

# CEGEP VANIER COLLEGE

## CENTRE FOR CONTINUING EDUCATION

### Web Services

#### 420-941-VA

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Lab 7

Nov 20, 2024

### Lab 7: Using JSON/XML Annotations in Web Services

Create and Submit a Word file *Lab7WebServicesYourName.doc* which contains Answers of theory questions if any and output screenshots for every Java EE Project. Submit the Java projects too and submit the whole Lab 7 as compressed zip file.

#### 1. REST Project: WebPubBookRESTProject

- a) Create a new Dynamic Web project called **WebPubBookRESTProject** and convert it into **Maven Project**.
- b) Add **Maven Project dependencies** in **pom.xml**. Create new package called **webPubBookREST**.
- c) Deploy **WebPubBookRESTProject** within GalssFish Server to be executed by **Servlet class ServletContainer** specified in **web.xml**
- d) You need to develop a **Java class** called **Publisher**, which takes **p\_id**, **p\_name**, and **p\_address** as **private** members.
- e) You need to develop a **Java class** called **Book**, which takes **b\_id**, **b\_author**, **b\_title**, **b\_isbn**, **b\_price**, **b\_type**, and **p\_id** as **private** members.
- f) Create a new REST Resource class **PubBookResource.java**
  1. Add a path URL mapping ("PubBooks") to access REST resource using appropriate Java REST annotation.
  2. Create **ArrayList** data structure of **Publisher** class type to be referenced by (**publisherList**). Set every component of **publisherList** to the following values:

```
p_id =1, p_name="Microsoft Press", p_address = "United States"
p_id =2, p_name=" OReilly Media", p_address = "United States"
p_id =3, p_name=" Princeton Press", p_address = "United States"
```

use **ArrayList** data structure of **Book** class type to be referenced by (**bookList**). Set every component of **bookList** to the following values:

- **b\_id=1**, **b\_author="Stev Jeff"**, **b\_title="Java Programming"**, **b\_isbn="1234987991"**, **b\_price=42.40**, **b\_type="BG"**, and **p\_id= 2**
- **b\_id=2**, **b\_author="Amine Khan"**, **b\_title="Oracle Database"**, **b\_isbn="9876669874"**, **b\_price=252.40**, **b\_type="EX"**, and **p\_id= 3**
- **b\_id=3**, **b\_author="Eduard Becker"**, **b\_title="Java Programming"**, **b\_isbn="1234987987"**, **b\_price=202.30**, **b\_type="EX"**, and **p\_id= 3**
- **b\_id=4**, **b\_author="James Peter"**, **b\_title="PHP Programming"**, **b\_isbn="7654329654"**, **b\_price=66.70**, **b\_type="MD"**, and **p\_id= 1**
- **b\_id=5**, **b\_author="Paul Tremblay"**, **b\_title="History of Art Wealth"**, **b\_isbn="1209845965"**, **b\_price=43.3**, **b\_type="BG"**, and **p\_id= 3**
- **b\_id=6**, **b\_author="Paul Henry"**, **b\_title="Business principles"**, **b\_isbn="6543218521"**, **b\_price=252.40**, **b\_type="EX"**, and **p\_id= 1**

3. Create Master-Detail report of all publishers and their books by adding a method **displayPubBookList()** that returns a text media type using appropriate Java REST annotations.
4. Skip through publisher and book data structures and display Master-Detail report of all publishers and their books as shown in Figure 1. Check output using Postman. Save your own screenshot.

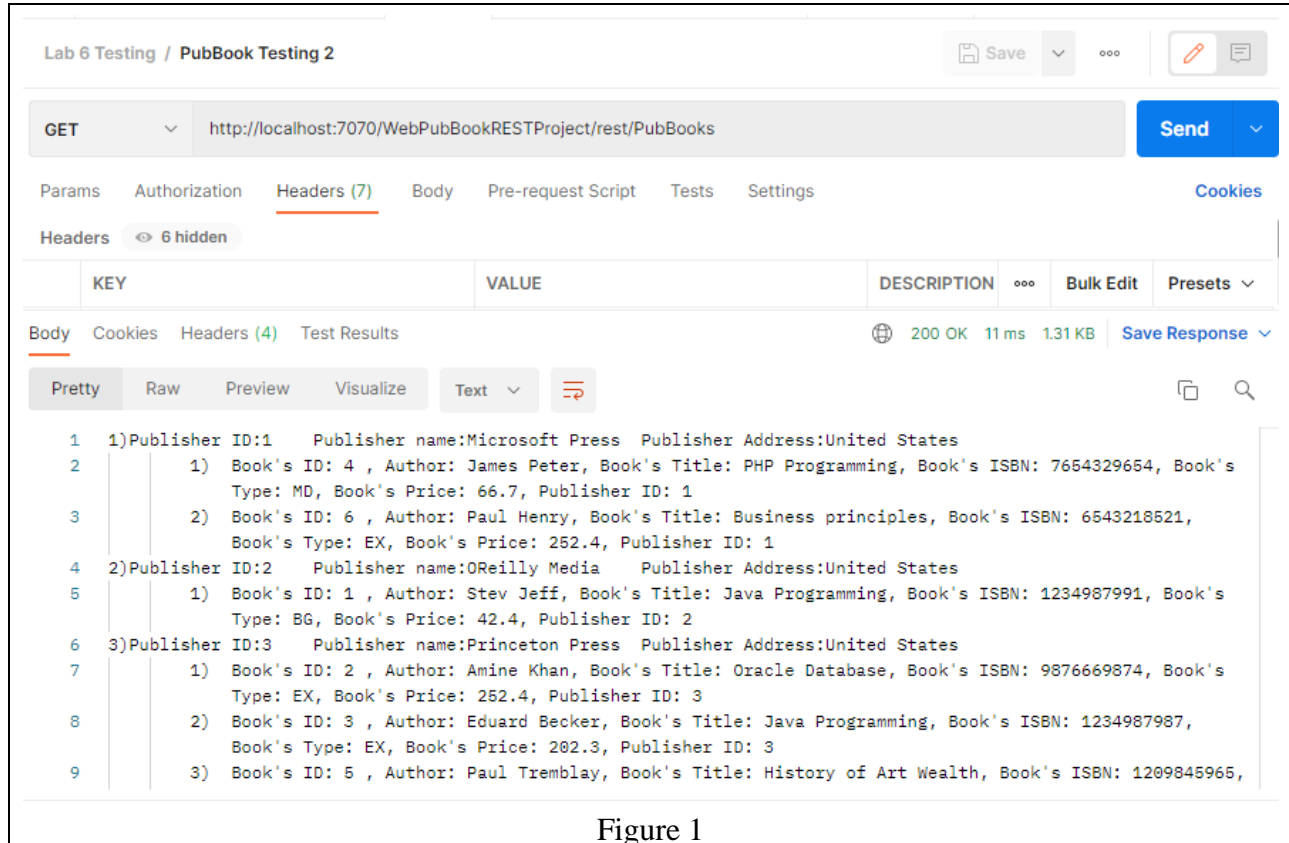


Figure 1

5. Create Master-Detail report of all publishers and their books by adding a method **displayPubBookListJSON()** that returns a JSON media type using appropriate Java REST annotations.
6. Skip through publisher and book data structures and display Master-Detail report of all publishers and their books as shown in Figure 2. Check output using Postman. Save your own screenshot.
7. Create Master-Detail report of all publishers and their books by adding a method **displayPubBookListXML()** that returns XML media type using appropriate Java REST annotations.
8. Skip through publisher and book data structures and display Master-Detail report of all publishers and their books as shown in Figure 3. Check output using Postman. Save your own screenshot.

Lab 6 Testing / PubBook TestingV4 NestedJSON3

GET ▼ http://localhost:7070/WebPubBookRESTV4Project/rest/PubBooks/PubBooksJSON2

Params Authorization Headers (7) Body Pre-request Script Tests Settings

Query Params

KEY	VALUE
Key	Value

Body Cookies Headers (4) Test Results ⊕ Status: 200 OK

Pretty Raw Preview Visualize JSON ▼ ≡

```

1  [
2    {
3      "publisher_Name": "Microsoft Press",
4      "publisher_Address": "United States",
5      "pub_id": 1,
6      "books": [
7        {
8          "b_Author": "James Peter",
9          "b_Isbn": "7654329654",
10         "b_Price": 66.7,
11         "b_Title": "PHP Programming",
12         "b_Type": "MD",
13         "b_p_id": 1,
14         "book_id": 4
15       },
16       {
17         "b_Author": "Paul Henry",
18         "b_Isbn": "6543218521",
19         "b_Price": 252.4,
20         "b_Title": "Business principles",
21         "b_Type": "EX",
22         "b_p_id": 1,
23         "book_id": 6
24       }
25     ]
26   },
27   {
28     "publisher_Name": "OReilly Media",
29     "publisher_Address": "United States",
30     "pub_id": 2,
31     "books": [
32       {
33         "b_Author": "Stev Jeff",
34         "b_Isbn": "1234987991",
35         "b_Price": 42.4,
36         "b_Title": "Java Programming",
37         "b_Type": "BG",
38         "b_p_id": 2,
39         "book_id": 1
40       }
41     ]
42   },
43   {
44     "publisher_Name": "Princeton Press",
45     "publisher_Address": "United States",
46     "pub_id": 3,
47     "books": [
48       {
49         "b_Author": "Amine Khan",
50         "b_Isbn": "9876669874",
51         "b_Price": 252.4,
52         "b_Title": "Oracle Database",
53         "b_Type": "EX",
54         "b_p_id": 3,
55         "book_id": 2
56       },
57       {
58         "b_Author": "Eduard Becker",
59         "b_Isbn": "1234987987",
60         "b_Price": 202.3,
61         "b_Title": "Java Programming",
62         "b_Type": "EX",
63         "b_p_id": 3,
64         "book_id": 3
65       },
66       {
67         "b_Author": "Paul Tremblay",
68         "b_Isbn": "1209845965",
69         "b_Price": 43.3,
70         "b_Title": "History of Art Wealth",
71         "b_Type": "BG",
72         "b_p_id": 3,
73         "book_id": 5
74       }
75     ]
76   }
77 ]

```

Figure 2

GET ▼ http://localhost:7070/WebPubBookRESTProject/rest/PubBooks/PubBooksXML3

Params Authorization Headers (7) Body Pre-request Script Tests Settings

Query Params

KEY	VALUE	D

Body Cookies Headers (4) Test Results ⊞ Status: 200 OK

Pretty Raw Preview Visualize XML ▼ ≡

```

1 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
2 <publishers>
3   <publisher>
4     <publisher_Id>1</publisher_Id>
5     <publisher_Name>Microsoft Press</publisher_Name>
6     <publisher_Address>United States</publisher_Address>
7     <books>
8       <book>
9         <book_Id>4</book_Id>
10        <book_author>James Peter</book_author>
11        <book_title>PHP Programming</book_title>
12        <book_isbn>7654329654</book_isbn>
13        <book_type>MD</book_type>
14        <book_price>66.7</book_price>
15        <book_pid>1</book_pid>
16      </book>
17      <book>
18        <book_Id>6</book_Id>
19        <book_author>Paul Henry</book_author>
20        <book_title>Business principles</book_title>
21        <book_isbn>6543218521</book_isbn>
22        <book_type>EX</book_type>
23        <book_price>252.4</book_price>
24        <book_pid>1</book_pid>
25      </book>
26    </books>
27  </publisher>
28  <publisher>
29    <publisher_Id>2</publisher_Id>
30    <publisher_Name>OReilly Media</publisher_Name>
31    <publisher_Address>United States</publisher_Address>
32    <books>
33      <book>
34        <book_Id>1</book_Id>
35        <book_author>Stev Jeff</book_author>
36        <book_title>Java Programming</book_title>
37        <book_isbn>1234987991</book_isbn>
38        <book_type>BG</book_type>
39        <book_price>42.4</book_price>
40        <book_pid>2</book_pid>
41      </book>
42    </books>
43  </publisher>
44  <publisher>
45    <publisher_Id>3</publisher_Id>
46    <publisher_Name>Princeton Press</publisher_Name>
47    <publisher_Address>United States</publisher_Address>
48    <books>
49      <book>
50        <book_Id>2</book_Id>
51        <book_author>Amine Khan</book_author>
52        <book_title>Oracle Database</book_title>
53        <book_isbn>9876669874</book_isbn>
54        <book_type>EX</book_type>
55        <book_price>252.4</book_price>
56        <book_pid>3</book_pid>
57      </book>
58      <book>
59        <book_Id>3</book_Id>
60        <book_author>Eduard Becker</book_author>
61        <book_title>Java Programming</book_title>
62        <book_isbn>1234987987</book_isbn>
63        <book_type>EX</book_type>
64        <book_price>202.3</book_price>
65        <book_pid>3</book_pid>
66      </book>
67      <book>
68        <book_Id>5</book_Id>
69        <book_author>Paul Tremblay</book_author>
70        <book_title>History of Art Wealth</book_title>
71        <book_isbn>1209845965</book_isbn>
72        <book_type>BG</book_type>
73        <book_price>43.3</book_price>
74        <book_pid>3</book_pid>
75      </book>
76    </books>
77  </publisher>
78 </publishers>

```

Figure 3