Assignment Title: Building a Web Application with the MEAN Stack and Spring Boot

Assignment Overview:

You are tasked with developing a web application that allows users to manage a collection of books. The application should have a frontend built with Angular (MEAN stack) and a backend built with Spring Boot. Users should be able to perform basic CRUD (Create, Read, Update, Delete) operations on the book collection.

Assignment Tasks:

Frontend (Angular)

**Setup Angular Project:**

Create a new Angular project using the Angular CLI.

Create the following components:

Book List Component: Display a list of books.

Book Details Component: Display details of a selected book.

Create Book Component: Allow users to add new books.

Edit Book Component: Allow users to edit existing books.

**Routing:**

Implement routing using Angular Router to navigate between components.

Define routes for listing books, viewing book details, creating new books, and editing existing books.

**HTTP Service:**

Create an Angular service to perform HTTP requests to the backend.

Implement methods for fetching the list of books, getting book details, creating new books, updating book details, and deleting books.

User Interface:

Design a user-friendly interface with appropriate forms and buttons for each component.

Implement data binding to display book information dynamically.

Backend (Spring Boot)

Setup Spring Boot Project:

Create a new Spring Boot project using Spring Initializer or Maven.

Configure the project to connect to a MongoDB database.

Create RESTful API:

Implement RESTful API endpoints for managing the book collection.

Define endpoints for retrieving all books, retrieving a single book by ID, creating a new book, updating an existing book, and deleting a book.

Data Model:

Create a Java class for representing a Book entity.

Define the necessary fields (e.g., title, author, description) and map them to MongoDB using Spring Data MongoDB.

Controller and Service:

Create a controller to handle incoming HTTP requests.

Implement a service layer to perform CRUD operations on the database.

Validation and Error Handling:

Implement validation to ensure that required fields are provided when creating or updating a book.

Handle errors gracefully and return appropriate HTTP status codes and error messages.