Skill Assessment Exercise: Full-Stack Developer

This assessment is designed to evaluate your proficiency in various full-stack development skills, including:

Databases: SQL, MySQL **Front-end Framework:** Backbone.js **Back-end Technologies:** Node.js, Express.js, PHP **Version Control:** Git, GitHub **Software Design Principles:** SOLID principles **Instructions:**

The task

Imagine you're building a simple e-commerce application for selling books.

Part 1: Database Design (SQL & MySQL)

Using your preferred tool (MySQL workbench, pgAdmin, etc.), design an Entity-Relationship Diagram (ERD) for the following entities: Book (title, author, price, ISBN, stock) User (name, email, password) Order (user_id, book_id, quantity, order_date) Write SQL queries to perform the following actions: Create tables based on your ERD. Insert sample data for at least 5 books and 3 users with orders. Select all books from the database. Filter books by price (e.g., select books priced between $10 and 20$). Update a book's stock quantity after an order is placed.

Part 2: Front-end with Backbone.js

Create a simple Backbone.js application with a view to display a list of books from the database. Implement functionality to filter books by price range using user input.

Part 3: Back-end with Node.js & Express.js (or PHP)

Set up a Node.js/Express.js (or PHP) server to handle API requests for the book data. Create API endpoints to: Get all books Filter books by price range (matching the front-end functionality)

Part 4: Version Control with Git & GitHub

Initialize a Git repository for your project. Stage and commit your code regularly with descriptive commit messages. Push your code to a GitHub repository.

Part 5: SOLID Principles

Briefly explain how you would apply the following SOLID principles to your code:

Single Responsibility Principle Open/Closed Principle Liskov Substitution Principle Interface Segregation Principle Dependency Inversion Principle Evaluation:

Your code, database design, explanations, and GitHub repository will be reviewed to assess your understanding and practical application of the mentioned skills.

Bonus Points:

Implement user authentication and authorization in the application. Add functionalities for adding new books and managing orders. Deploy your application to a platform like Heroku or AWS.