Library Management System

Overview:

The **Library Management System** is a Spring Boot application designed to manage the operations of a library, including book management, patron management, and borrowing records. This system provides RESTful APIs for interaction with the backend services.

Prerequisites:

- Java Development Kit (JDK) 8 or higher
- Maven 3.6 or higher
- MySQL database
- Git

Installation

1. **Clone the repository:**

   git clone https://github.com/EslamA99/Library-Management-System.git cd Library-Management-System

2. Update the application.properties file located in src/main/resources to match your MySQL database configuration:

   ```
   spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver
   spring.datasource.url=jdbc:mysql://localhost:3306/library_management
   spring.datasource.username=root
   spring.datasource.password=root
   spring.jpa.show-sql=true
   spring.jpa.properties.hibernate.dialect=org.hibernate.dialect.MySQLDialect
   spring.jpa.hibernate.ddl-auto=update
   ```

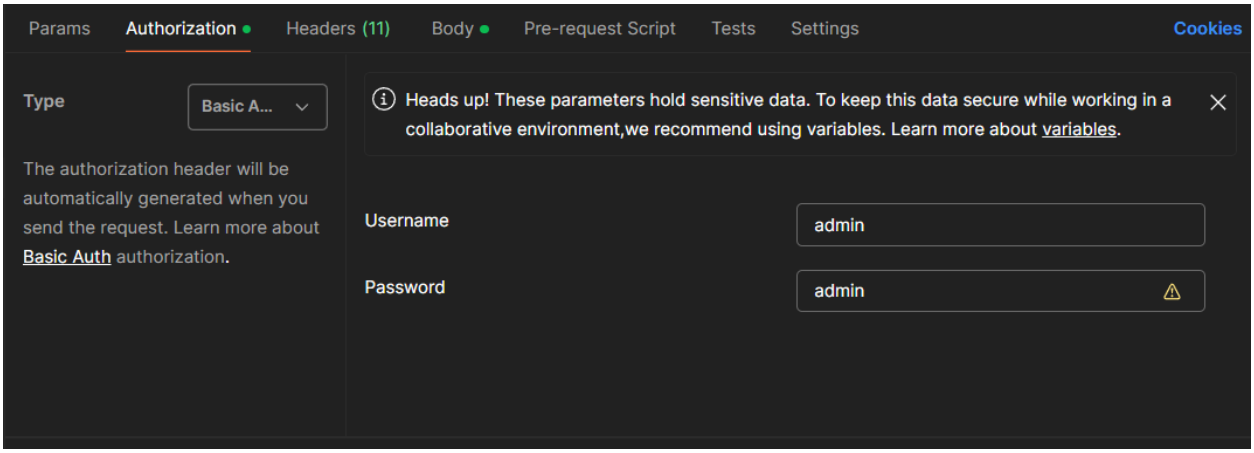
3. Build the project:

   ```
   mvn spring-boot:run
   ```

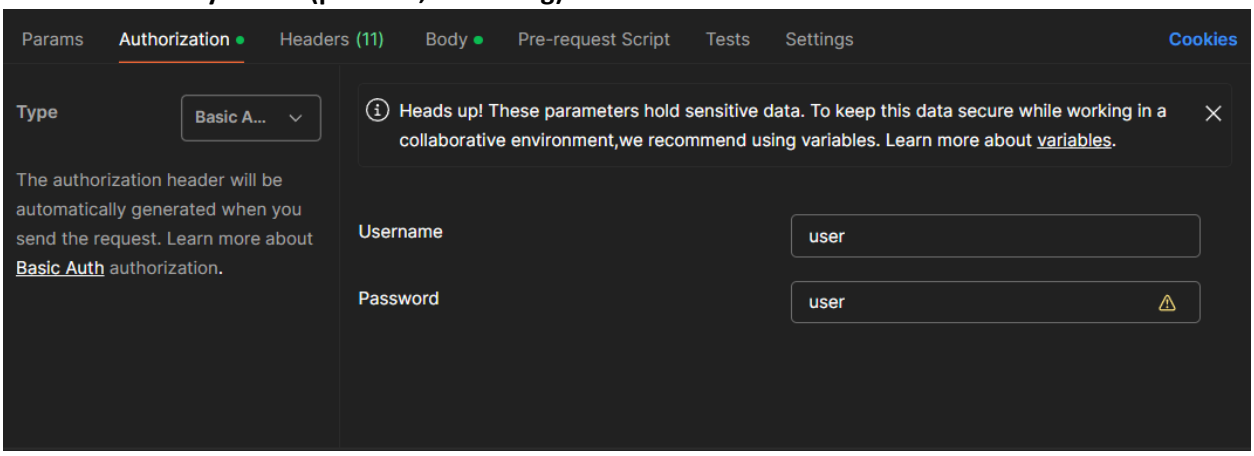
4. Run the application using the following command:
   mvn spring-boot:run
   The application should now be running on http://localhost:8080.

API Endpoints:
Before try the APIs please use this to users to authenticate to run all APIs.
Basic Auth section in postman:-

Username: admin
Password:admin
Admin can access all APIs (books, Borrowing)

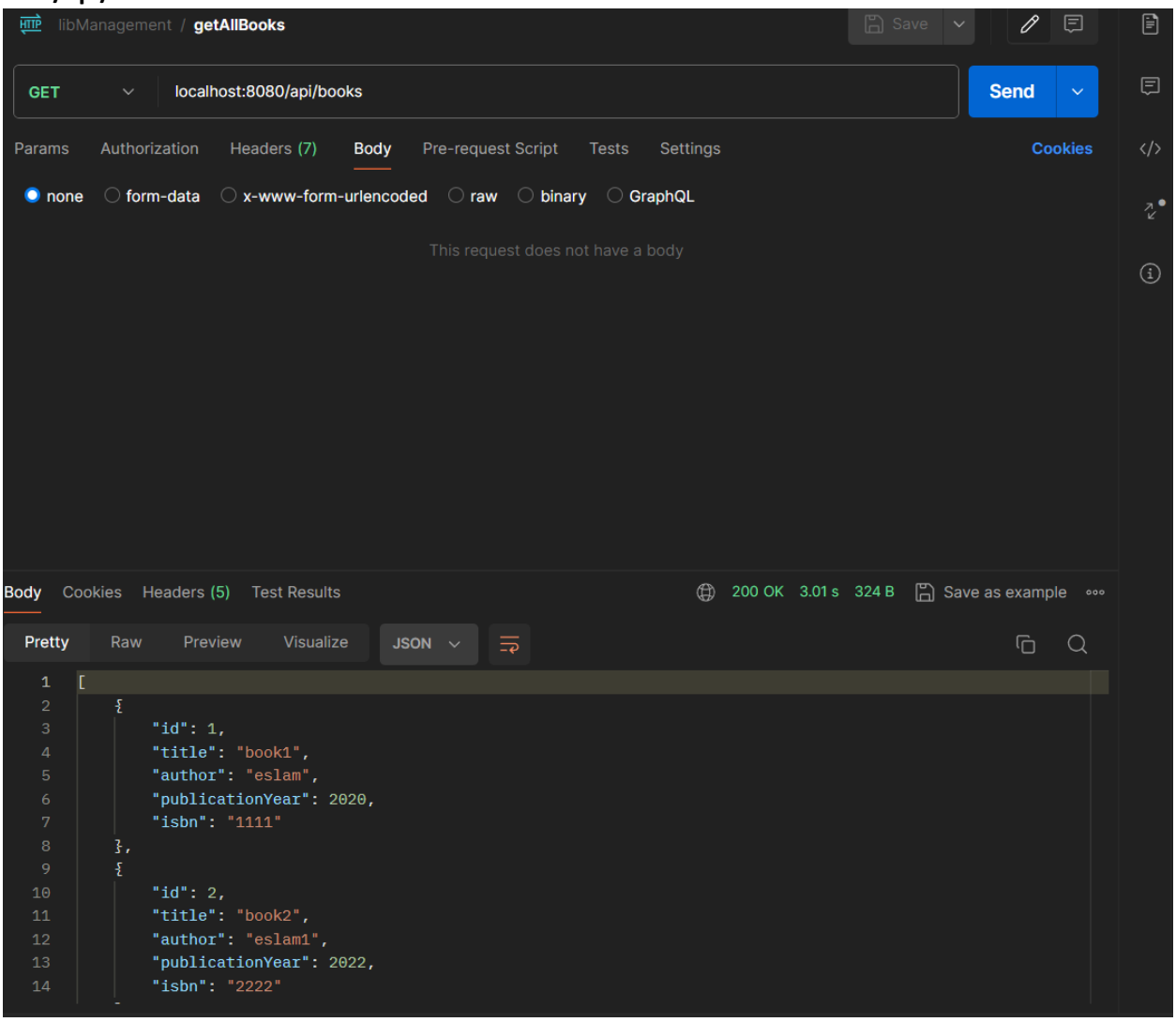


Username:user
Password:user
This user can only access (patrons ,Borrowing)

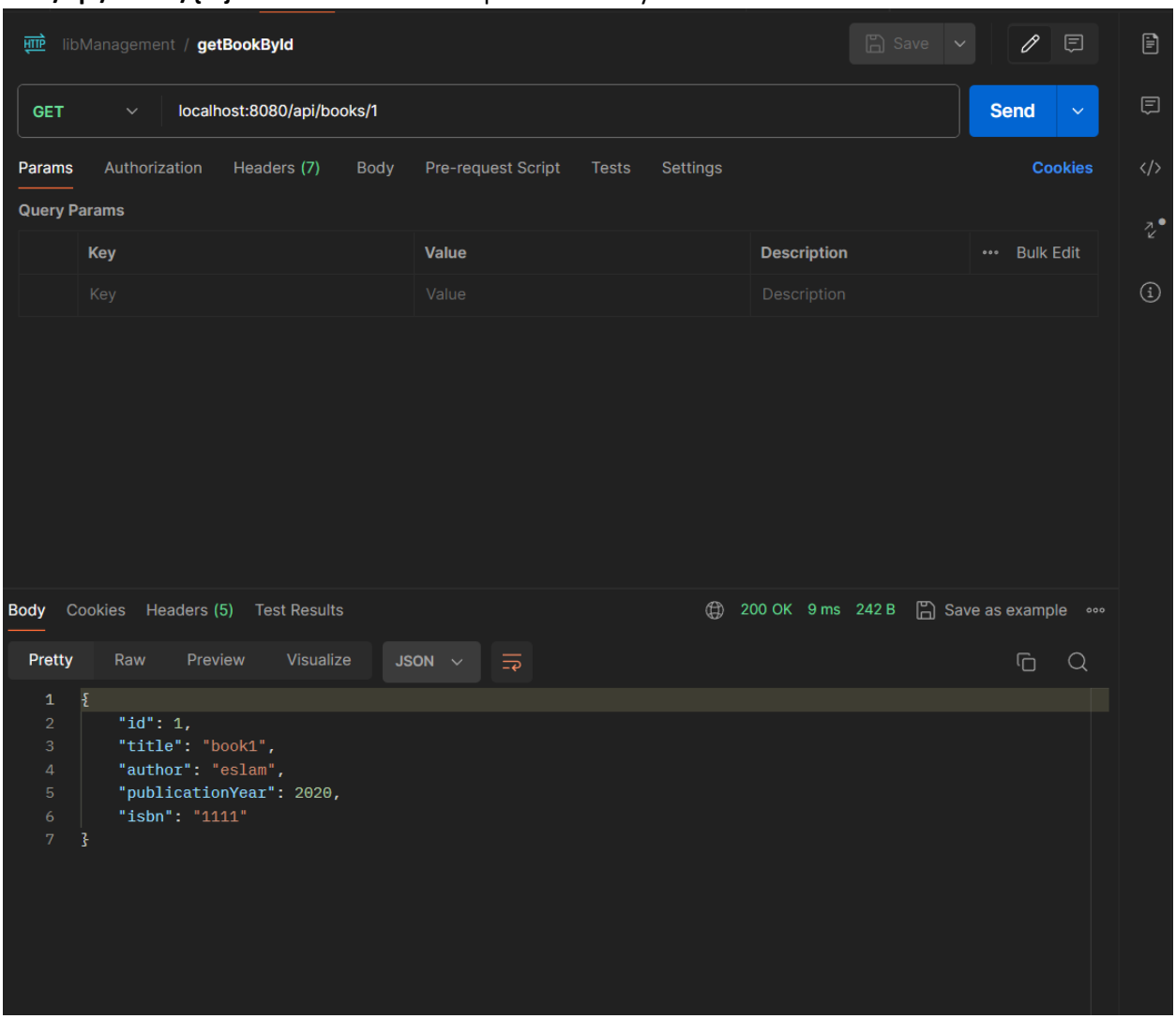


Book Management Endpoints:

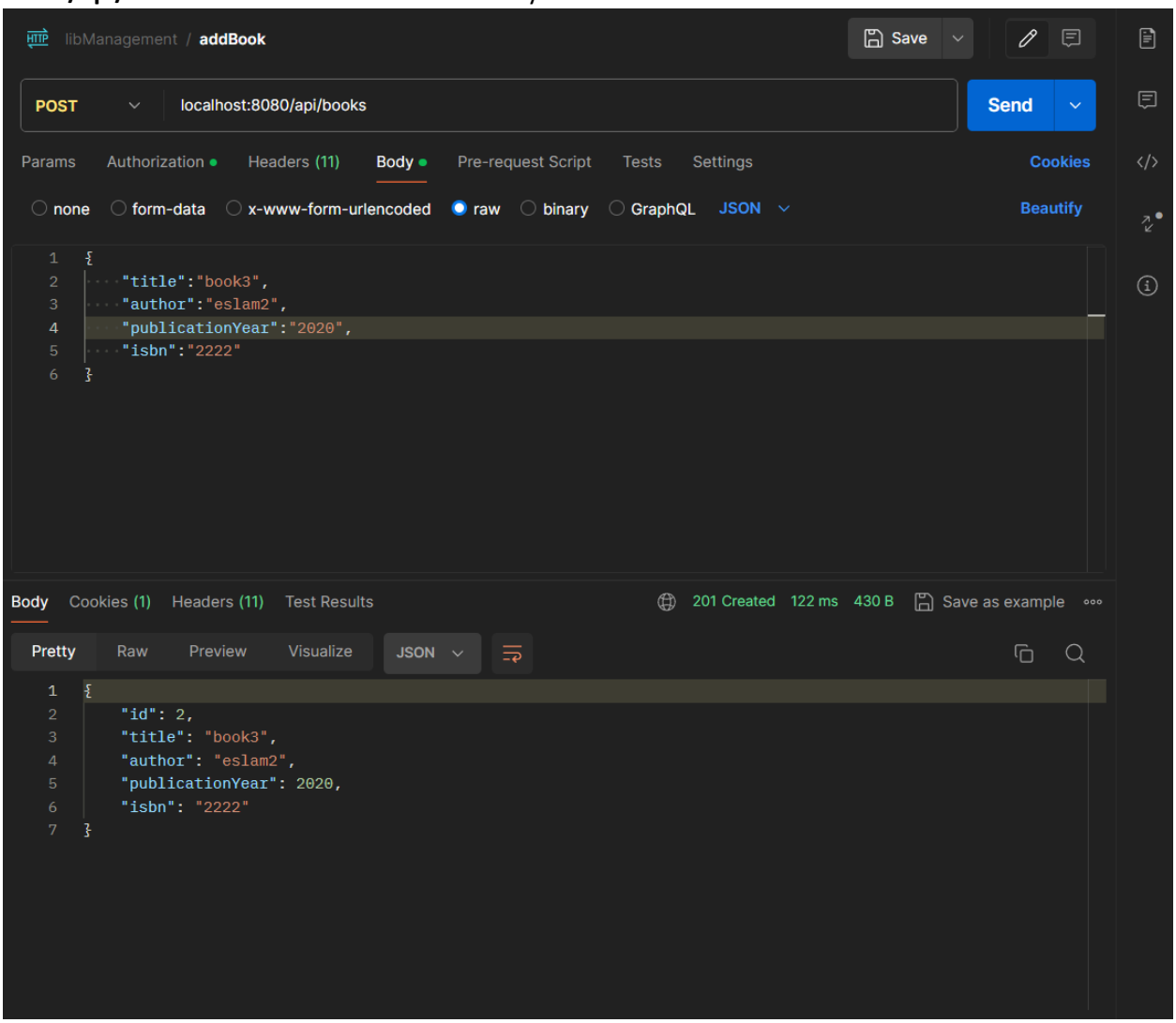
- **GET /api/books**: Retrieve a list of all books.



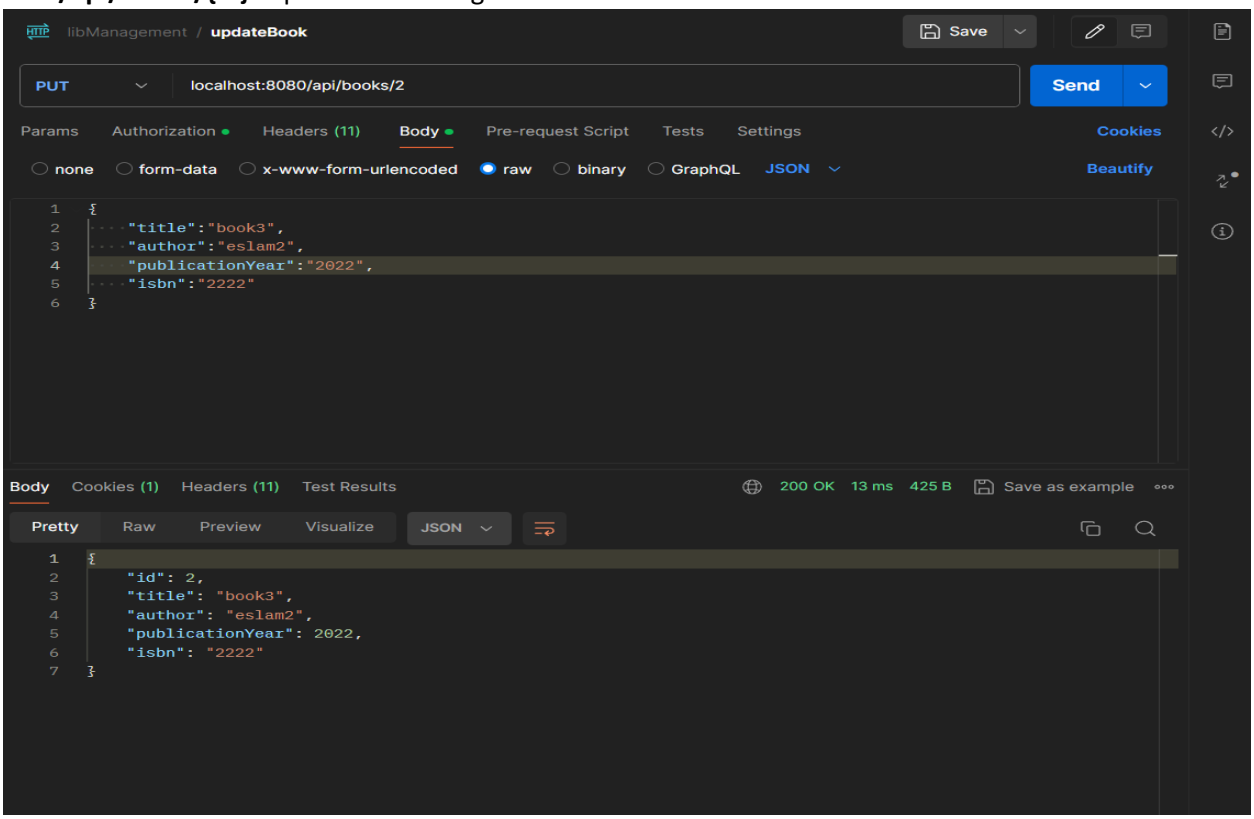
- **GET /api/books/{id}**: Retrieve details of a specific book by ID.



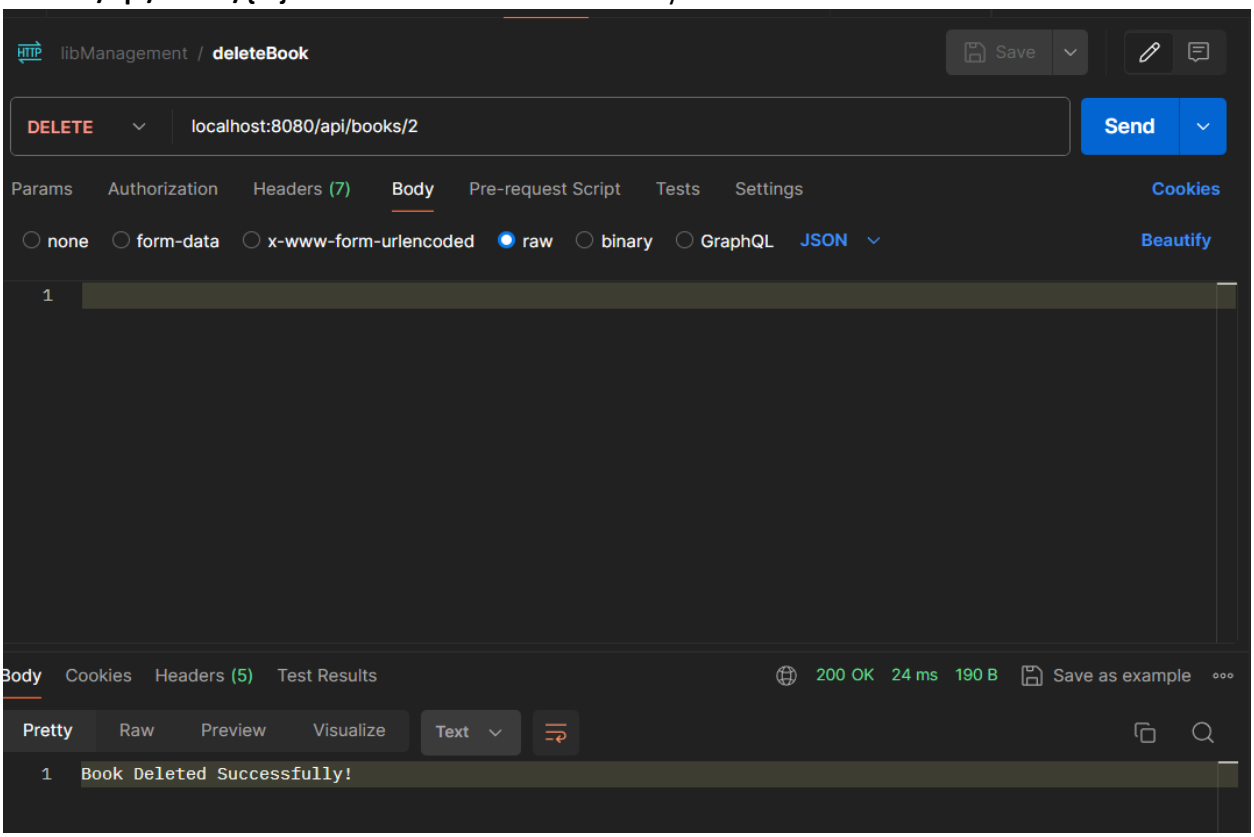
- **POST /api/books**: Add a new book to the library.



- **PUT /api/books/{id}**: Update an existing book's information.

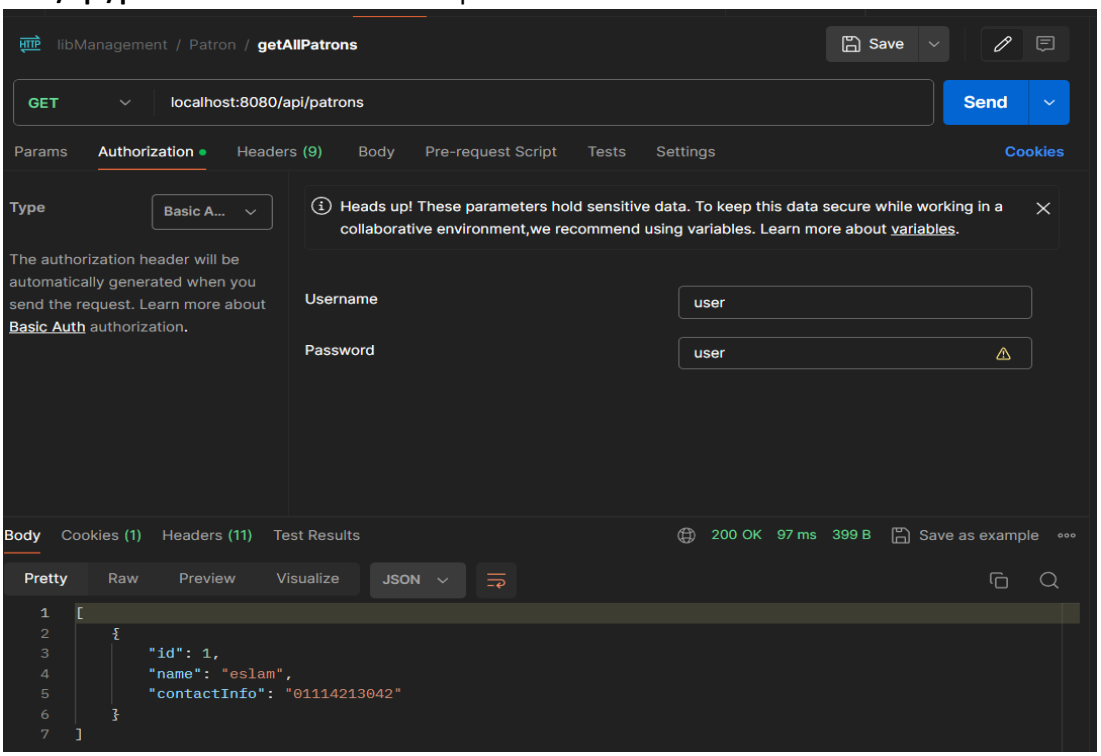


- **DELETE /api/books/{id}**: Remove a book from the library.

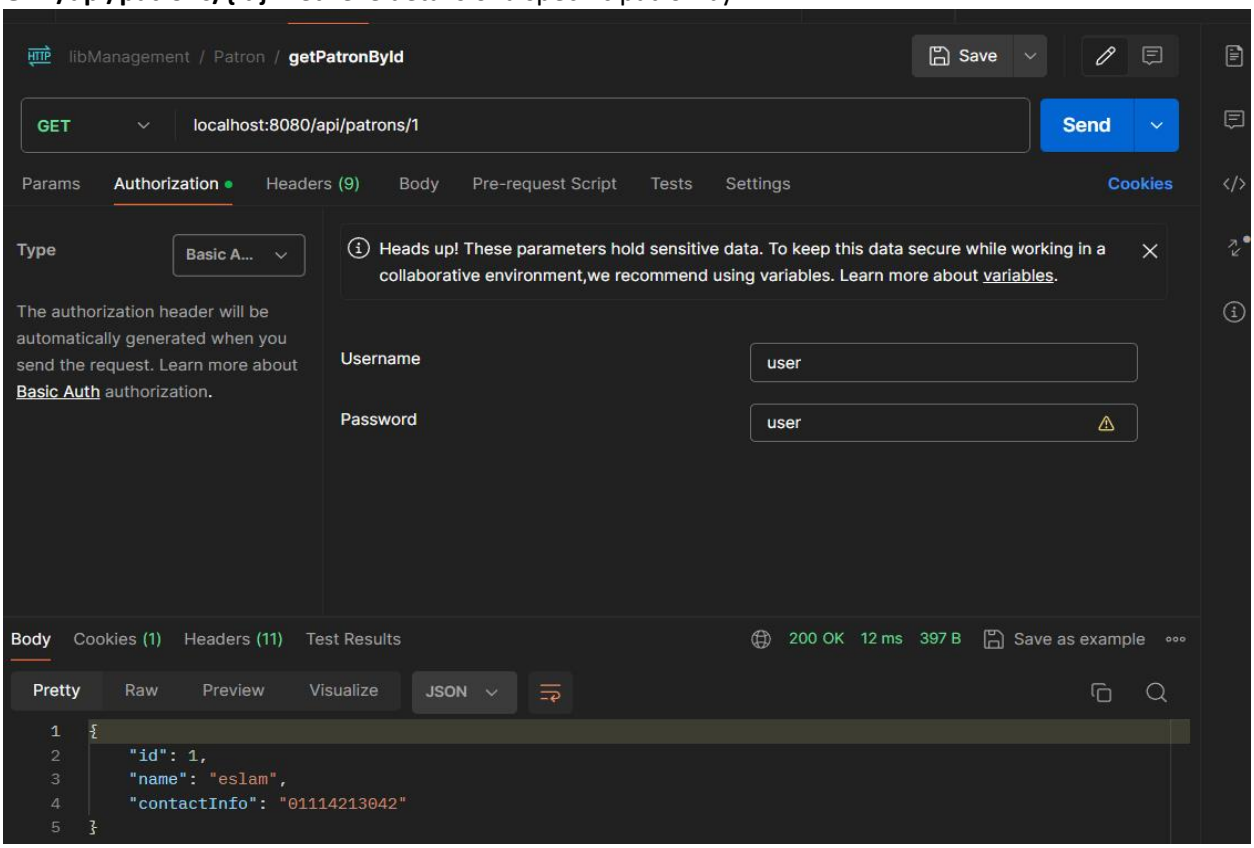


Patron Management Endpoints:

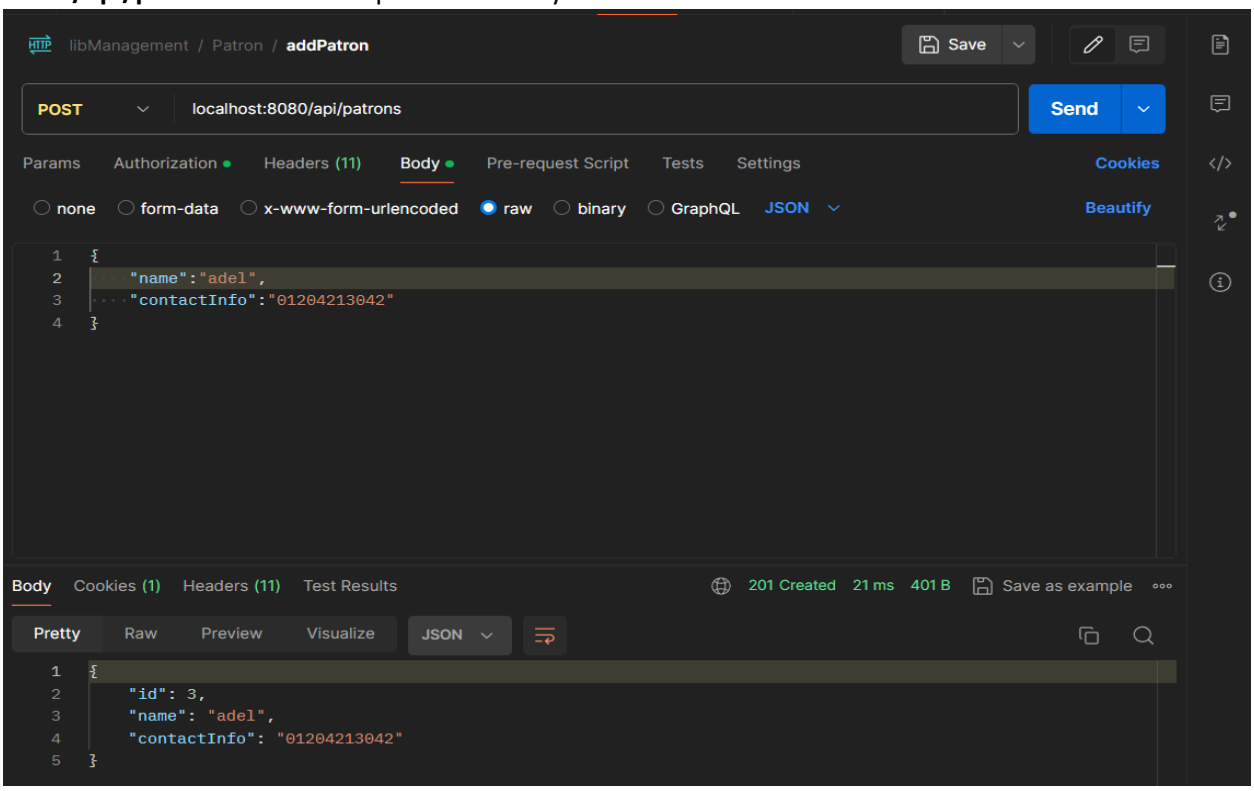
- **GET /api/patrons**: Retrieve a list of all patrons.



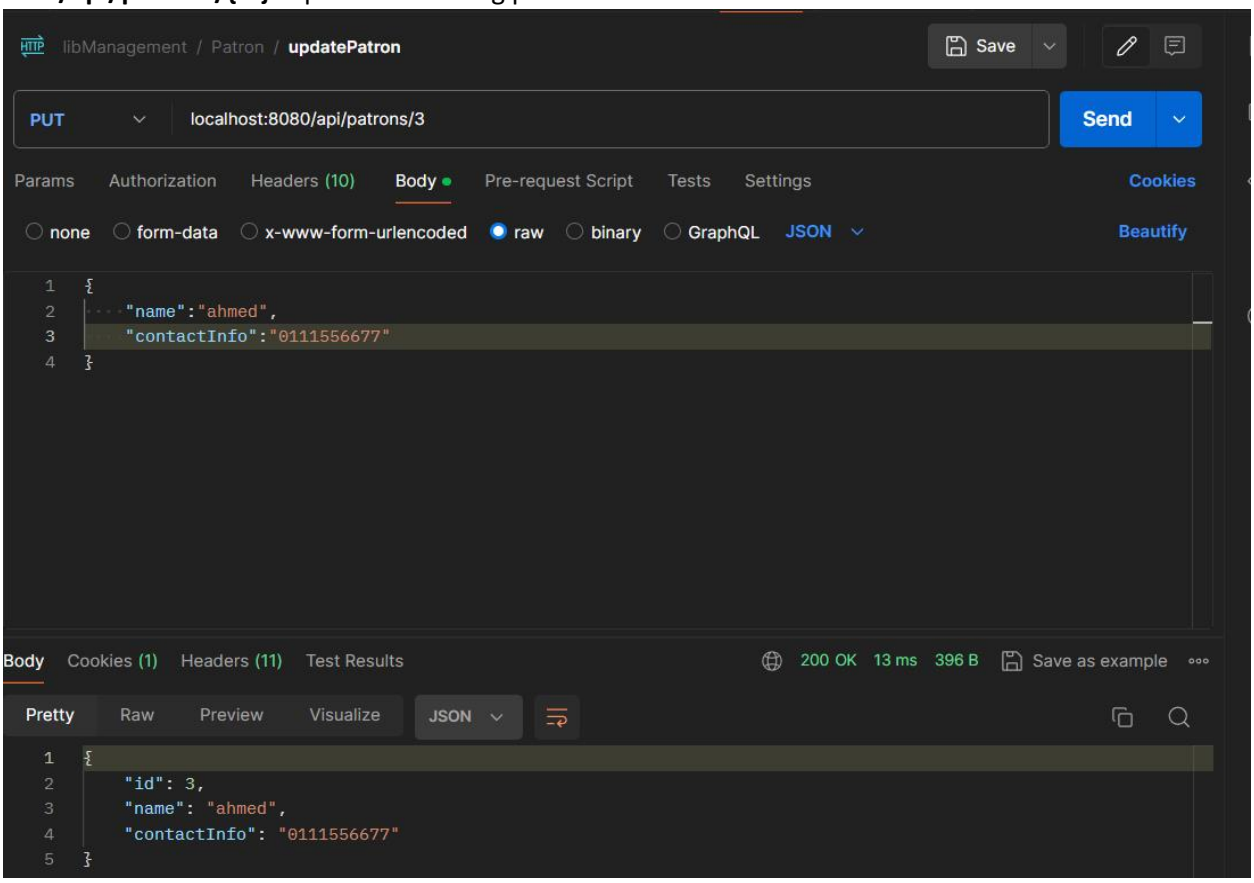
- **GET /api/patrons/{id}**: Retrieve details of a specific patron by ID.



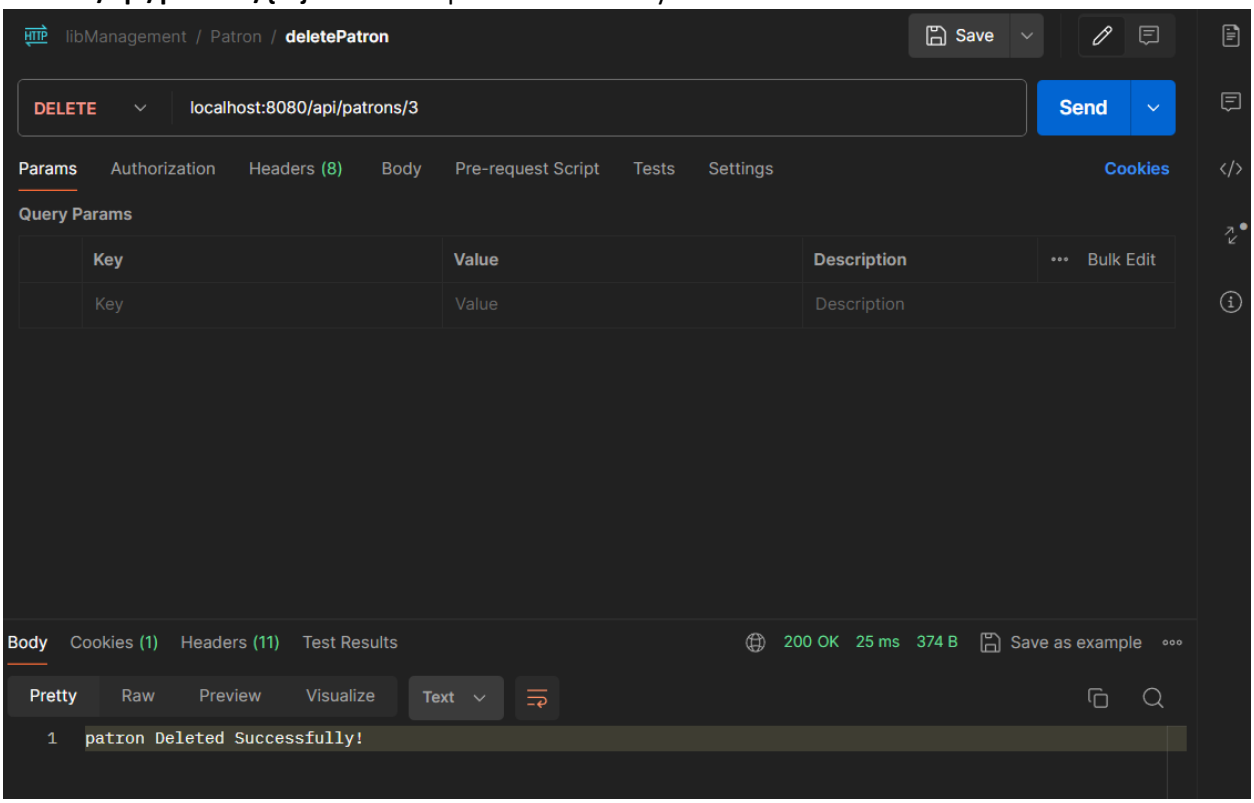
- **POST /api/patrons**: Add a new patron to the system.



- **PUT /api/patrons/{id}**: Update an existing patron's information.

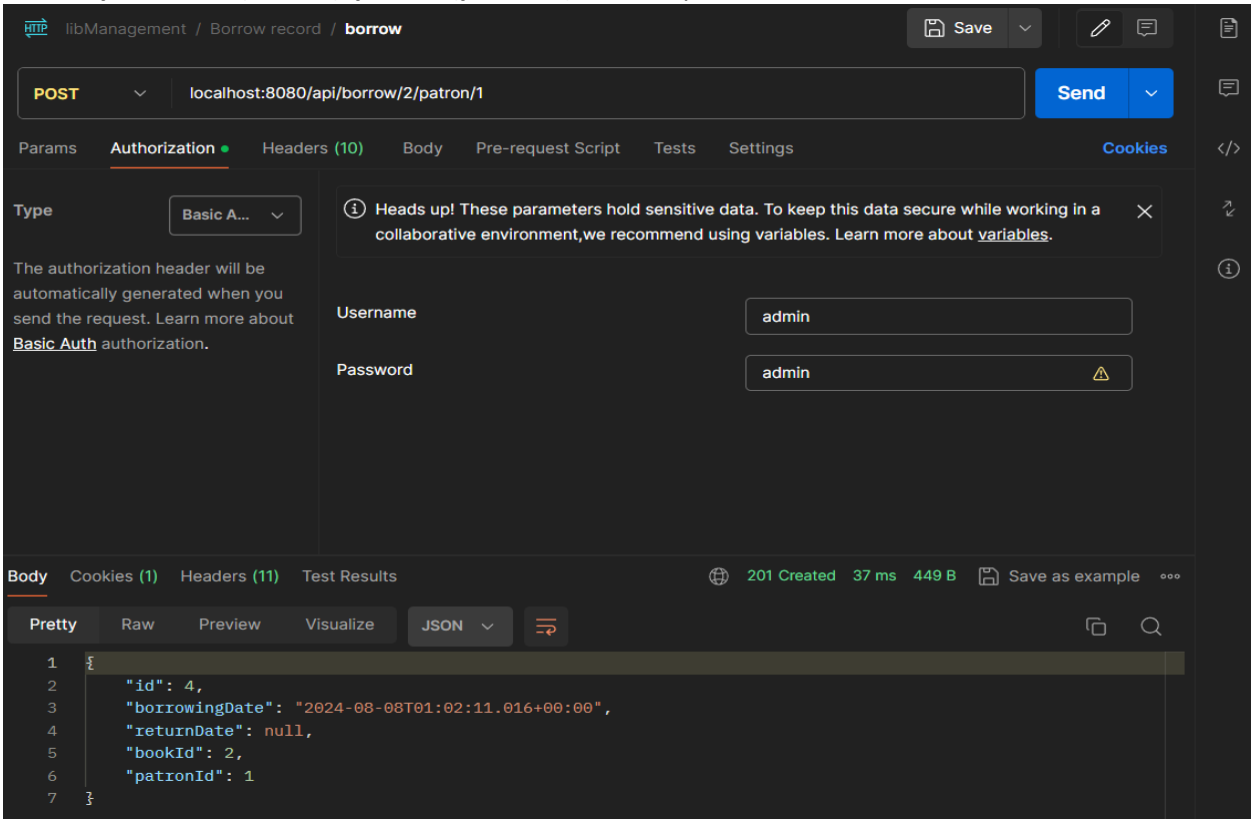


- **DELETE /api/patrons/{id}**: Remove a patron from the system.

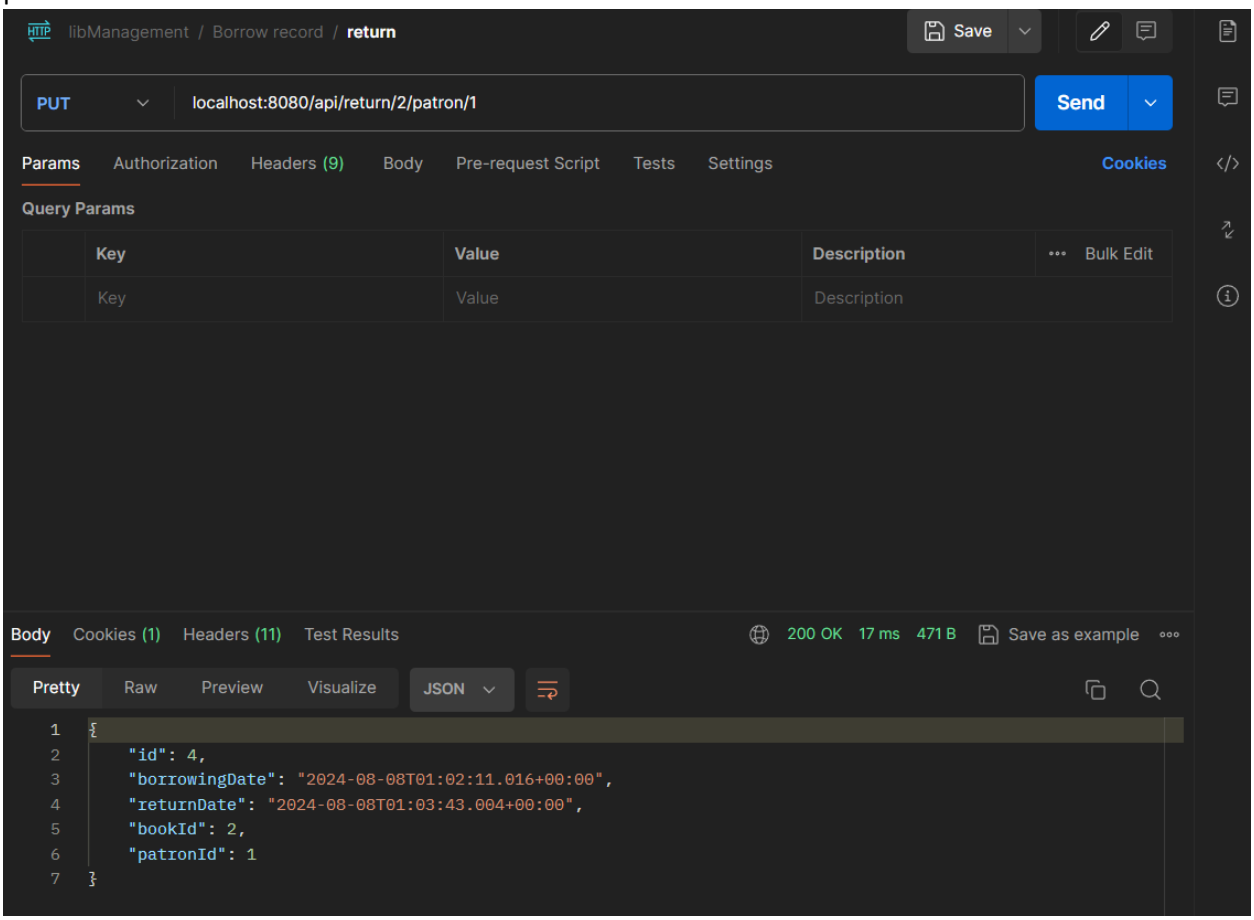


Borrowing Endpoints:

- **POST /api/borrow/{bookId}/patron/{patronId}**: Allow a patron to borrow a book.



- **PUT /api/return/{bookId}/patron/{patronId}**: Record the return of a borrowed book by a patron.



Database Schema

The database schema includes tables for books, patrons, and borrowing records. Here is a basic schema description:

- **Books**:
  - id (Primary Key)
  - title
  - author
  - publicationYear
  - isbn
- **Patrons**:
  - id (Primary Key)
  - name
  - contactInformation
- **Borrowing Records**:
  - id (Primary Key)
  - book_id (Foreign Key to Books)
  - patron_id (Foreign Key to Patrons)
  - borrowDate
  - returnDate