**Library Management System using Spring Boot**

**Project Description**

The **Library Management System** is a RESTful API built using Spring Boot. It provides functionality for managing books, patrons, and borrowing records within a library. The system allows librarians to efficiently handle book inventories, patron records, and track borrowing activities.

**API Endpoints**

**Book Management Endpoints**

1. **Retrieve a list of all books**

Fetches a list of all books in the library.

|  |  |
| --- | --- |
| **Method** | **URL** |
| **GET** | {BASE\_URL}/library-system/api/books |

**Response**: 200 OK with a JSON array of books.

1. **Retrieve details of a specific book by ID**

Fetches details of a specific book by its ID.

|  |  |
| --- | --- |
| **Method** | **URL** |
| **GET** | {BASE\_URL}/library-system/api/books/{id} |

**Response**: 200 OK with a JSON representation of the book.

1. **Add a new book to the library**

Adds a new book to the library.

|  |  |
| --- | --- |
| **Method** | **URL** |
| **POST** | {BASE\_URL}/library-system/api/books |

* 1. **Request Body**: JSON object with book details.

|  |  |  |  |
| --- | --- | --- | --- |
| **Param Name** | **Param Type** | **Data Type** | **Description** |
| title | Body Param | String | Book Title |
| publicationYear | Body Param | Integer | Publication Year |
| ISBN | Body Param | String | ISBN |
| author | Body Param | String | Author |

* 1. **Response**: 200 Created with a JSON representation of the created book.

1. **Update an existing book's information**

Updates the information of an existing book.

|  |  |
| --- | --- |
| **Method** | **URL** |
| **PUT** | {BASE\_URL}/library-system/api/books/{id} |

* 1. **Request Body**: JSON object with updated book details.

|  |  |  |  |
| --- | --- | --- | --- |
| **Param Name** | **Param Type** | **Data Type** | **Description** |
| title | Body Param | String | Book Title |
| publicationYear | Body Param | Integer | Publication Year |
| ISBN | Body Param | String | ISBN |
| author | Body Param | String | Author |

* 1. **Response**: 200 OK with a JSON representation of the updated book.

1. **Remove a book from the library**

Deletes a book from the library.

|  |  |
| --- | --- |
| **Method** | **URL** |
| **Delete** | {BASE\_URL}/library-system/api/books/{id} |

* 1. **Response**: 200 Ok with a JSON representation of a message.

**Patron Management Endpoints**

1. **Retrieve a list of all patrons**

Fetches a list of all patrons

|  |  |
| --- | --- |
| **Method** | **URL** |
| **GET** | {BASE\_URL}/library-system/api/patrons |

**Response**: 200 OK with a JSON array of patrons.

1. **Retrieve details of a specific patron by ID**

Fetches details of a specific patron by ID

|  |  |
| --- | --- |
| **Method** | **URL** |
| **GET** | {BASE\_URL}/library-system/api/patrons/{id} |

* 1. **Response**: 200 OK with a JSON representation of the patron.

1. **Add a new patron to the system**

Adds a new patron to the system.

|  |  |
| --- | --- |
| **Method** | **URL** |
| **POST** | {BASE\_URL}/library-system/api/patrons |

* 1. **Request Body**: JSON object with patron details.

|  |  |  |  |
| --- | --- | --- | --- |
| **Param Name** | **Param Type** | **Data Type** | **Description** |
| name | Body Param | String | Name |
| contactInformation | Body Param | String | Contact Information |

* 1. **Response**: 200 OK with a JSON representation of the created patron.

1. **Update an existing patron's information**

Updates the information of an existing patron.

|  |  |
| --- | --- |
| **Method** | **URL** |
| **PUT** | {BASE\_URL}/library-system/api/patrons/{id} |

* 1. **Request Body**: JSON object with updated patron details.

|  |  |  |  |
| --- | --- | --- | --- |
| **Param Name** | **Param Type** | **Data Type** | **Description** |
| name | Body Param | String | Name |
| contactInformation | Body Param | String | Contact Information |

* 1. **Response**: 200 OK with a JSON representation of the updated patron.

1. **Remove a patron from the system**

Removes a patron from the system.

|  |  |
| --- | --- |
| **Method** | **URL** |
| **DELETE** | {BASE\_URL}/library-system/api/patrons/{id} |

* 1. **Description**: Removes a patron from the system.
  2. **Response**: 200 Ok with a JSON representation of a message.

**Borrowing Endpoints**

* **Allow a patron to borrow a book**

Records the borrowing of a book by a patron.

|  |  |
| --- | --- |
| **Method** | **URL** |
| **POST** | {BASE\_URL}/library-system/api/borrow/{bookId}/patron/{patronId} |

* + **Response**: 200 OK with a JSON representation of the borrowing record.
* **Record the return of a borrowed book by a patron**

Records the return of a book by a patron.

|  |  |
| --- | --- |
| **Method** | **URL** |
| **POST** | {BASE\_URL}/library-system/api/return/{bookId}/patron/{patronId} |

* + **Response**: 200 OK with a JSON representation of the updated borrowing record.