Web Service Course Project

# **Library Management System**

Phase 3

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#### **Project description**

The project Library Management System for the course Web Services, takes as basics existing desktop project on Java, that was done in previous Block 3.

Library Management System is created as basic software that has all necessary features for ordinary libraries. It has implemented a connection to database (MySQL). This application has two types of users: Librarian and Student and provides the next functionality:

- for LIBRARIAN: Add Users, Add books, Update books quantity, See "Books" Catalog, See "Available Books" Catalog, See "Issued Books" Catalog, Filter all Catalogs, Sort Catalogs by any field, Issue Books, Return Books, Change Language.
- for USER: See "All Books" Catalog, See "Available Books" Catalog, Filter and Sort Catalogs, Borrow Book from Available, See All "Borrowed Books", Return Books.

Web Services should extend desktop applications and implement the possibility to interact through browsers.

#### **Business impact**

The Library Management System will bring a huge impact to the business process.

Using REST API allows users to manage a business process:

- Add Book;
- Add User;
- Show Catalog;
- Show Book's information;
- Show Borrowed Books;
- Issue Book;
- Return Book
- Get User Information

Next Web Services planned to be implemented in some steps starting from the Phase1 till the end of the Project:

- Implemented REST API in Phase1:
  - Show Books Catalog
  - Show book's detailed description
  - Show borrowed books by user ID
  - Search Book by ISBN
- Implemented REST API in Phase 2:
  - Add Book
  - Update Book
  - Delete Book
  - Search Book by ISBN
  - Java Client Application
- Implemented SOAP API in Phase 3
  - Show Books Catalog
  - Get User by Login

Java Client Application is implemented to test all implementations of REST Web Services.

## **Data Input, Output**

#### Data INPUT:

- User ID;
- Book ISBN;
- Links and http addresses

#### Data OUTPUT:

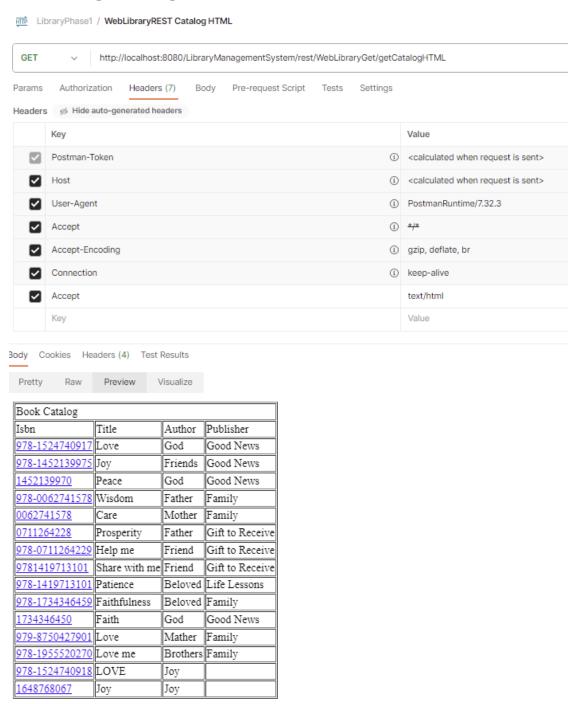
- Books Catalog:
- Book details;
- Borrowed books by User ID;
- User Catalog;

# **Data Structure used in the Project**

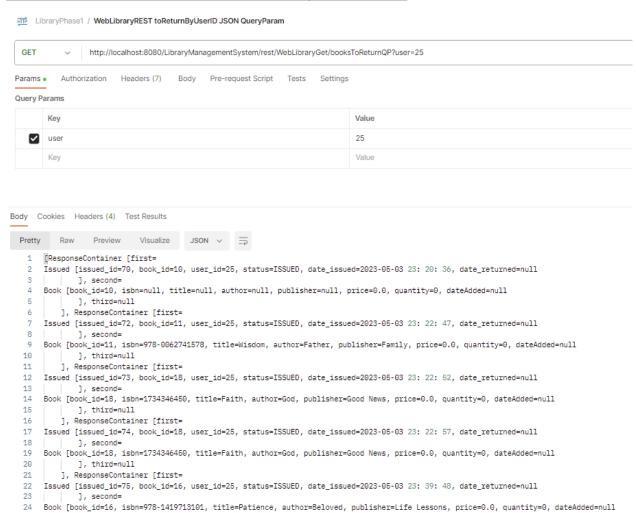
In this Project has been implemented a connection to database (MySQL).

## **Testing of API web services**

## **REST API /getCatalogHTML**



#### REST API /booksToReturn with Query Parameters



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31 32 1, third=null

], second=

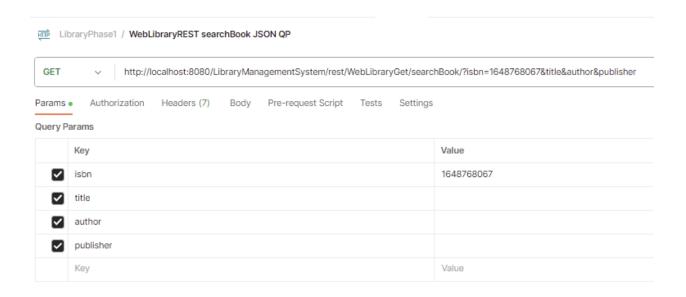
], third=null

1, ResponseContainer [first=

Issued [issued\_id=78, book\_id=19, user\_id=25, status=ISSUED, date\_issued=2023-05-04 17: 13: 02, date\_returned=null

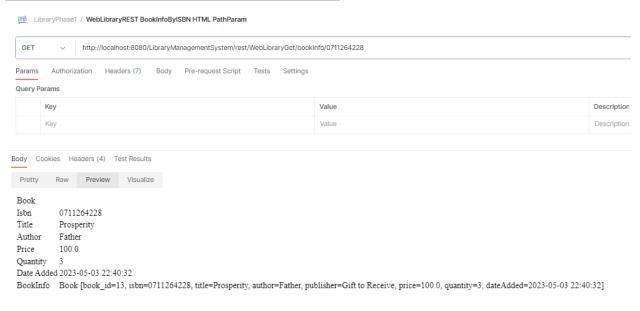
Book [book\_id=19, isbn=979-8750427901, title=Love, author=Mather, publisher=Family, price=0.0, quantity=0, dateAdded=null

## REST API /searchBook with Query Parameters



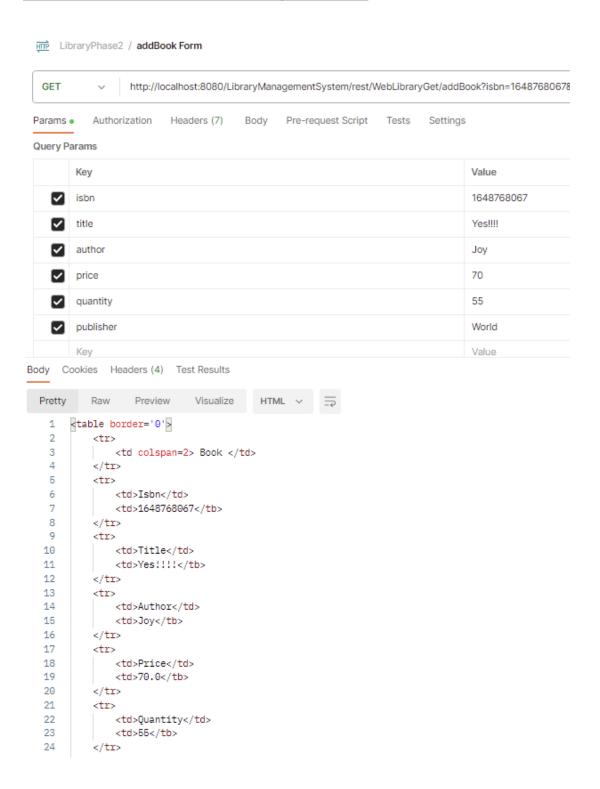
```
Body Cookies Headers (4) Test Results
                                   JSON ∨ =
Pretty
               Preview Visualize
    2
 3
            "author": "love you",
 4
           "book_id": 49,
           "isbn": "1648768067",
 5
 6
           "price": 1.0,
           "publisher": "Limpopo",
 7
 8
           "quantity": 0,
 9
            "title": "love"
10
    1
11
```

# REST API /bookInfo with PathParameter

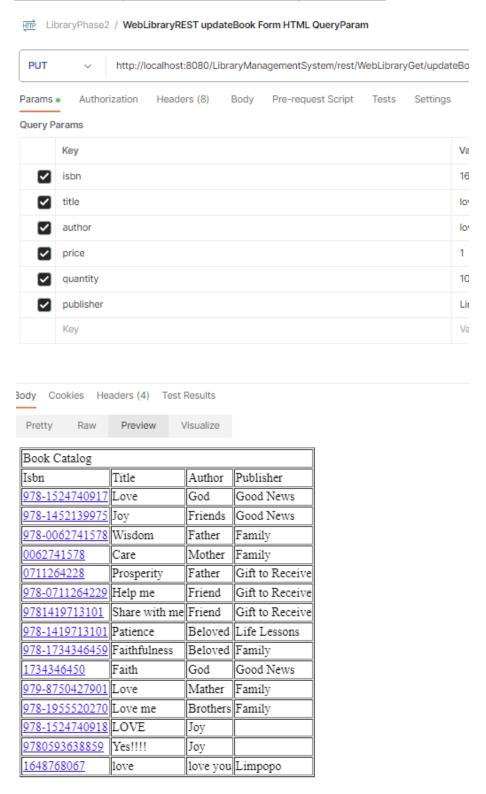


< Go back to Catalog

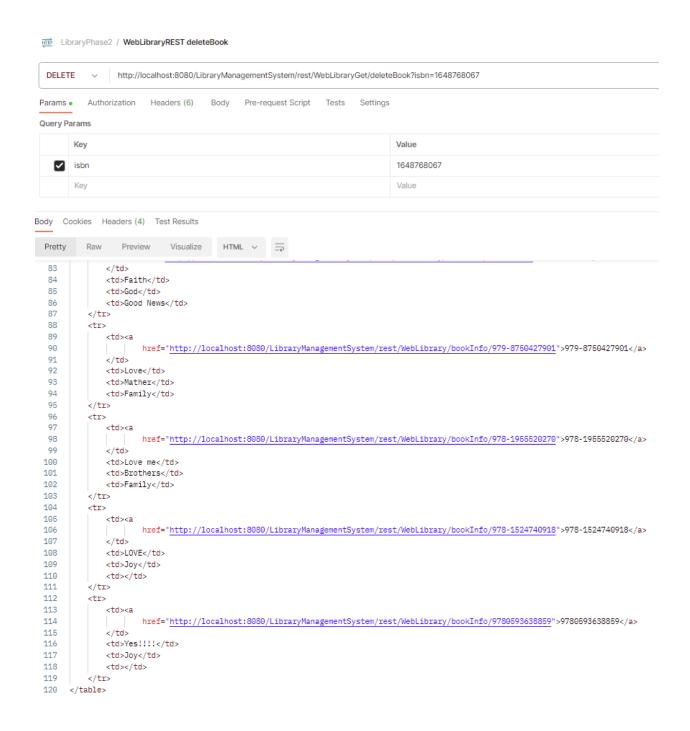
## REST API /addBook with QueryParameter



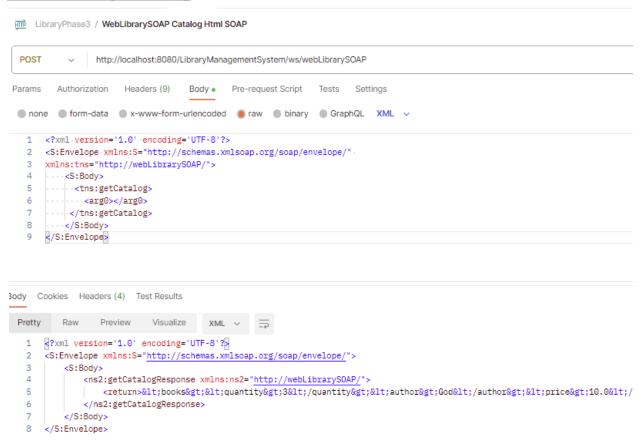
## REST API /updateBook with QueryParameter



#### REST API /deleteBook with QueryParameter



## SOAP API /getCatalog



#### SOAP API /getUser

