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| School of Computing and Informatics |
| Website Design and Development |
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# Scope (in scope, out scope)

* In Scope:
  + Testing of all front-end functionalities (navigation, forms, responsiveness).
  + Testing of all back-end functionalities (user authentication, database interactions, session management).
  + Testing of user account management (signup, login, profile updates).
  + Testing of book club functionalities (creating clubs, joining clubs, managing events).
  + Testing of book-related functionalities (searching books, viewing book details, rating books).
  + Testing of responsiveness across different devices (desktop, tablet, mobile).
  + Testing of form validations (signup, login, event creation).
* Out of Scope:
  + Performance testing under heavy load (stress testing).
  + Security testing beyond basic validation (penetration testing).
  + Third-party integrations (social media logins, payment gateways).

# Schedule

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Date from | Date to | Number of hours | Test Type *(Responsiveness, form validation, consistency … etc.)* | Description |
| 1 | 15/11/2024 | 20/11/2024 | 10 | Responsiveness | Test the website on different devices (desktop, tablet, mobile). |
| 2 | 21/11/2024 | 25/11/2024 | 15 | Form Validation | Test all forms (signup, login, profile update, event creation). |
| 3 | 26/11/2024 | 30/11/2024 | 10 | Database Interaction | Test CRUD operations (create, read, update, delete) for users, books, and clubs. |
| 4 | 1/12/2024 | 5/12/2024 | 10 | User Authentication | Test login, logout, and session management. |
| 5 | 6/12/2024 | 10/12/2024 | 10 | Navigation | Test all navigation links and ensure they redirect correctly. |
| 6 | 11/12/2024 | 15/12/2024 | 10 | Search Functionality | Test search functionality for books and clubs. |
| 7 | 16/12/2024 | 20/12/2024 | 10 | Error Handling | Test error messages for invalid inputs and edge cases. |

# Test Cases (at least 25 Test cases)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Description | Type *(Responsive, Navigation, look and feel, page titles, form validation ..etc.)* | Steps | Expected results | status |
| 1 | Test homepage responsiveness | Responsive | Open the homepage on different devices (desktop, tablet, mobile). | The homepage should display correctly on all devices. | pass |
| 2 | Test signup form validation | Form Validation | Fill in the signup form with invalid data (e.g., mismatched passwords). | The form should display appropriate error messages. | pass |
| 3 | Test login functionality | User Authentication | Enter valid credentials and click login. | The user should be logged in and redirected to the homepage. | pass |
| 4 | Test login functionality | User Authentication | Enter invalid credentials and click login. | The form should display appropriate error messages. | pass |
| 5 | Test logout functionality | User Authentication | Click the logout button. | The user should be logged out and redirected to the login page. | pass |
| 6 | Test profile update functionality | Form Validation | Update the profile with new username, password, and image. | The profile should be updated successfully. | pass |
| 7 | Test book search functionality | Search Functionality | Search for a book using the search bar. | The search results should display relevant books. | pass |
| 8 | Test book details page | Navigation | Click on a book from the search results. | The book details page should display correctly. | pass |
| 9 | Test book rating functionality | Database Interaction | Rate a book and submit the rating. | The rating should be saved. | pass |
| 10 | Test club creation functionality | Form Validation | Create a new club with valid details. | The club should be created and displayed in the user's club list. | pass |
| 11 | Test club join functionality | Database Interaction | Request to join a club. | The request should be sent and displayed in the club's request list. | pass |
| 12 | Test event creation functionality | Form Validation | Create a new event in a club. | The event should be created and displayed in the club's event list. | pass |
| 13 | Test navigation links | Navigation | Click on all navigation links (Home, Club, Contact Us). | The user should be redirected to the correct pages. | pass |
| 14 | Test error handling for invalid signup | Error Handling | Enter invalid data in the signup form. | Appropriate error messages should be displayed. | pass |
| 15 | Test empty search | Error handling | Preform empty search | Show all the items in that type | Pass |
| 16 | Test responsiveness of book details page | Responsive | Open the book details page on different devices. | The page should display correctly on all devices. | pass |
| 17 | Test session management | User Authentication | Log in and refresh the page. | The user should remain logged in. | pass |
| 18 | Test database connection | Database Interaction | Perform any database operation | The database should respond without errors. | pass |
| 19 | Test book club request approval | Database Interaction | Approve a user's request to join a club. | The user should be added to the club's member list. | pass |
| 20 | Test book club request rejection | Database Interaction | Reject a user's request to join a club. | The request should be removed from the club's request list. | pass |
| 21 | Test user delete account | Database Interaction | Use the delete button on profile | The database should delete the user. | pass |
| 22 | Test the top rater books | Database interaction | Rate the book then look at the home page | Show the top 3 rated books | pass |
| 23 | Test if the image changer can take anything not as image | Form validation | Add something is not with image extension | It should not allow | pass |
| 24 | Test the default profile image for users | Form | Check the user to see his profile image | Is should show the default image | pass |
| 25 | Test the search bar for clubs | Search functionality | Search for a club using the search bar. | The search results should display relevant clubs. | pass |
| 26 |  |  |  |  |  |
| 27 |  |  |  |  |  |
| 28 |  |  |  |  |  |
| 29 |  |  |  |  |  |
| 30 |  |  |  |  |  |

# Evaluate the Quality Assurance (QA) process

# Requirements

* User Authentication:
* Achieved: The system successfully allows users to sign up, log in, and log out. Session management is implemented to keep users logged in across different pages.
  + Justification: The login.php, signup.php, and logout.php files demonstrate functional user authentication. Sessions are managed using session\_start() and session\_destroy().
* User Profile Management:
  + Achieved: Users can update their profile information, including username, password, and profile picture.
  + Justification: The profile.php file allows users to update their details, and changes are reflected in the database.
* Book Club Management:
  + Achieved: Users can create clubs, join clubs, and manage club events. Club admins can accept or decline membership requests.
  + Justification: The create-club.php, club.php, and my club.php files demonstrate these functionalities. Database interactions for club creation, joining, and event management are functional.
* Book Search and Details:
  + Achieved: Users can search for books by genre and view detailed information about each book, including ratings and comments.
  + Justification: The Action&Adventure.php, Fantasy.php, and book.php files provide search and book detail functionalities. Database queries fetch and display book information.
* Responsive Design:
  + Achieved: The website is responsive and works well on different devices (desktop, tablet, mobile).
  + Justification: CSS media queries and Bootstrap are used to ensure responsiveness across devices.
* Form Validation:
  + Achieved: Forms such as signup, login, and event creation have validation to ensure correct data input.
  + Justification: Form validation is implemented in signup.php, login.php, and my club.php to prevent invalid data submission.
* **Not Achieved Requirements:**
* **Password Reset Functionality:**
  + **Not Achieved:** There is no functionality for users to reset their passwords if they forget them.
  + **Justification:** The current system does not include a "Forgot Password" feature or email integration for password reset links.
  + **Advanced Search Filters:**
    - **Not Achieved:** The search functionality is limited to genre-based searches and does not include advanced filters (e.g., by author, publication date, or rating).
    - **Justification:** The search functionality in Action&Adventure.php and Fantasy.php only filters by genre and title.

# Design

The design embodies the requirements via a seamless incorporation of front-end and back-end components that correspond with the application's objectives. The user interface is crafted to be user-friendly and responsive, facilitating smooth navigation on various devices, thereby meeting the requirements for accessibility and usability. Essential features like user authentication (login, signup, logout), profile management, and book club functions are executed via specific pages (login.php, profile.php, club.php, etc.), utilizing forms and dynamic content powered by PHP and database connections. The design utilizes Bootstrap for adaptable layouts, guaranteeing that the application performs effectively on desktops, tablets, and mobile devices. Moreover, form validations and error management are integrated to guarantee data integrity and assist users. In general, the design successfully converts the functional needs into a visually coherent and user-friendly web application.

# Front-end Development

The front-end was tested for **responsiveness**, **user interface consistency**, and **navigation**. Key test cases included:

* **Responsiveness:** Verified the homepage and book details page display correctly on all devices.
* **Navigation:** Ensured all links (Home, Club, Contact Us) redirect correctly.
* **Form Validation:** Tested signup, login, and profile update forms for error handling and validation.

All the test cases passed.

# Back-end Development

The back-end was tested for **database interactions**, **user authentication**, and **functionality** such as club and event management. Key test cases included:

* **User Authentication:** Verified login, logout, and session management.
* **Database Operations:** Tested profile updates, book ratings, club creation, and event management.
* **Request Handling:** Confirmed club join requests are approved or rejected correctly.
* **Data Integrity:** Checked that user accounts are deleted and top-rated books are displayed accurately.
* **Search Functionality:** Verified that the search bar for books and clubs retrieves and displays accurate results from the database.
* **Default Profile Picture:** Ensured that users without a profile image are assigned a default image stored on the server.
* **Image Validation:** Ensured only valid image files are accepted for profile uploads.

# Critical evaluation of the results of your Test Plan.

* The testing process for the web application was comprehensive, covering both **front-end** and **back-end** functionalities.
* The results:
  + Total of 25 test case
  + 25 passed test case
  + 0 failed test case
  + Success rate was 100%
* All test cases passed successfully, indicating that the application meets the functional requirements and performs as expected.
* Major issues
  + None: No major issues were identified during testing. All core functionalities, such as user authentication, profile management, book and club operations, and database interactions, worked as intended.
* Minor Issues
  + None: No minor issues were identified during testing. The application handled edge cases like invalid form inputs, empty searches, and all features were fully functional.

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

* User Authentication:
  + Login, signup, and logout functionalities worked flawlessly.
  + Session management ensured users remained authenticated across pages.
* Profile Management:
  + Users could update their profile information (username, password, and image) without issues.
  + Default profile pictures were assigned correctly for users without uploaded images.
* Book and Club Functionality:
  + Book search and details pages displayed accurate information.
  + Club creation, joining, and event management worked as expected.
  + Club requests were approved or rejected correctly.
* Responsiveness:
  + The application displayed correctly on all devices (desktop, tablet, mobile).
* Form Validation and Error Handling:
  + Forms ( signup, login, event creation) displayed appropriate error messages for invalid inputs.
  + Empty searches were handled gracefully, displaying all items in the selected category.
* Database Interactions:
  + All database operations ( CRUD for users, books, clubs, and events) were performed without errors.

# Justified recommendations for areas that require improvement.

* Although the existing version of the web application operates effectively and fulfills all outlined requirements, certain aspects can be improved to boost user experience, performance , and security.
  + Password Reset Functionality
    - A "Forgot Password" feature should be implemented to allow users to reset their passwords via email. Currently, users who forget their passwords have no way to recover their accounts, which can lead to frustration and loss of users.
  + Advanced Search Filters
    - The search functionality should be enhanced with advanced filters, such as searching by author, publication date, rating, or genre. The current search is limited to basic genre and title-based searches, which may not meet the needs of all users.
  + Social Media Integration
    - Integrating social media login options (Facebook, Google) would simplify the registration process and reduce friction for new users.
  + Two-Factor Authentication (2FA)
    - Implementing two-factor authentication (2FA) would add an extra layer of security during the login process. With 2FA, users would need to provide a second form of verification ( a code sent to their phone) in addition to their password.
  + Book Recommendations
    - A recommendation system could be implemented to suggest books based on user preferences or reading history. For example, the system could recommend books in genres the user has previously enjoyed or books with high ratings.
  + Accessibility Improvements
    - The website should be updated to meet accessibility standards, such as WCAG compliance, to ensure it is usable by people with disabilities. This could include features like screen reader support, keyboard navigation, and high-contrast modes.