Documentatie Enterprise Web Development - Joris Van Duyse

TL;DR

1. This application runs online on isbin.qwict.com
2. The trello-page for this application can be found here: trello.com/isbin-application
3. A diagram representing the ERD of database can be found here: drawsql/isbin
4. A public Github repository for this project is available here: JorisVanDuyseHogent/IsBin
5. Requirements
    1. java openjdk 17.0.5 or later
    2. Apache Maven 3.9.1 or later
    3. A MySQL server with an empty schema (with SSL for production)
6. To install it:
    1. clone
    2. create and fill in application.properties to `/src/main/resources`
    3. from the root build to jar with `maven install`
    4. from the root run the jar with `java -jar target/IsBin.jar`
    5. the application should start; go to localhost:9091
7. Rest: this page also has a REST API that can return Authors (by first and last name) and Books(by isbn13)
8. When running the application in development, it will seed the database schema (Books, Users, Roles, Authors, Locations)
9. After running in development you can test the different roles with the Users that where seeded, see Seeded Users and data for more info

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Requirements

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Seeded Users and data

When starting in development, the database will be seeded by the file: `com/qwict/isbin/repository/seeds/InitDataConfig.java`.
This seeding script will create three Users with different Roles:

1. owner@qwict.com with `password: owner@qwict.com`
2. admin@qwict.com with `password: admin@qwict.com`
3. user@qwict.com with `password: user@qwict.com`

> *This means that after startup in development, you can use these accounts to test the different roles. The owner is able to change passwords. So if you want to run this page on the internet, make sure to change the passwords first!*

It will also add Books to the database, all these Books have Authors which will also be added, and some Books have Users that liked them (which makes the most-popular page work). Some Locations will also be created.

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Installation

1. Clone the repository to your device:

```sh
git clone https://github.com/JorisVanDuyseHogent/IsBin.git
```

2. Create the required `application.properties` file in `/src/main/resources/application.properties`, remember to replace all {text} with your information curly brackets included :)

```sh
# ------------- Development settings ------------
spring.datasource.url=jdbc:mysql://localhost:3306/{your_database_name}?
serverTimezone=UTC
spring.datasource.username={your_database_username}
spring.datasource.password={your_database_password}
application.port={the_port_for_your_application}
application.env=development
spring.jpa.generate-ddl=true
spring.jpa.hibernate.ddl-auto=create-drop
spring.messages.basename=i18n/messages

# ------------- Production settings --------------
# ----- Uncomment these to run in procution! -----
# ------ And remove the developer settings! ------
#spring.datasource.url=jdbc:mysql://{example.com}/{your_production_database_name}
?#useSSL=true&requireSSL=true&serverTimezone=UTC
#spring.datasource.username={your_production_database_username}
#spring.datasource.password={your_production_database_password}
#application.port={the_port_for_your_production_application}
#application.env=production
#spring.jpa.hibernate.ddl-auto=none
#spring.messages.basename=i18n/messages
```

3. Run the application from your favorite IDE. I will not explain this, because it is very different for each developer and operation system.
4. Build the application to jar with from the root of the git repository (this is where the pom.xml is located):

```sh
mvn install
```

5. Run the application also from the root with (If the database schema was already used, you will get foreign key constraint errors, but you can ignore these, will only happen with development settings):

```sh
java -jar target/IsBin.jar
```

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IsBin database

Users are saved in the database with an encrypted password; the password is encrypted with BCrypt. In the IsBin database there are 4 tables:

1. The books table
    1. The books_authors table
    2. The books_users table
2. The authors table
    1. The authors_books table
3. The users table
    1. The users_books table
    2. The users_roles table
4. The roles table

Running in development versus running in production

There is no big difference between running with the in development and running in production except for that in development, the database schema will be dropped after every restart and the database will be seeded with books and users.
Recommended for production: start the application one time in development; this will seed the database with some books and users. After that enable all the production settings in the application.properties file and remove the developer settings. Reinstall the application with maven to jar and run the jar again with java.
This way you will have a production server with some books, authors and users already in the database.

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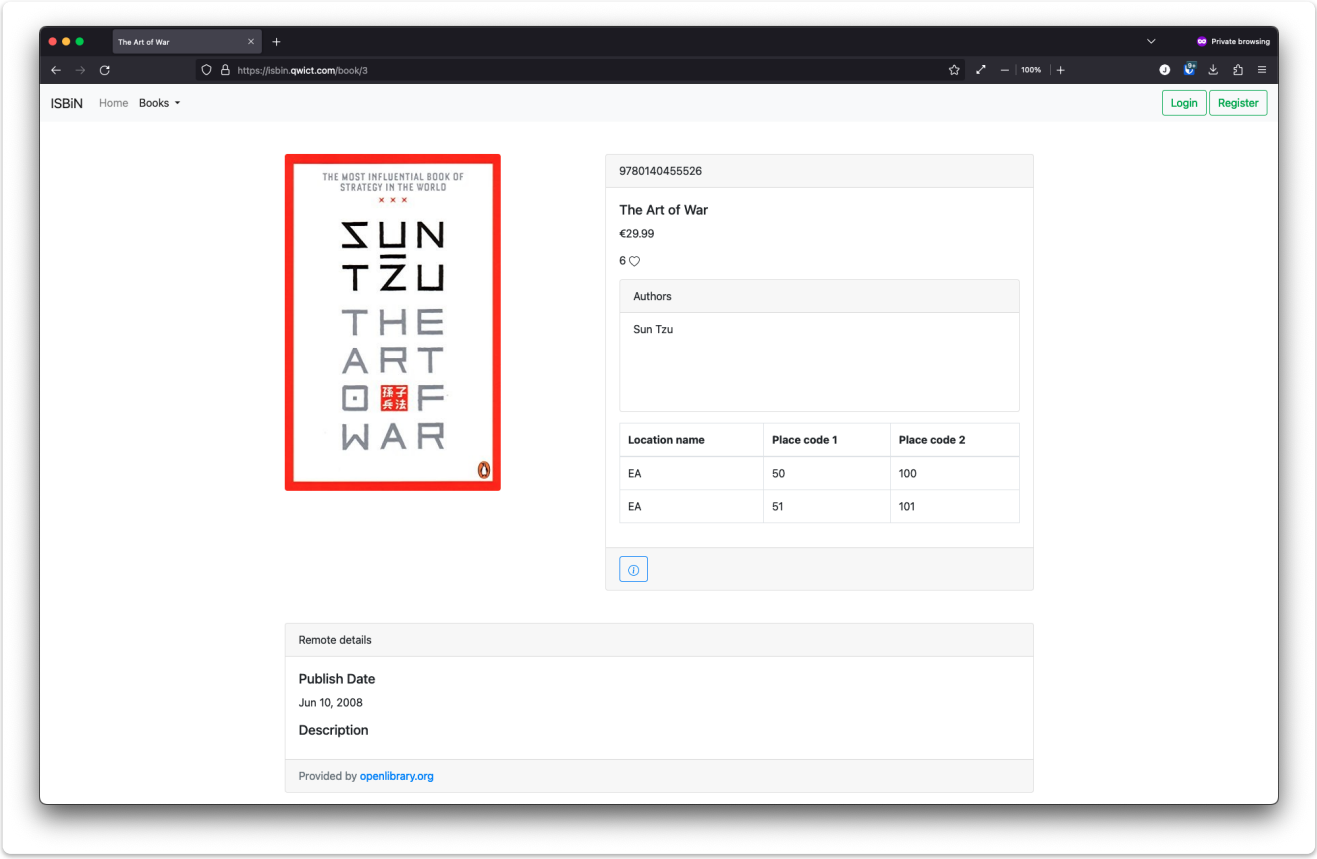
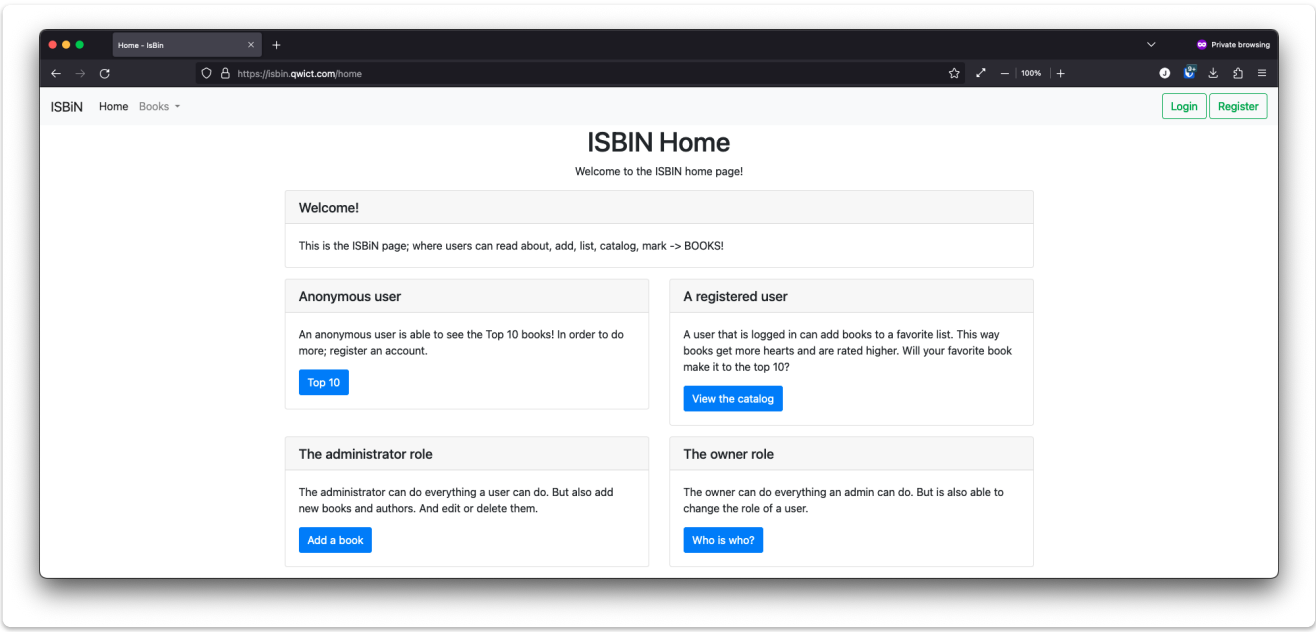
Screenshots

> *An example of the detailpage for a book (The Art of War).*



> *The IsBin home page with info about different roles.*



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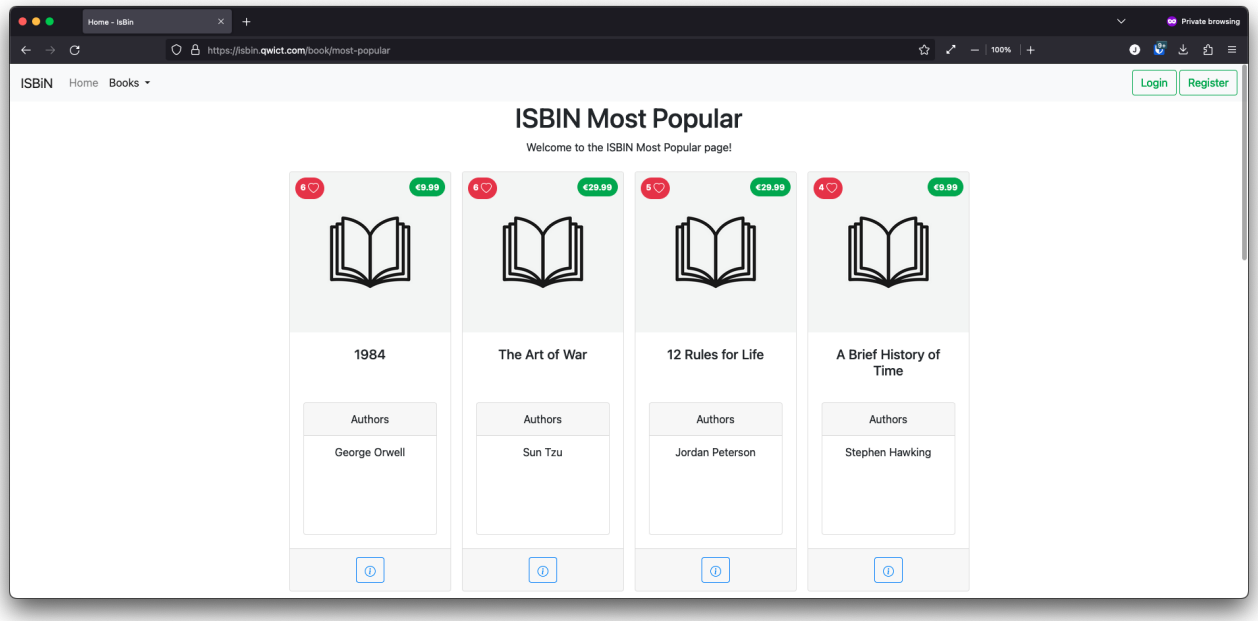
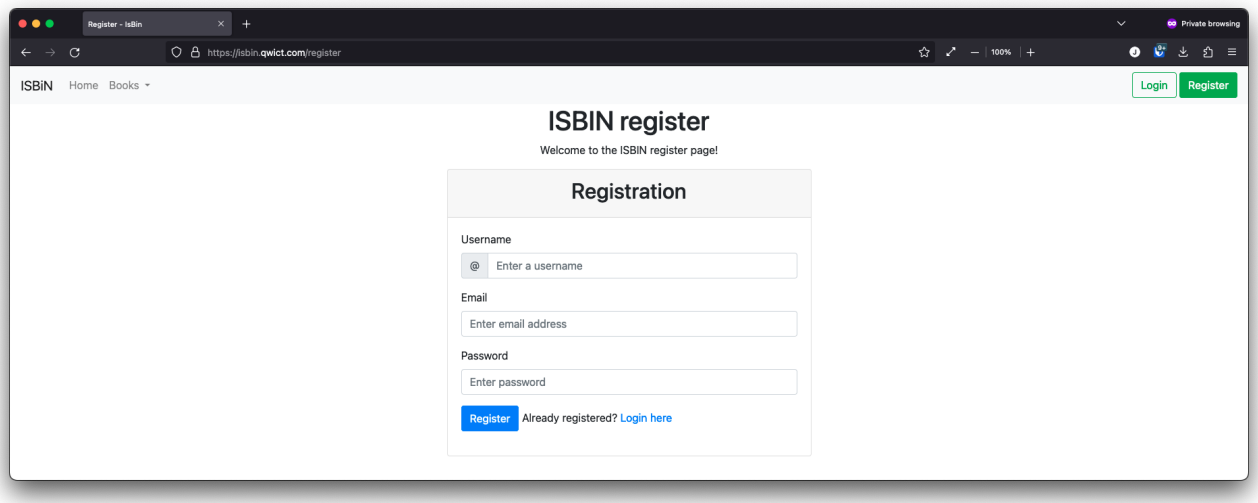
> *Most popular books ordered by number of "hearts". Also available to all (anonymous)users on [book/most-popular]*



> *The registration page; registration is required to view the catalog*



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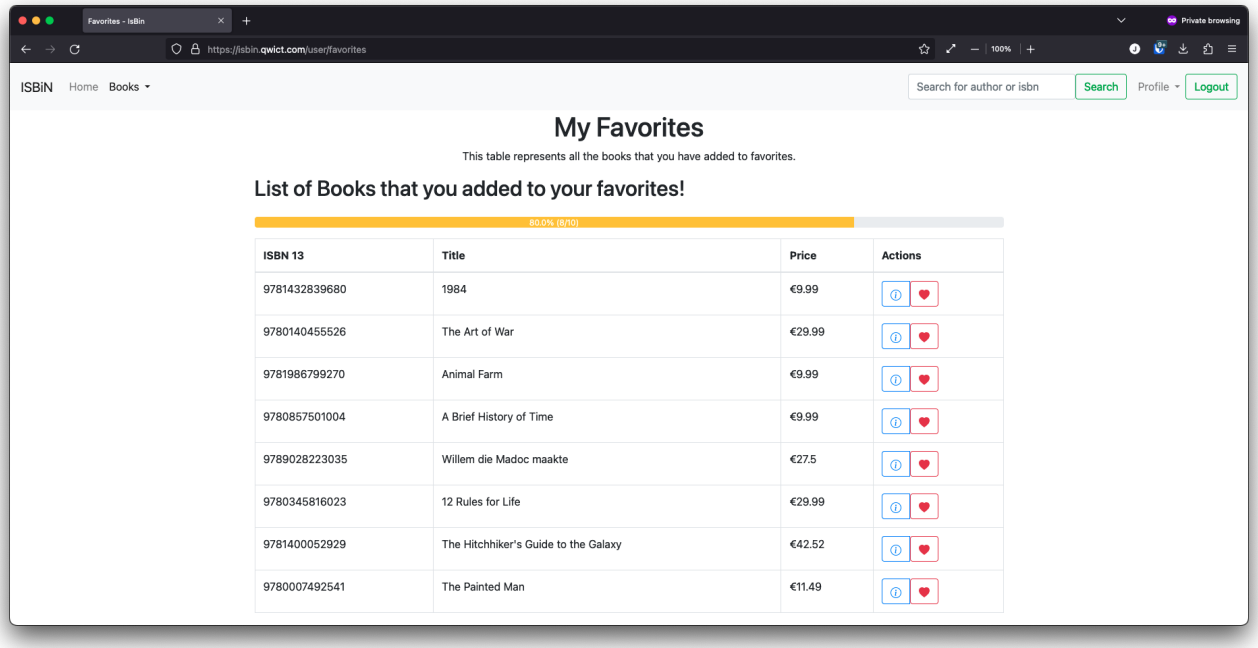
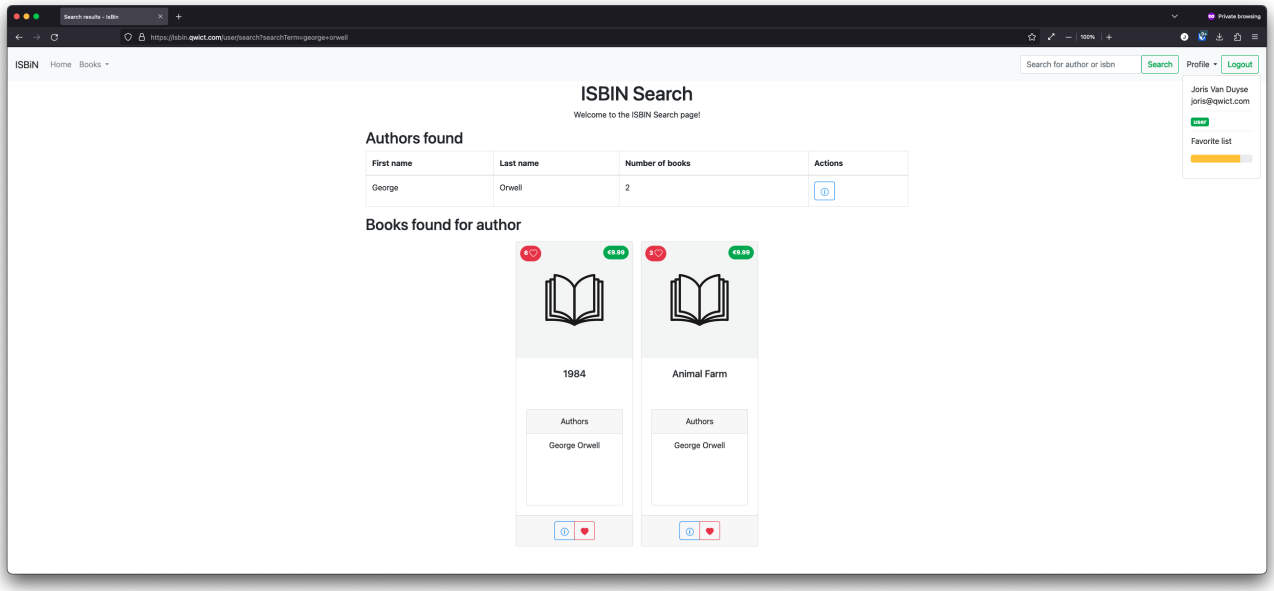
> *The favorites page available for users*



> *The search page that supports author lookup by first and lastname, but also isbn lookup*



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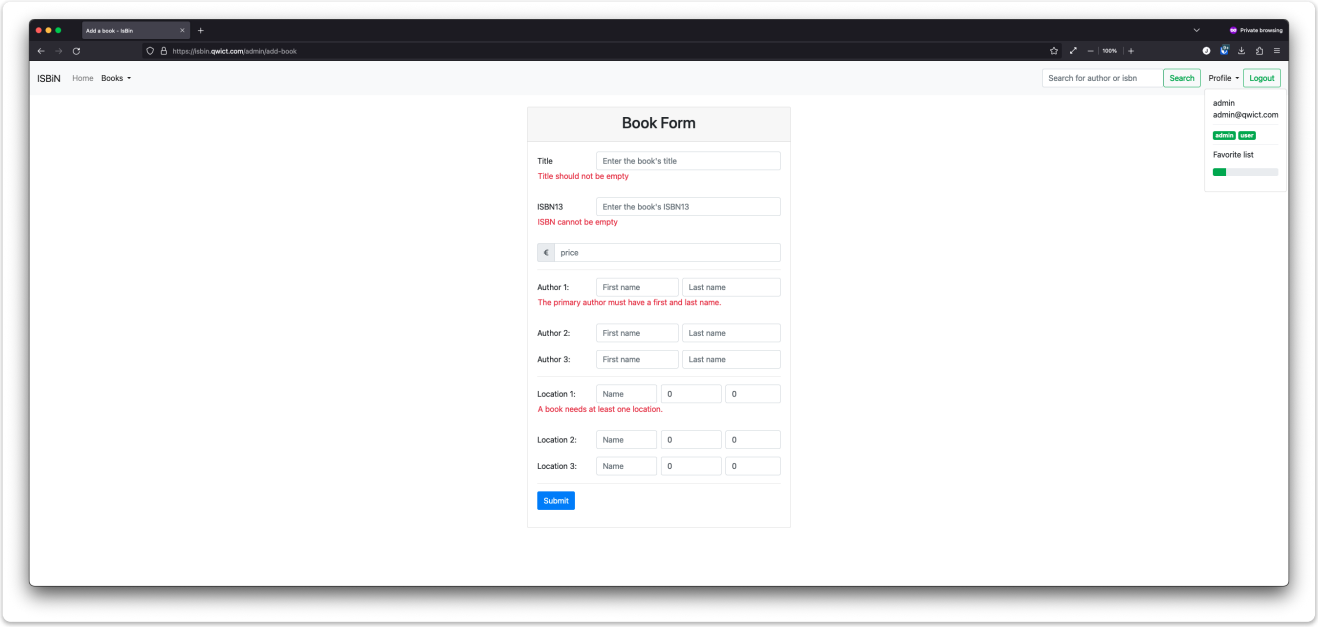
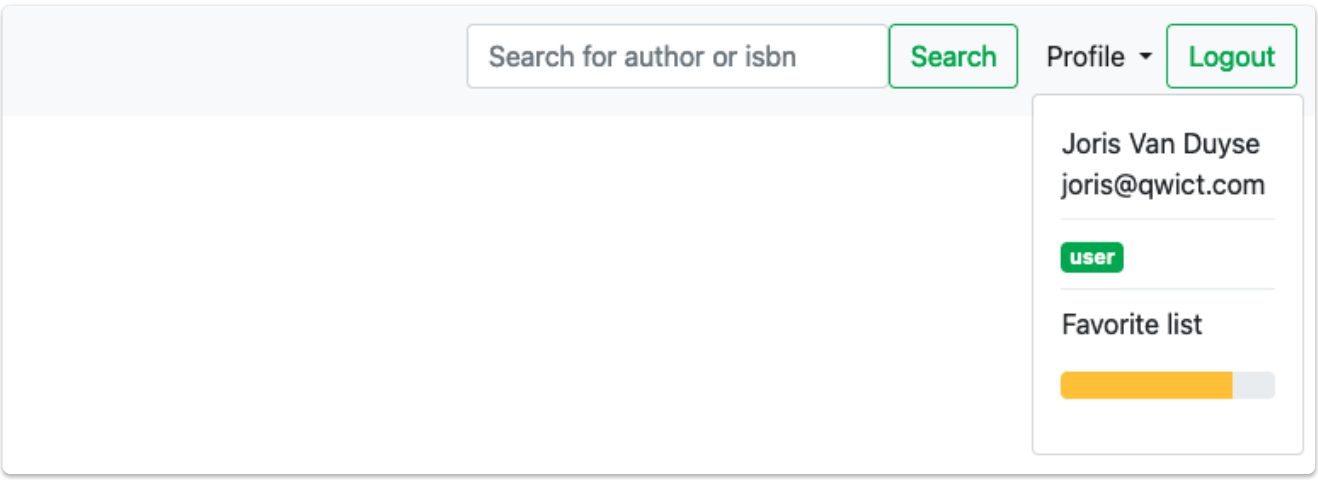
> *The book form that allows administrators to add books to the catalog; in this case the administrator tried to submit a book without filling in any information.*

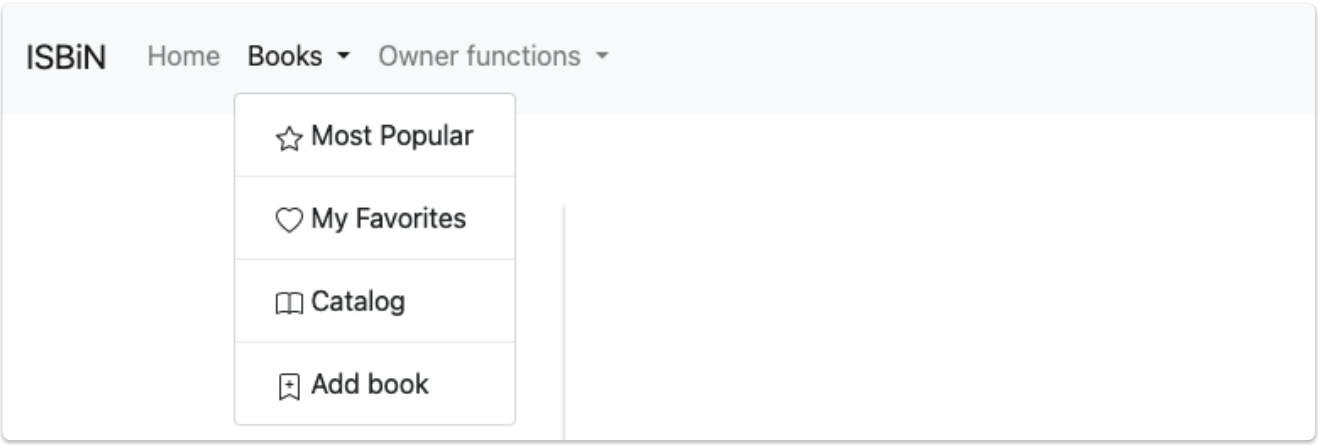


The navigation bar

> *The right side of the navigation bar with a normal user logged in.*



> *The left side of the navigation bar with the owner logged in.*



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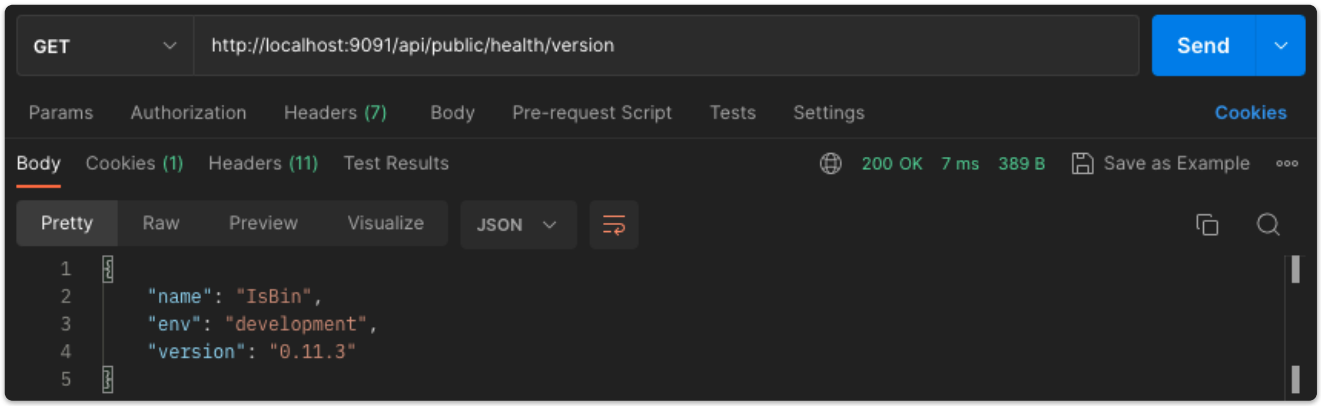
REST

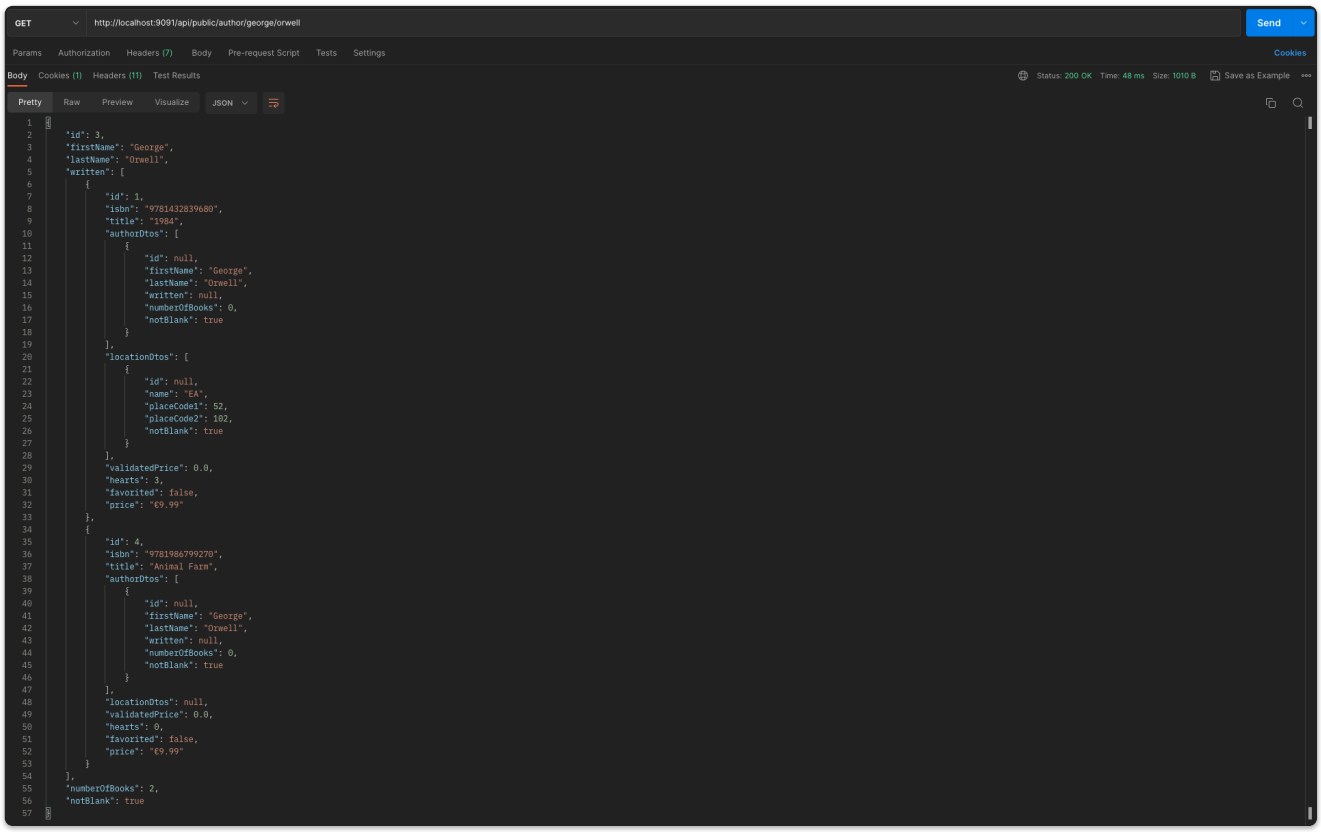
Get request voor health van de server

> *To get information about the spring boot application you can GET /api/public/health/version*



Get request for author

> *Call GET /api/public/author/george/orwell to look up a specific author by entering their first and last name; This will return a JSON*



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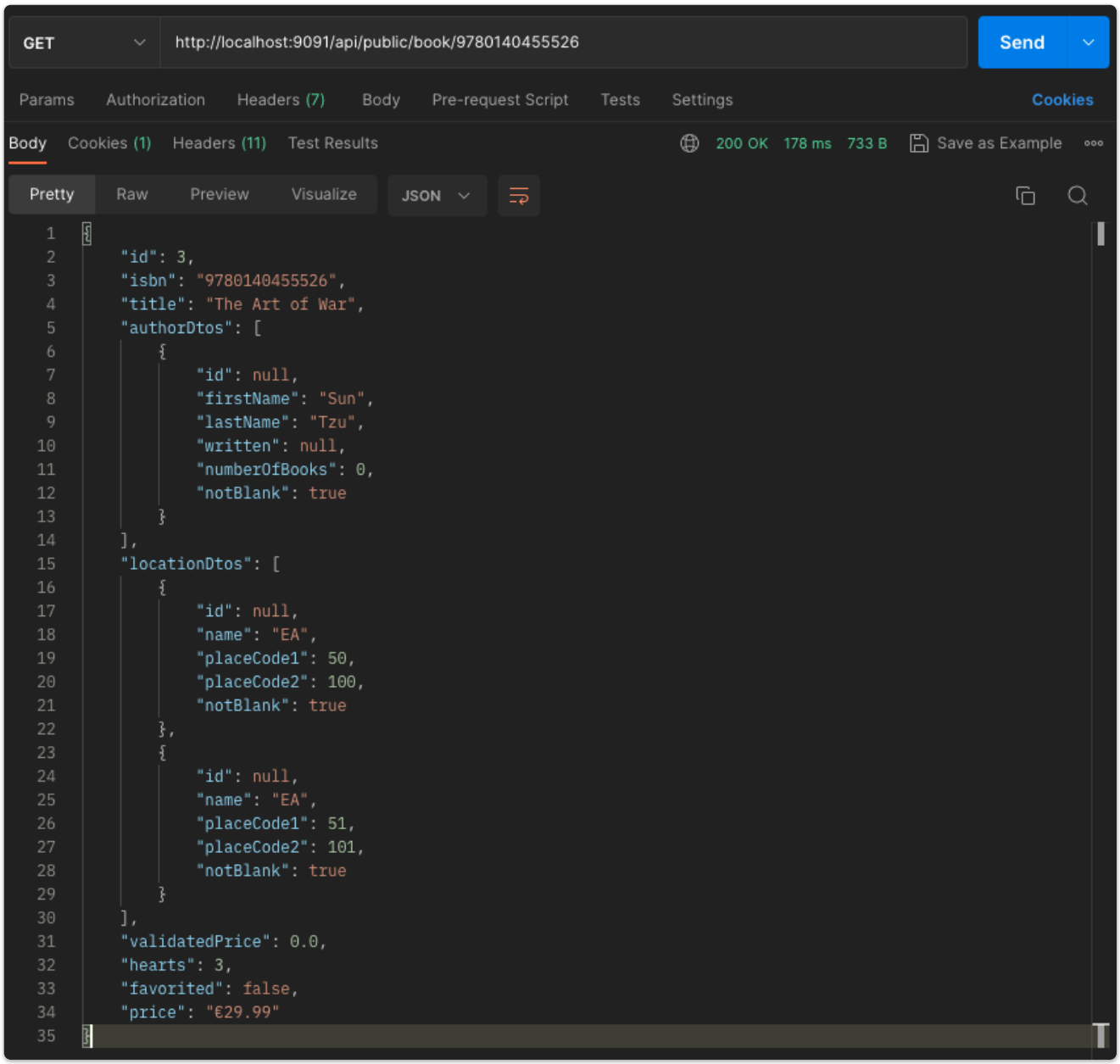
Get request for a book

> *By calling GET /api/public/book/9780140455526 it is possible to look up a book by its isbn number.*



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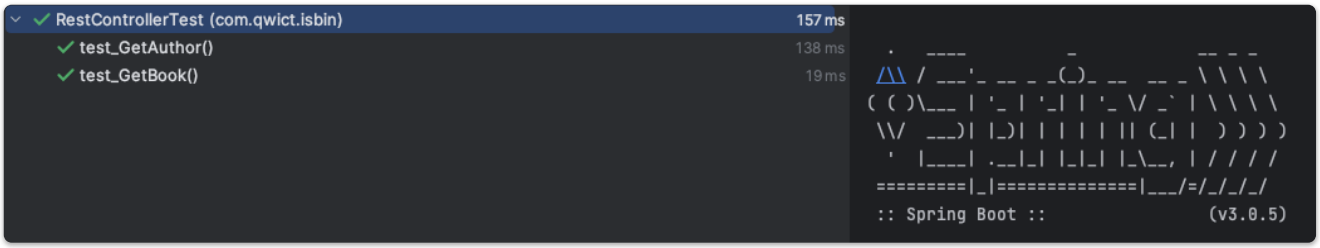
Tests

ApiControllerTests



> *The GetBook() test runs the GET /api/public/book/{isbn} endpoint and checks if the status is OK. It also checks if the bookServiceMock is called with the correct isbn number.*

```java
@Test
public void test_GetBook() throws Exception {
        MockitoAnnotations.openMocks(this);
        apiController = new ApiController();
        mockMvc = standaloneSetup(apiController).build();
        ReflectionTestUtils.setField(apiController, "bookService",
bookServiceMock);
        Book book = new Book("9780201633610", "Design Patterns", 28.99);
        Mockito.when(bookServiceMock.findBookByIsbn("9780201633610")).thenReturn(
book);
        mockMvc.perform(MockMvcRequestBuilders.get("/api/public/book/978020163361
0")).andExpect(status().isOk());
        Mockito.verify(bookServiceMock).findBookByIsbn("9780201633610");
        mockMvc.perform(MockMvcRequestBuilders.get("/api/public/book/978020163361
0"))
        .andExpect(status().isOk());
}
```

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> *The GetAuthor() test runs the GET /api/public/author/{firstName}/{lastName} endpoint and checks if the status is OK. It also checks if the authorServiceMock is called with the correct first and last name.*

language-java

```java
@Test
public void test_GetAuthor() throws Exception {
        MockitoAnnotations.openMocks(this);
        apiController = new ApiController();
        mockMvc = standaloneSetup(apiController).build();
        ReflectionTestUtils.setField(apiController, "bookService",
bookServiceMock);
        ReflectionTestUtils.setField(apiController, "authorService",
authorServiceMock);
        ReflectionTestUtils.setField(apiController, "authorRepository",
authorRepositoryMock);

        Book book = new Book("9780201633610", "Design Patterns", 28.99);
        Mockito.when(bookServiceMock.findBookByIsbn("9780201633610")).thenReturn(
book);
        bookServiceMock.mapToBookDto(book);

        Author author1 = new Author("Erich", "Gamma");
        author1.setWritten(List.of(book));
        Author author2 = new Author("Richard", "Helm");
        author2.setWritten(List.of(book));
        Author author3 = new Author("Ralph", "Johnson");
        author3.setWritten(List.of(book));
        Mockito.when(authorRepositoryMock.saveAll(List.of(author1, author2,
author3))).thenReturn(List.of(author1, author2, author3));

        AuthorDto author1Dto = authorServiceMock.mapToAuthorDto(author1);
        Mockito.when(authorServiceMock.getByFirstNameAndLastName("Erich",
"Gamma")).thenReturn(author1Dto);
        mockMvc.perform(MockMvcRequestBuilders.get("/api/public/author/Erich/Gamm
a")).andExpect(status().isOk());

        Mockito.verify(authorServiceMock).getByFirstNameAndLastName("Erich",
"Gamma");
}
```