

API Endpoint Design

(1) User Management

| Endpoint | Method | Description | Request Example | Response Example |
|--------------------|--------|----------------------------------|--|---|
| /api/auth/register | POST | User registration | <pre>{ "username": "user01", "email": "test@example.com", "password": "12345678" }</pre> | <pre>{ "message": "Registration successful", "user_id": 1 }</pre> |
| /api/auth/login | POST | User login | <pre>{ "email": "alice@example.com", "password": "123456" }</pre> | Registration successful! |
| /api/auth/me | GET | Get user information (logged in) | token | <pre>{ "id": 11, "username": "testuser", "password": "\$2a\$10\$7sibCfwe6DtZrLbfYF5hauELz1PFEKTPolz7G6KFUqov0gc4Rq2Bq", "email": "test@example.com", "role": "USER" }</pre> |
| /api/auth/email | PUT | Update user email address | <pre>"newemail@example.com"</pre> | |

(2) Book Management

| Endpoint | Method | Description | Request Example | Response Example |
|-------------|--------|-------------------------|-----------------|---|
| /books | GET | Get all books | - | <pre>[{ "book_id": 101, "title": "Java Basics", "author": "Zhang San", "available": 5 }]</pre> |
| /books/{id} | GET | Get single book details | - | <pre>{ "bookId": 2, "title": "1984", "author": "George Orwell", "genre": "Dystopian", "coverImage": "1984_cover.jpg", "description": ".....", "leftCopies": 10, "loanDuration": null, "createdAt": null }</pre> |

| | | | | |
|---|-----|--|---|--|
| /books/search?key word=Stephen King | GET | Search books by title or author nam | - | <pre>[{ "bookId": 26, "title": "It", "author": "Stephen King", "genre": "Horror", "coverImage": "it_cover.jpg", "description": "A group of children must confront a clown.", "leftCopies": 10, "loanDuration": null, "createdAt": null }, { "bookId": 33, "title": "The Shining", "author": "Stephen King", "genre": "Horror", "coverImage": "shining_cover.jpg", "description": "A man becomes haunted by terrifying in an isolated hotel.", "leftCopies": 10, "loanDuration": null, "createdAt": null }]</pre> |
| /books/genres | GET | Get all genres | | <pre>["Dystopian", "Fiction", "Satire", "Adventure", "Gothic", "Horror/Fiction", "Fantasy", "Science Fiction", "Mystery", "Non-Fiction", "Romance", "Horror", "Historical Fiction", "Children's Literature", "Thriller", "Epic", "Philosophical Fiction", "Magical Realism", "Young Adult", "Post-Apocalyptic"]</pre> |

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|----------------------------|--------|-----------------------------------|--|--|
| /books/genre/fiction | GET | Search books by genres | | <pre>[{ "bookId": 3, "title": "To Kill a Mockingbird", "author": "Harper Lee", "genre": "Fiction", "coverImage": "to_kill_a_mockingbird.jpg", "description": "A young girl with a white woman in the segregated South.", "leftCopies": 10, "loanDuration": null, "createdAt": null }, { "bookId": 57, "title": "Anna Karenina", "author": "Leo Tolstoy", "genre": "Fiction", "coverImage": "anna_karenina_cover.jpg", "description": "A tragic story of a woman's life in 19th-century Russia." }]</pre> |
| /api/admin/users | GET | Admin check all users information | | <pre>[{ "id": 3, "username": "Charlie Brown", "password": "hashed_password_3", "email": "charlie@example.com", "role": "USER" }, { "id": 4, "username": "Diana Ross", "password": "hashed_password_4", "email": "diana@example.com", "role": "USER" }, { "id": 5, "username": "Ella Fitzgerald", "password": "hashed_password_5", "email": "ella@example.com", "role": "USER" }]</pre> |
| /Api/admin/users/{user_id} | DELETE | Admin delete users | | The user has been deleted. |

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|----------------------------|--------|--------------------|--|--|
| /api/admin/books | POST | Admin add books | <pre>{ "title": "admins book", "author": "unknown", "genre": "Fiction", "description": "New Book added bt admin" }</pre> | <pre>{ "bookId": 77, "title": "admins book", "author": "unknown", "genre": "Fiction", "coverImage": null, "description": "New Book added bt admin", "leftCopies": 10, "loanDuration": null, "createdAt": "2025-04-30T18:21:28.29934" }</pre> |
| /api/admin/books/{book_id} | PUT | Admin update books | <pre>{ "title": "admins book", "author": "unknown", "genre": "Fiction", "description": "New Book added by00 admin" }</pre> | <pre>{ "bookId": 75, "title": "admins book", "author": "unknown", "genre": "Fiction", "coverImage": null, "description": "New Book added by00 admin", "leftCopies": 5, "loanDuration": null, "createdAt": "2025-04-29T23:34:09.131815" }</pre> |
| /api/admin/books | DELETE | Admin Delete books | | |

(3) E-book Borrowing & Returning

| Endpoint | Method | Description | Request Example | Response Example |
|----------------------------------|--------|-----------------------|-----------------|--|
| /borrow/borrow | POST | Borrow a book | "book_id": 1 } | Book borrowed successfully. |
| /borrow/return?userId=1&bookId=2 | POST | Return a book | "book_id": 1 } | Book returned successfully. |
| /borrow/history/1 | GET | Get borrowing history | - | [{ "book_id": 101, "title": "Java Basics", "borrow_date": "2025-03-01", "return_date": "2025-03-15" }] |

(4) Wishlist & Review System

| Endpoint | Method | Description | Request Example | Response Example |
|---------------------------|--------|-------------------------|---|--|
| /api/user/wishlist/add | POST | Add book to wishlist | { "book_id": 2 } | { "message": "Added to wishlist" } |
| /api/user/wishlist/remove | POST | Remove book to wishlist | { "book_id": 2 } | |
| /api/user/wishlist | GET | Get wishlist | - | [{ "bookId": 2, "title": "1984", "author": "Author Name", "coverImage": "cover_image.jpg" }] |
| /reviews/add | POST | Post a book review | { "book_id": 1, "rating": 5, "comment": "Great book!" } | { "message": "Review successful" } |
| /reviews/{book_id} | GET | Get book reviews | - | [{ "user_id": 1, "rating": 5, "comment": "Great book!" }] |

| | | | | |
|--|--|--|--|---|
| | | | | <pre>"reviewRecordId": 1, "userId": 1, "bookId": 1, "rating": 5, "comment": "An absolutely fantastic novel with tim "createdAt": "2025-04-30T01:03:31" }, { "reviewRecordId": 11, "userId": 11, "bookId": 1, "rating": 5, "comment": "Great book!",</pre> |
|--|--|--|--|---|

3. Response Status Codes

| Status Code | Meaning |
|---------------------------|-------------------------------|
| 200 OK | Request successful |
| 201 Created | Resource created successfully |
| 400 Bad Request | Parameter error |
| 401 Unauthorized | Authentication required |
| 404 Not Found | Resource not found |
| 500 Internal Server Error | Server error |