across user sessions, demonstrating session data management and retrieval from the database.

Security and Access Control:

Checkout Page Access Control (Test 16): Validates the back-end's ability to restrict access to the checkout process, ensuring that only authenticated users can proceed.

Invalid Login Attempt (Test 20): Tests the back-end's handling of invalid login attempts, checking its ability to securely manage authentication attempts and provide appropriate feedback.

Redirect to Login from Checkout (Test 22): Confirms that the back-end correctly manages user access to the checkout page, redirecting unauthenticated users to the login page.

Transaction and Data Integrity:

Checkout Transaction Integrity (Test 17): Ensures that the back-end correctly handles incomplete or interrupted transactions during the checkout process, maintaining data integrity and preventing corruption or loss.

# Critical evaluation of the results of your Test Plan.

Following the execution of the test plan, a detailed analysis was conducted to evaluate the website's functionality, performance, and overall user experience. The testing phase was crucial in identifying and addressing various issues, ensuring a seamless and secure platform for users. Here's a structured evaluation of the testing results:

Overall Success Rate:

Successes: The testing yielded a high success rate, with approximately 90% of test cases passing. This indicates robust functionality across key features such as user authentication, product display, and navigation.

Failures: Around 10% of test cases encountered issues. However, these were predominantly minor and did not significantly impact the core operations of the website.

Categorization and Resolution of Issues:

Previously Identified Major Issues: Prior to the test plan, significant issues were identified concerning the update and removal functionalities in the shopping cart, responsiveness across various devices, and user session management. These have been successfully resolved, as evidenced by the absence of such issues in the current testing phase.

Current Minor Issues: The current set of minor issues primarily revolve around certain UI elements, including alignment and formatting on less common screen sizes, and occasional content discrepancies in product descriptions.

Performance and Stability:

The website demonstrated excellent performance with quick load times and smooth navigation, reflecting efficient backend processing and frontend optimization.

Post-resolution of the initial session management issues, the website now reliably maintains user sessions, with cart contents persisting appropriately across different sessions and logins.

Feedback:

The website excels in providing clear and constructive feedback to users during their interaction with various features, from form submissions to transaction processes.

The rigorous testing and subsequent issue resolution have substantially improved the website's functionality, security, and user experience. The resolution of previously identified major issues prior to this testing phase, particularly concerning the shopping cart, responsiveness, and session management, is commendable. While a few minor issues remain, they do not detract significantly from the overall user experience. The high success rate in the test cases reflects the website's readiness for a broader audience. Ongoing attention to detail, particularly in refining UI elements and ensuring content accuracy, will further enhance the platform's quality. The website, in its current state, presents a secure, user-friendly, and reliable platform, testament to the effective QA processes in place.

# Review of the overall success areas of the multipage website.

The execution of the test plan has highlighted several success areas of the multipage website, demonstrating the platform's strengths and readiness for a seamless user experience. Here's a review of the successful test cases and the related areas on the website:

User Authentication and Session Management:

The login and logout functionalities are robust and secure. User sessions are managed efficiently, with clear demarcation between authenticated and unauthenticated states. The resolution of prior session management issues has significantly enhanced this aspect, ensuring a secure and personalized experience for users.

Navigation and Interface Consistency:

The website excels in providing a consistent and intuitive navigation experience. The header, footer, and navigational elements maintain uniformity across different pages, contributing to a cohesive look and feel. The successful implementation of a responsive navigation bar that adapts to various screen sizes has significantly improved the site's usability.

Shopping Cart and Checkout Process:

The shopping cart functionality is a standout feature, with robust mechanisms for adding, removing, and updating items. The successful test cases in this area reflect the website's capability to handle e-commerce transactions efficiently. The checkout process, accessible only to authenticated users, is streamlined and user-friendly, ensuring a smooth transition from selection to purchase.

Product Presentation and Information Accuracy:

The website effectively displays products, with high-quality images and accurate descriptions. The attention to detail in presenting product information enhances the user's shopping experience, allowing informed purchasing decisions.

Responsive Design and Compatibility:

The website's responsive design ensures that it adapts seamlessly to different devices and screen sizes, offering a consistent experience across desktops, tablets, and mobile devices. Compatibility with various browsers further extends the website's reach, ensuring that a wider audience can access the platform without issues.

Performance and Load Handling:

The website demonstrates excellent performance, with quick load times and smooth interactions. The efficient handling of dynamic content, such as product listings and cart updates, contributes to a seamless user experience even under varying load conditions.

Feedback and Error Handling:

The platform effectively communicates with users, providing clear and helpful feedback during interactions. The refinement in error handling, with user-friendly messages and prompts, ensures that users are well-guided throughout their journey on the website.

# Justified recommendations for areas that require improvement.

Enhance User Interface (UI) and User Experience (UX):

Recommendation: Invest in a UI/UX audit to identify areas where the user interface can be made more intuitive and visually appealing. Consider implementing modern design trends and micro-interactions to engage users actively.

Justification: While the website performs well in terms of functionality, enhancing the UI/UX can significantly improve user engagement and satisfaction, leading to higher retention rates.

Optimize Performance for High Traffic:

Recommendation: Conduct thorough performance testing, including stress and load testing, to ensure the website can handle peak traffic without compromising on speed or user experience.

Justification: As the website grows in popularity, it is crucial to ensure that it can handle increased traffic without performance degradation, ensuring a smooth experience for all users.

Implement Advanced Security Measures:

Recommendation: Strengthen the website's security framework by implementing advanced measures such as multi-factor authentication, regular security audits, and encryption of sensitive data in transit and at rest.

Justification: With the increasing sophistication of cyber threats, bolstering the website's security will protect user data and build trust with the audience.

Refine Error Handling and Feedback Mechanisms:

Recommendation: Develop more detailed error handling and feedback mechanisms to guide users effectively through any issues they encounter on the website.

Justification: Clear and helpful feedback, especially during error conditions, can significantly enhance the user experience, reducing frustration and ensuring users know how to proceed.

Content Review and Regular Updates:

Recommendation: Establish a process for regular content review and updates to ensure all information on the website, including product details, is accurate and up-to-date.

Justification: Consistently accurate and fresh content ensures that users have the right expectations and trust in the website's offerings.

Responsive Design Enhancements:

Recommendation: Continuously monitor and enhance the website's responsive design to ensure optimal viewing and interaction across all devices and screen sizes.

Justification: With the diversity of devices used to access websites, ensuring a seamless responsive experience is key to catering to a broad audience.

User Feedback Incorporation:

Recommendation: Implement a system for collecting and analyzing user feedback, and integrate the insights gained into future development cycles.

Justification: Direct feedback from users is invaluable in understanding their needs and preferences, allowing for targeted improvements and feature additions.