

NAME:PACIFIQUE BAKUNDUKIZE
STUDENT_ID : 26798

OnlineBookstore Web Application

1. Cover / Title

OnlineBookstore Web Application

2. Introduction

The OnlineBookstore is a robust, multi-user web application designed to revolutionize the way users interact with books and learning resources online. Unlike traditional bookstores, it offers not just a platform for purchasing books, but also a rich set of digital features—such as online reading, audiobooks, quizzes, and progress tracking—making it an all-in-one solution for students, teachers, and individual readers. The application is built with a focus on usability, accessibility, and security, ensuring a seamless experience across devices.

3. Problem Statement

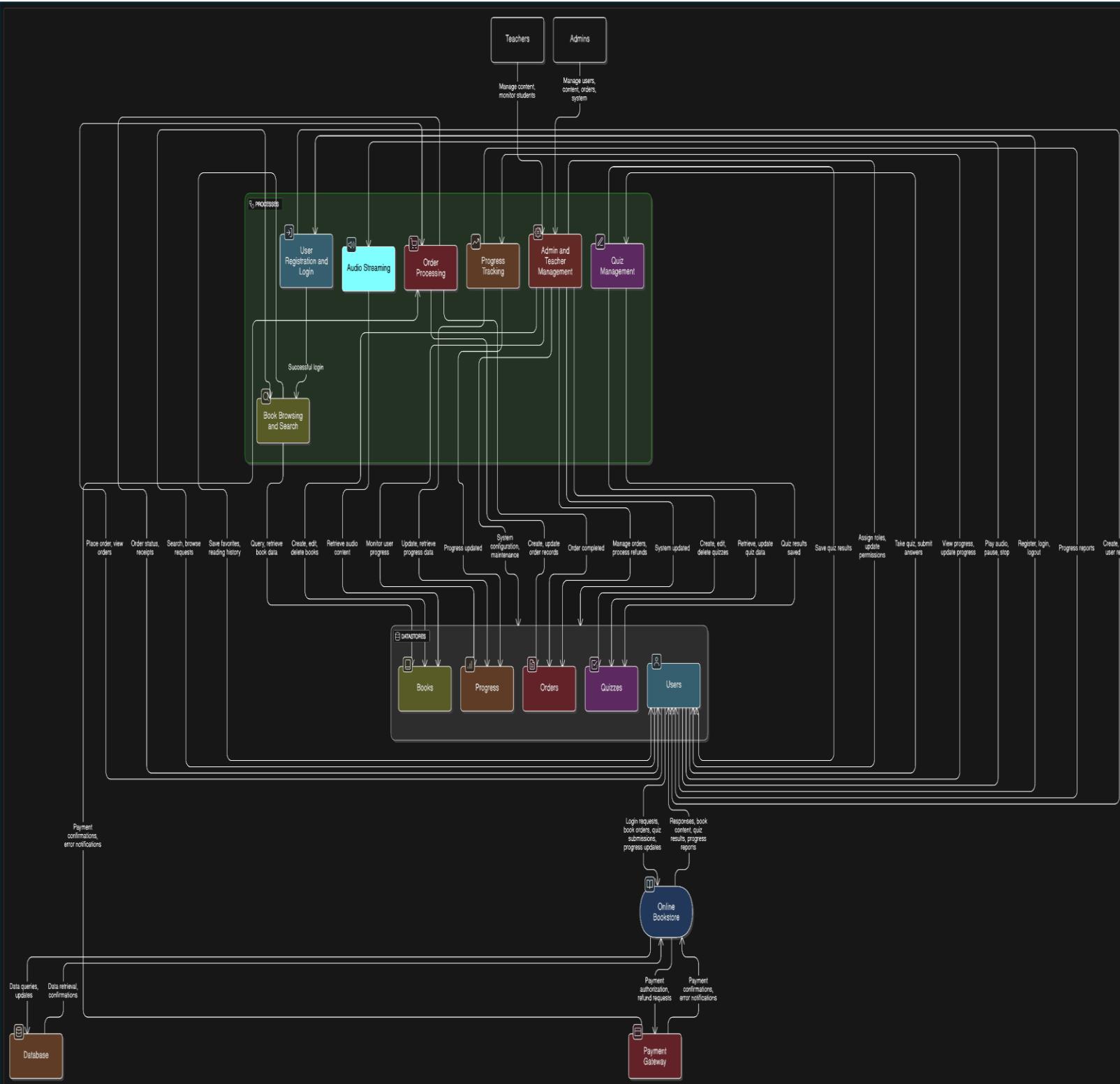
In the digital era, readers and learners require more than just a place to buy books. They need a platform that supports their educational journey—enabling them to read online, listen to audiobooks, test their knowledge, and monitor their progress. Existing solutions are fragmented, often requiring users to juggle multiple platforms for buying, reading, and learning. This project addresses the need for a unified, interactive, and user-friendly online bookstore that combines purchasing, reading, and learning in one place.

4. Objectives

- **Unified Experience:** Deliver a single platform for buying, reading, and learning with books.
- **User Roles:** Support different user types—students, teachers, admins, and individuals—with tailored dashboards and permissions.
- **Digital Access:** Allow users to read books online (PDF/HTML) and listen to audiobooks directly from the platform.
- **Learning Tools:** Integrate quizzes and progress tracking to encourage active learning and self-assessment.
- **Modern UI/UX:** Ensure the interface is visually appealing, responsive, and easy to navigate for all users.
- **Security:** Protect user data and privacy through strong authentication, password hashing, and secure database queries.
- **Scalability:** Structure the codebase and database for easy future expansion (e.g., more content types, analytics, social features).

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5. Diagrams (Data Flow Diagrams)



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[Home](#) [Book Catalog](#) [Register](#) [Login](#) [Admin Login](#)

Welcome to the Online Bookstore

Your one-stop shop for discovering, buying, and selling books online. Whether you're a passionate reader, a student, or a book collector, our platform connects you with thousands of titles and a vibrant community.

- Browse a vast collection of books across genres
- Add and manage your own books for sale
- Simple registration and secure login
- Fast, user-friendly, and mobile-ready



Welcome Back

Username

Password

[Login →](#)

Don't have an account? [Register here](#)

[Forgot Password?](#)

[Home](#)

Are you an admin? [Login here](#)

Admin Dashboard

Total Books	Total Users	Total Orders	Total Revenue
6	4	1	\$0.00

Low Stock Books (< 5)
• pacifique - 0 left

[Manage Books](#)

Pending Orders
• Order #1 by User ID 1 (2025-05-20)

[Manage Orders](#)

[Add New Book](#) [View All Books](#) [View All Users](#) [View All Orders](#) [Generate Report](#) [Settings](#)

[Return to Homepage](#)

Admin Login

Email

Password

[Log In](#)

Need an admin account? [Register here](#)

[Home](#)

Are you a user? [Login here](#)

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Register Admin Account

Full Name

Username

Email

Password

Confirm Password

[Register Admin](#)

Already have an account? [Login](#)

Admin Login

Email

Password

[Log In](#)

Need an admin account? [Register here](#)
[Home](#)

Are you a user? [Login here](#)

Home Book Catalog Quizzes Quiz Results My Orders My Progress kevin

Book Catalog

 pacifique by him \$100.00 Buy Order	 To Kill a Mockingbird by Harper Lee \$9.99 <p>A novel about the serious issues of rape and racial inequality, narrated by young Scout Finch.</p>	 1984 by George Orwell \$8.49 <p>Dystopian novel set in a totalitarian society ruled by Big Brother and the Party.</p>
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Home Book Catalog Quizzes Quiz Results My Orders My Progress kevin School Dashboard

Welcome back, kevin!

Your personalized Online Bookstore dashboard. See your stats, recent activity, and get recommendations.

Take a Quiz	Browse Books	View Progress	Order History
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Books in Catalog	Quizzes Available	My Orders	Last Quiz Score
6	5	0	--

Recent Activity

- Ordered: "The Great Gatsby"
- Completed quiz "1984 Quiz"
- Browsed new arrivals

Notifications

- New quiz available: "To Kill a Mockingbird Quiz"
- Order shipped "1984"

Recommended For You

- "Brave New World" - Recommended for you
- "Animal Farm" - Based on your reading interests

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6. Features (Detailed)

1. User Registration & Login

- **What it does:** Enables new users to sign up and existing users to securely log in to their personalized dashboard.

- **User Workflow:**

1. User visits the registration page and fills out the form (username, password, email, and optionally selects a role).
2. On submission, the backend validates the input, checks for existing usernames, and hashes the password before storing it in the `users` table.
3. User can then log in with their credentials. On successful login, a session is created (`\$_SESSION['user_id']` and `\$_SESSION['role']`).
4. The session persists across pages until logout or session expiration.

- **Backend Logic:**

- Registration and login use prepared SQL statements to prevent SQL injection.
- Passwords are hashed using PHP's `password_hash()` and verified with `password_verify()` .
- Sessions are securely started and destroyed on logout.

- **Integration:**

- All protected pages check for an active session before granting access.
- User role determines dashboard content and navigation.

2. Book Catalog

- **What it does:** Presents a visually appealing, searchable list of all available books, with options to buy, read online, or listen to audiobooks.

- **User Workflow:**

1. User navigates to the "Book Catalog" page from the dashboard.
2. The app queries the `books` table (LEFT JOIN with `audio_books`) to fetch all relevant book data.
3. Each book is displayed as a card with its cover, title, author, price, description, and action buttons:

- **Buy/Order:** Opens a purchase/order form or triggers a POST request to add the book to the user's orders.

- **Read Online:** If the book has a `read_file` , this button opens the file in a new tab for online reading.

- **Listen:** If there's an `audio_file` , this button opens the audio in a player or new tab.

- **Backend Logic:**

- Uses SQL JOINS to aggregate book and audio data efficiently.
- Only displays action buttons if the corresponding files exist for the book.

- **Integration:**

- Orders are linked to the user and book in the `orders` table.
- Reading/listening actions update the `progress` table.

3. User Dashboard

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- **What it does:** Serves as the personalized home page for each user, summarizing all recent activity, stats, and recommendations.

- **User Workflow:**

1. After login, user lands on the dashboard.

2. The dashboard displays:

- **Navigation Bar:** Quick links to all major sections (catalog, quizzes, orders, progress, etc.).

- **Hero Section:** Welcome message and motivational quote or insight.

- **Stats/Insights Grid:** Shows key metrics (books read, quizzes taken, orders made, last quiz score).

- **Recent Activity:** Lists recent orders and quiz attempts for quick access.

- **Notifications:** Alerts for new books, quizzes, or admin messages.

- **Recommendations:** Personalized suggestions for books and quizzes based on user activity.

- **Currently Reading Widget:** Highlights the book the user is currently reading, with progress, last read date, and buttons to continue reading or listening if files are available.

- **Stats Chart:** A bar graph (using Chart.js) visualizes user activity over time (e.g., books read per month).

- **Backend Logic:**

- Aggregates data from `orders` , `progress` , `quiz_results` , and `recommendations` tables.

- Uses session data to filter and personalize content.

- **Integration:**

- Links to all other features (catalog, quizzes, orders, etc.) are provided for seamless navigation.

- All dashboard CSS is embedded or imported for a cohesive look.

- Chart.js is used for rendering interactive charts.

4. Quizzes

- **What it does:** Lets users test their knowledge with quizzes related to books.

- **How it works:**

- Users can take quizzes from the dashboard or catalog.

- Quiz results are saved and can be reviewed anytime.

- Admins/teachers can create/manage quizzes and view results.

- **Technical Notes:**

- Quizzes are linked to specific books.

- Results are stored in the database with scores and timestamps.

5. Reading Progress Tracking

- **What it does:** Tracks and displays how much of a book a user has read.

- **How it works:**

- Each time a user reads a book, their progress (pages read, last read date) is updated.

- The dashboard and a dedicated progress page show summaries and details.

- **Technical Notes:**

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- Progress is stored in the `progress` table, linked to both user and book.

6. Order Management

- **What it does:** Allows users to view their past and current book orders.

- **How it works:**

- Orders page lists all books ordered, status (pending, completed, canceled), and order dates.

- Users can view order history from the dashboard or dedicated page.

- **Technical Notes:**

- Orders are linked to users and books in the database.

7. Audio Books

- **What it does:** Enables users to listen to audio versions of books when available.

- **How it works:**

- "Listen" button appears for books with an `audio_file` .

- Clicking opens the audio in a new tab or player.

- **Technical Notes:**

- Audio files are managed in the `audio_books` table and stored in `/audio/` .

8. Recommendations

- **What it does:** Suggests books and quizzes based on user activity and interests.

- **How it works:**

- Dashboard shows recommended books not yet ordered and quizzes not yet taken.
 - Recommendations update as user activity changes.

- **Technical Notes:**

- Uses simple SQL queries to exclude already ordered/taken items.

9. Admin/Teacher Dashboard

- **What it does:** Provides additional tools for teachers/admins to manage users, quizzes, and view analytics.

- **How it works:**

- Admins/teachers see extra navigation options (e.g., School Dashboard).
 - Can view/manage students, quizzes, and results.

- **Technical Notes:**

- Role-based access control ensures only authorized users see these features.

10. Professional, Responsive UI

- **What it does:** Ensures the app looks and works great on all devices.

- **How it works:**

- Uses modern CSS (Flexbox, Grid), Google Fonts, FontAwesome icons, and responsive breakpoints.

- All pages are styled for clarity and ease of use.

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7. Database Schema (In-Depth)

The OnlineBookstore uses a normalized relational database (MySQL) to manage users, books, orders, quizzes, progress, and more. Below is a detailed description of each table and its role:

books

- **Purpose:** Stores all book metadata.

- **Fields:**

- `id` : Primary key
- `title`, `author`, `price`, `description`, `cover_image` : Book info
- `read_file` : (Should be added) File name for the online reading version (PDF/HTML)

audio_books

- **Purpose:** Links audio files to books.

- **Fields:**

- `id` : Primary key
- `book_id` : Foreign key to `books`
- `audio_file` : File name of the audio version
- `duration` : Length in seconds

users

- **Purpose:** Stores user accounts and roles.

- **Fields:**

- `id`, `username`, `password` (hashed), `email`
- `role` : ENUM (student, teacher, admin, individual)
- `membership_id`, `school_id` : Optional, for extended features

orders

- **Purpose:** Tracks book purchases/orders by users.

- **Fields:**

- `id`, `user_id`, `book_id`, `order_date`, `status`

progress

- **Purpose:** Tracks user reading progress for each book.

- **Fields:**

- `id`, `user_id`, `book_id`, `pages_read`, `last_read`

quizzes

- **Purpose:** Stores quiz metadata for books.

- **Fields:**

- `id`, `book_id`, `title`, `questions` (JSON/text)

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quiz_questions

- **Purpose:** Stores individual questions for quizzes.
- **Fields:**
 - `id`, `quiz_id`, `question`, `choices` (JSON), `correct_answer`

quiz_results

- **Purpose:** Tracks quiz attempts and scores by users.
- **Fields:**
 - `id`, `quiz_id`, `user_id`, `score`, `total`, `taken_at`

recommendations

- **Purpose:** Stores personalized book/quiz recommendations for users.
- **Fields:**
 - `id`, `user_id`, `book_id`, `recommended_at`

schools, memberships

- **Purpose:** Support for institutional users and memberships.
- **Fields:**
 - School: `id`, `name`, `address`, `contact_email`
 - Membership: `id`, `name`, `description`, `price`, `duration_days`

Notes:

- All foreign keys use `ON DELETE CASCADE` to maintain referential integrity.
- All sensitive data (e.g., passwords) is stored securely.

8. Security (In-Depth)

Security is a top priority in the OnlineBookstore. Measures are implemented at every layer:

Authentication & Sessions

- Users must register and log in; all pages check for an active session (`\$_SESSION['user_id']`).
- Passwords are hashed (e.g., using `password_hash()` in PHP) before being stored in the database.
- Sessions are securely managed and destroyed on logout.

Authorization & Roles

- User roles (student, teacher, admin, individual) are enforced in PHP, restricting access to admin/teacher-only features.
- Navigation and dashboard content dynamically change based on role.

SQL Injection Prevention

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- All database queries use prepared statements (`\$stmt->bind_param(...)`) to prevent SQL injection.
- No user input is ever directly interpolated into SQL queries.

XSS & Output Escaping

- All user-generated content is escaped using `htmlspecialchars()` before being rendered in HTML.
- Forms and user input fields are validated both client- and server-side.

File Security

- Uploaded files (cover images, book files, audio) are stored outside the web root or in protected directories.
- File names are sanitized and validated before saving.

Other Best Practices

- Password reset and email verification can be added for further security.
- All sensitive operations (e.g., ordering, quiz submission) require a logged-in user.

9. Feature Walkthrough (Step-by-Step)

Below is a typical user journey through the OnlineBookstore, highlighting how each feature works in practice:

1. Registration & Login

- User visits the registration page, fills out the form, and submits.
- Backend validates input, hashes the password, and creates a new user in the `users` table.
- On login, credentials are checked using a secure hash comparison. If correct, a session is started.

2. Browsing the Catalog

- After login, the user navigates to the catalog page.
- The app fetches all books from the `books` table (with audio info from `audio_books`).
- Each book card displays details and available actions (Buy, Read Online, Listen).

3. Ordering a Book

- User clicks the "Buy/Order" button on a book.
- The order is recorded in the `orders` table, linked to the user and book.
- The user can view all their orders from the dashboard or orders page.

4. Reading or Listening to a Book

- If a book has a `read_file`, the "Read Online" button appears. Clicking it opens the file in a new tab.

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- If a book has an `audio_file`, the "Listen" button appears. Clicking it opens the audio in a player.
- The app tracks reading/listening activity in the `progress` table.

5. Taking a Quiz

- User selects a quiz from the dashboard or catalog.
- Quiz questions are loaded from the `quizzes` and `quiz_questions` tables.
- User submits answers, and the app calculates the score, saving it in `quiz_results` .

6. Tracking Progress

- Each time the user reads a book, the app updates `pages_read` and `last_read` in the `progress` table.
- The dashboard displays current progress and stats (e.g., books read, quizzes taken).

7. Admin/Teacher Actions

- Admins/teachers can log in to see extra dashboard options (student management, quiz analytics).
- They can add/edit quizzes, view quiz results, and manage users.

This walkthrough illustrates how the app integrates all features into a smooth, secure workflow for every user type.

7. Directory Structure

- `config/` – Database connection
- `controllers/` – App logic (MVC)
- `models/` – Data models (Book, User, Order, etc.)
- `views/` – All user-facing pages (PHP)
- `assets/` – CSS, images, audio
- `setup.sql` – MySQL schema for all features

8. Setup

1. Import `setup.sql` into your MySQL database (use DB name `bookapp`).
2. Update `config/db.php` with your DB credentials.
3. Place project in your web server's root (e.g., `htdocs` for XAMPP).
4. Access `index.php` to begin using the app.

9. Security

- Passwords are hashed

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- SQL injection is prevented via prepared statements
- Sessions are used for authentication

10. Credits

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