Project Documentation of **BookNest: Where Stories Nestle**

🐦 Project Documentation of BookNest: Where Stories Nestle

📖 Overview

BookNest is a full-stack book store application that enables users to browse, select, and purchase books in an online environment. Built using the powerful MERN stack (MongoDB, Express.js, React.js, Node.js), it combines seamless UX, authentication, and efficient inventory and order management. Designed for book lovers like Sarah—who need fast, personalized access to literature without visiting a physical store—BookNest transforms traditional book buying into a digital delight.

🧰 Tech Stack

Layer	**Technology**
Frontend	React.js, Axios, Vite, Bootstrap
Backend	Node.js, Express.js
Database	MongoDB with Mongoose
Auth	JWT, bcrypt
Environment	.env variables for secure configs

📁 Project Structure

```
booknest-app/
 ├── backend/
 |    ├── server.js
 |    ├── routes/
 |    ├── models/
 |   └── .env
 └── frontend/
     ├── public/
    └── src/
         ├── components/
    ├── pages/
    └── main.jsx
```

🧩 MongoDB Models

User Model

```
{
  name: String,
  email: String,
  password: String,
  role: String // 'user' or 'admin'
}
```

Book Model

```
{
  title: String,
  author: String,
  genre: String,
  description: String,
  price: Number,
  availability: Boolean,
  rating: Number
}
```

Order Model

```
{
  userId: ObjectId,
  items: [{ bookId: ObjectId, quantity: Number }],
  totalPrice: Number,
  status: String, // 'Pending', 'Completed'
  createdAt: Date
}
```

🔐 Environment Variables

.env file in /backend/

```
MONGO_URI=mongodb+srv://<username>:<password>@cluster0.mongodb.net/booknestDB

JWT_SECRET=yourJWTSecret

PORT=4000
```

🔗 REST API Endpoints

Auth

- POST /api/register – Register user
- POST /api/login – Authenticate

Books

- GET /api/books – List all books
- GET /api/books/:id – View book details
- GET /api/books?genre=:name – Filter by genre

Orders

- POST /api/orders – Place an order
- GET /api/orders/user/:id – View user’s order history
- PUT /api/orders/:id – Update status (admin)

All sensitive routes require JWT authentication.

⚙️ How to Run

Backend

```
cd backend

npm install

npm start
```

Frontend

```
cd frontend

npm install

npm run dev
```

✅ Completed Features

- User registration and login

- Browse books by category, author, and rating
- Add to cart and purchase
- View order history
- MongoDB integration with secure CRUD
- JWT authentication
- Responsive UI using Vite + Bootstrap
- Protected routes with middleware

🚀 Future Features

- Wishlist integration
- Rating and review system
- Admin book upload dashboard
- Real-time stock alerts
- Search with auto-suggestions
- Email notifications on purchase
