Online Bookstore Management System

A proposal submitted to

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Topics in Computer Science II

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Abstract

The Online Bookstore Management System is a full-stack web application built with Node.js, Express.js, MongoDB, and EJS. It provides a user-friendly interface for browsing and purchasing books. Features include role-based access (admin and customer), secure authentication, and CRUD operations on Books, Authors, Users, and Orders. Customers can view and order books; admins manage inventory, authors, and orders. The system supports order history, status tracking, and delivers a seamless e-commerce experience.

Contents

1 Project Description

The **Online Bookstore Management System** is a comprehensive platform that enables customers to browse a catalog of books, place orders, and track their purchases. Administrators can manage inventory, authors, and order fulfillment through an intuitive dashboard. The system leverages EJS templates for dynamic HTML, MongoDB for flexible data storage, and Express middleware for robust routing and security.

2 Objectives

- Develop a responsive web application for online book sales.
- Implement secure user registration, login, and role-based access.
- Provide full CRUD functionality for Books, Authors, Users, and Orders.
- Enable customers to place and track orders.
- Equip admins with tools to manage inventory and order status.

3 Technologies Used

- **Backend:** Node.js, Express.js
- **Database:** MongoDB with Mongoose
- **Frontend:** EJS, HTML5, CSS

4 Project Modules

4.1 User Module

- Registration and login (hashed passwords)
- Role management (admin/customer)
- Profile editing

4.2 Book Module

- Add, view, edit, delete books
- Manage stock levels and categories
- Upload book cover images

4.3 Author Module

- CRUD operations on authors
- Link books to authors

4.4 Order Module

- Place orders with multiple books
- View order history
- Admin updates order status (Pending, Shipped, Delivered)

5   Entity Relationship Diagram (ERD)

Below is the ERD Diagram :

Entities and Attributes

- **User** (_id, name, email, password, role, address)
- **Author** (_id, name, bio, nationality, dateOfBirth)
- **Book** (_id, title, authorId, description, price, stock, category, coverImage)
- **Order** (_id, userId, books[{bookId, quantity}], totalAmount, orderDate, status)

Relationships

- One **User** can place many **Orders**.
- One **Author** can write many **Books**.
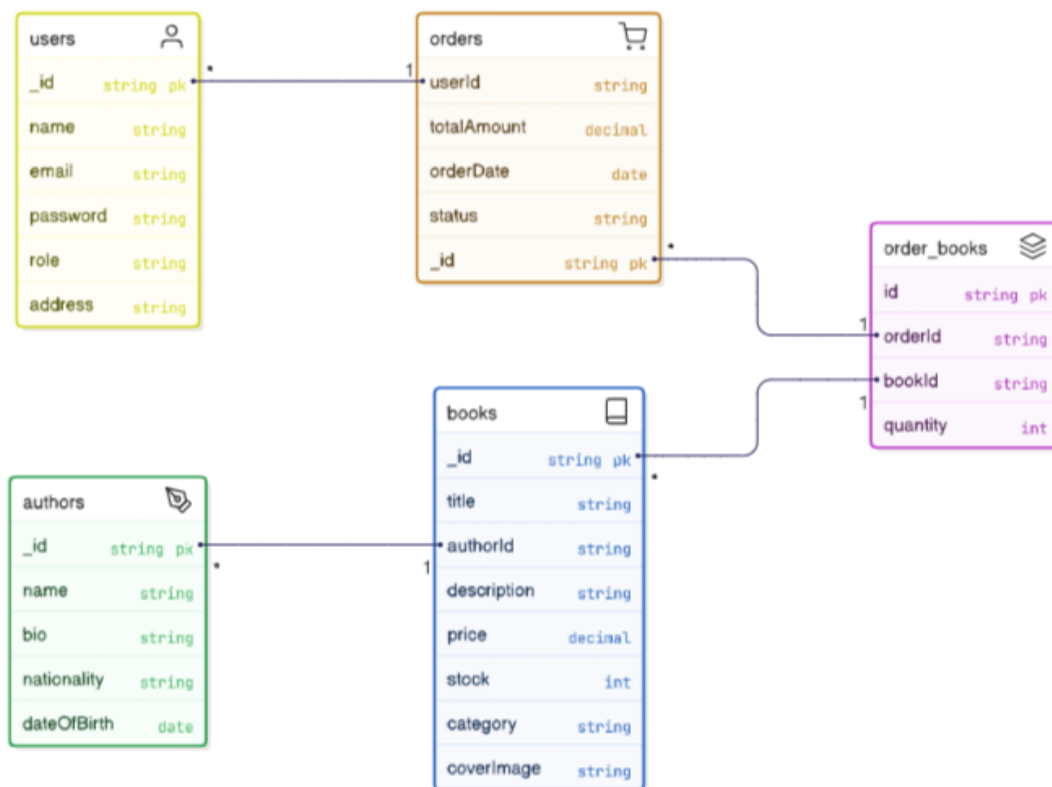- One **Order** can include many **Books**.
- One **Book** is written by one **Author**.

Figure 1: ERD of the Online Bookstore Management System