Interoperability

Assignment 06

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Link to client:

https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/client.php

Link to server:

https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php

Implementation: TASK A, TASK B, and TASK C are fully implemented.

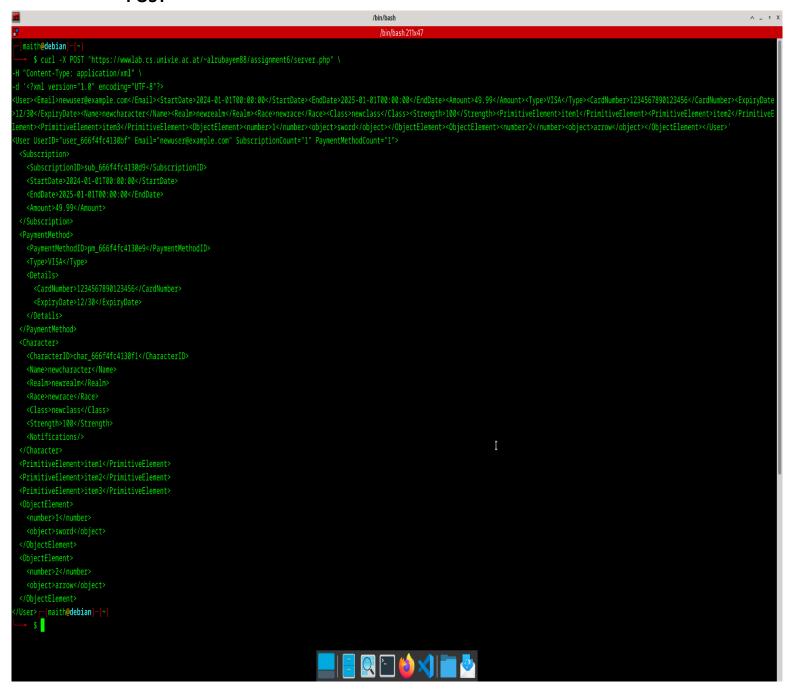
Code Review Assessment Table

Requirement	Fulfilled by Part of Code
R0 (Use XPath to select nodes for CRUD operations)	All CRUD functions (create, update, delete, read) use DOMXPath for node selection.
R1 (At least 1 operation must use floats or integers as input parameter)	update and create operations take Amount and CharacterStrength as float and integer respectively.
R2 (At least 1 operation must use strings as input parameter)	All CRUD functions use string parameters such as UserID, Email, Type, etc.
R3 (At least 1 operation must use a date as input parameter)	create operation uses SubscriptionStartDate and SubscriptionEndDate as date input parameters.
R4 (Complex data structures as input and output)	create operation uses complex data structures for input (ObjectArray, PrimitiveArray) and structured XML for output.
R4.1 (At least one array of some primitive type)	PrimitiveArray in create operation.
R4.2 (At least one array of objects with mixed types)	ObjectArray in create operation contains objects with mixed types (number and object).
R4-unnumbered (Validate complex structure with a schema)	The validateXmlAgainstXsd function is invoked in create and update to ensure input XML validates against a predefined XSD schema.
R5 (Read operation should return JSON and XML)	read operation converts XML data of the user to both JSON (userJson) and XML (userXml).
R6 (All operations must have at least two input parameters)	All CRUD operations require multiple parameters such as UserID, Email, etc.
R7 (All operations except 'read' should have side effects)	create, update, and delete operations modify the XML data and save changes, thus have side effects.

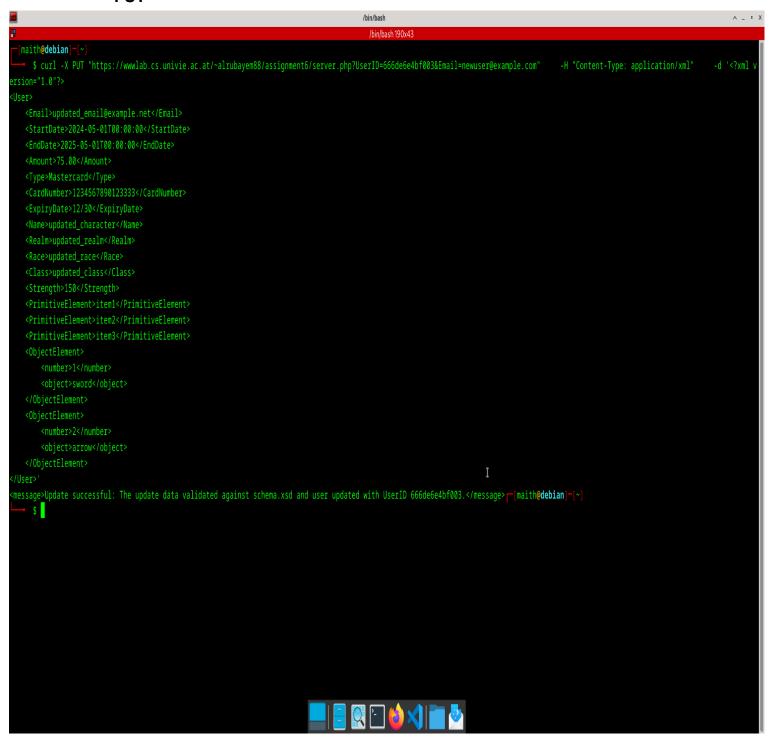
Screenshots

Task A: REST

POST



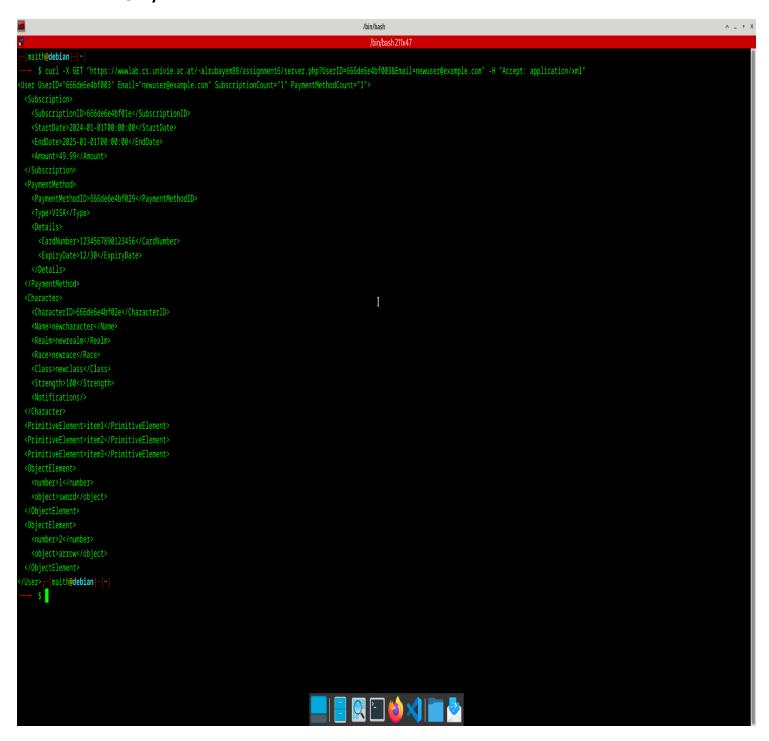
- PUT



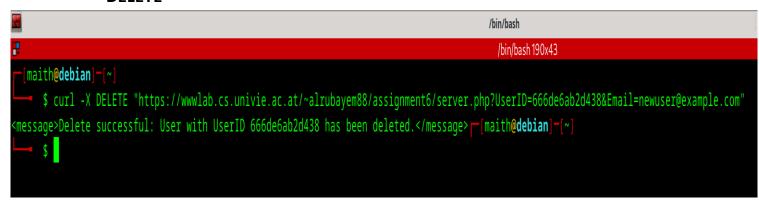
- GET/JSON

```
/bin/bash
                                                                                                                                                                                                                                                         ^ _ ° X
[maith@debian]-[~
 – $ curl -X GET *https://mwmlab.cs.univie.ac.at/=alrubayem88/assignment6/server.php?UserID=666de6e4bf003&Email=newuser@example.com" -H *Accept: application/json" | jq '.'
% Total % Received % Xferd Average Speed Time Time Time Current
 "UserID": "666de6e4bf003",
"Email": "newuser@example.com",
 "SubscriptionID": "666de6e4bf01e",
  "EndDate": "2025-01-01T00:00:00",
"Amount": "49.99"
  "Race": "newrace",
 [maith<mark>@debian]=[~]</mark>
```

- GET/XML

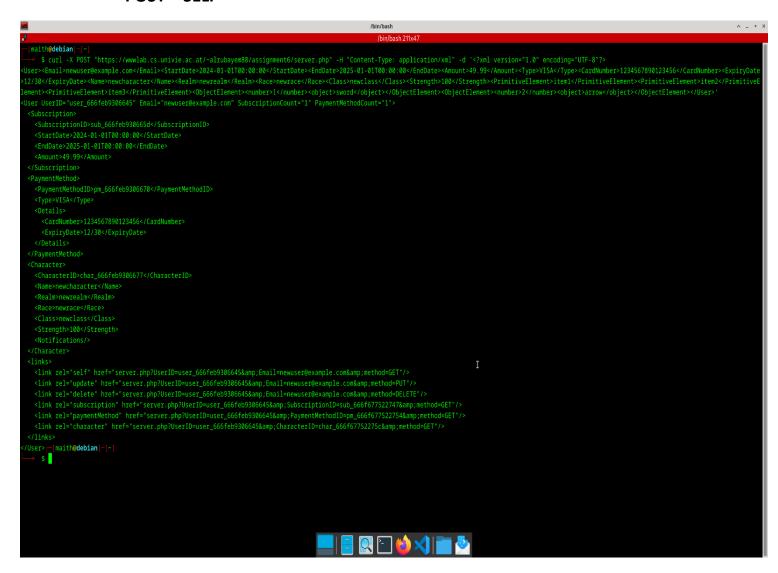


DELETE

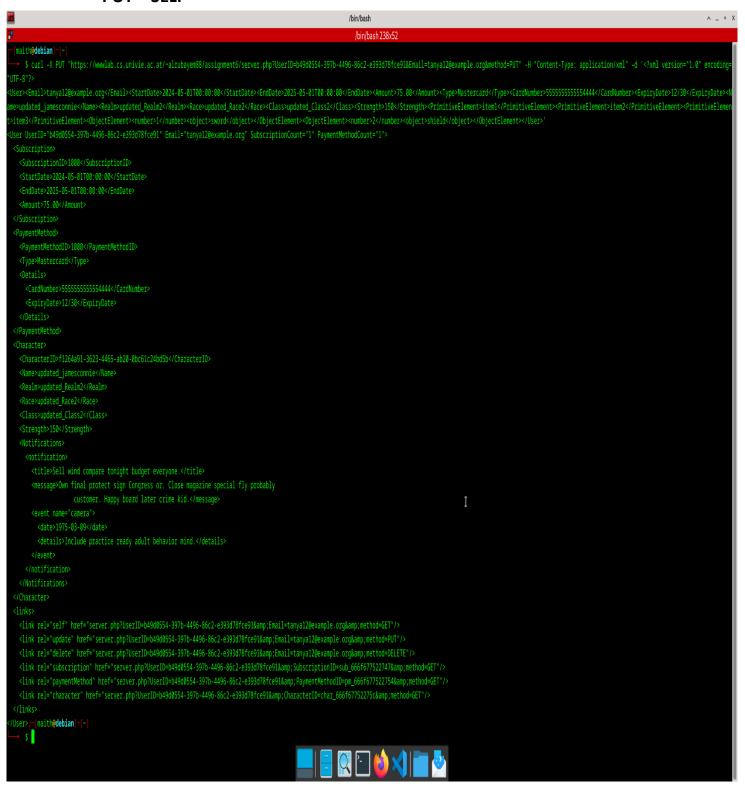


TASK B: HATEOAS

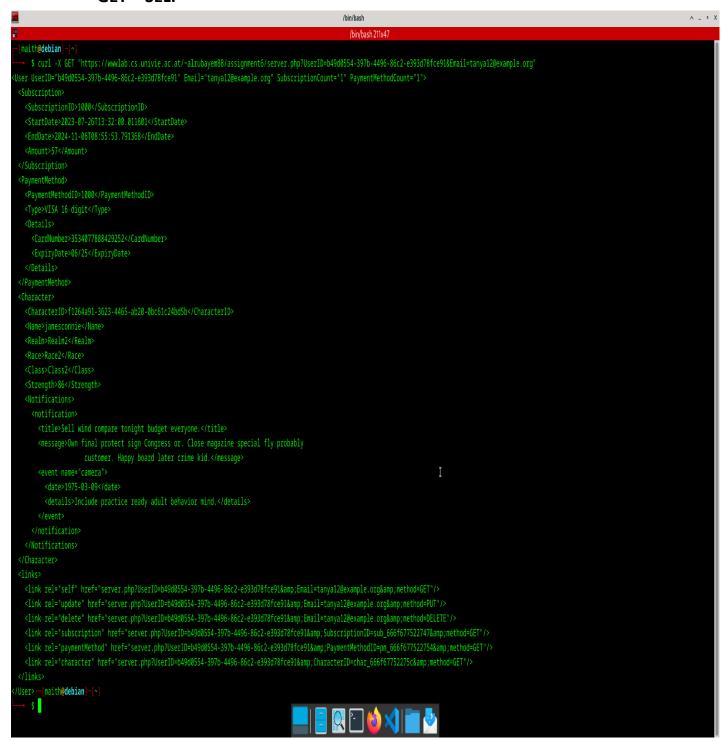
POST – SELF



PUT – SELF



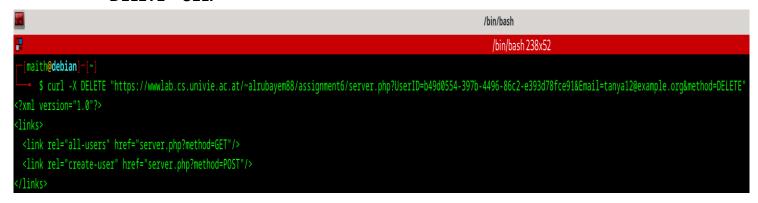
GET – SELF



- GET - SUBSCRIPTION - PAYMENT - CHARACTER

```
maith<mark>@debian]</mark>
 - $ curl -X GET "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&SubscriptionID=1000&method=GET"
<SubscriptionID>1000</SubscriptionID>
Subscription> [maith@debian]-
<PaymentMethodID>1000</PaymentMethodID>
<Type>VISA 16 digit</Type>
PaymentMethod> — [maith@debian]-
 🗝 💲 curl -X GET "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&CharacterID=f1264a91-3623-4465-ab20-0bc61c24bd5b&method=GET"
<CharacterID>f1264a91-3623-4465-ab20-0bc61c24bd5b</CharacterID>
<Name>jamesconnie</Name>
<Realm>Realm2</Realm>
   <message>Own final protect sign Congress or. Close magazine special fly probably
                   customer. Happy board later crime kid.</message>
     <date>1975-03-09</date>
     <details>Include practice ready adult behavior mind.</details>
Character> — [maith@debian] — [~]
  $
```

- DELETE - SELF



TASK C: RFC 6902 - PATCH

CURLS for manual testing:

TASK A: REST

POST:

```
curl -X POST "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php" \
-H "Content-Type: application/xml" \
-d '<?xml version="1.0" encoding="UTF-8"?>
<User>
  <Email>newuser@example.com</Email>
  <StartDate>2024-01-01T00:00:00</StartDate>
  <EndDate>2025-01-01T00:00:00</EndDate>
  <Amount>49.99</Amount>
  <Type>VISA</Type>
  <CardNumber>1234567890123456</CardNumber>
  <ExpiryDate>12/30</ExpiryDate>
  <Name>newcharacter</Name>
  <Realm>newrealm</Realm>
  <Race>newrace</Race>
  <Class>newclass</Class>
  <Strength>100</Strength>
  <PrimitiveElement>item1</PrimitiveElement>
  <PrimitiveElement>item2</PrimitiveElement>
```

```
<PrimitiveElement>item3</PrimitiveElement>
  <ObjectElement>
    <number>1</number>
    <object>sword</object>
  </ObjectElement>
  <ObjectElement>
   <number>2</number>
    <object>arrow</object>
  </ObjectElement>
</User>'
```

GET - XML:

curl -X GET

"https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=666de6e4bf003&Email=newus er@example.com" -H "Accept: application/xml"

GET – JSON:

curl -X GET

"https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=666de6e4bf003&Email=newus er@example.com" -H "Accept: application/json" | jq '.'

PUT:

<Race>updated_race</Race> <Class>updated_class</Class> <Strength>150</Strength>

<PrimitiveElement>item1</PrimitiveElement>

```
curl -X PUT
"https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=666de6e4bf003&Email=newus
er@example.com" \
 -H "Content-Type: application/xml" \
  -d '<?xml version="1.0"?>
<User>
  <Email>updated_email@example.net</Email>
  <StartDate>2024-05-01T00:00:00</StartDate>
  <EndDate>2025-05-01T00:00:00</EndDate>
  <Amount>75.00</Amount>
  <Type>Mastercard</Type>
  <CardNumber>1234567890123333</CardNumber>
  <ExpiryDate>12/30</ExpiryDate>
  <Name>updated_character</Name>
  <Realm>updated realm</Realm>
```

DELETE:

curl -X DELETE

"https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=666de6ab2d438&Email=newuser@example.com"

TASK B: HATEOAS

POST:

```
curl -X POST "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php" \
-H "Content-Type: application/xml" \
-d '<?xml version="1.0" encoding="UTF-8"?>
<User>
  <Email>newuser@example.com</Email>
  <StartDate>2024-01-01T00:00:00</StartDate>
  <EndDate>2025-01-01T00:00:00</EndDate>
  <Amount>49.99</Amount>
  <Type>VISA</Type>
  <CardNumber>1234567890123456</CardNumber>
  <ExpiryDate>12/30</ExpiryDate>
  <Name>newcharacter</Name>
  <Realm>newrealm</Realm>
  <Race>newrace</Race>
  <Class>newclass</Class>
  <Strength>100</Strength>
  <PrimitiveElement>item1</PrimitiveElement>
  <PrimitiveElement>item2</PrimitiveElement>
  <PrimitiveElement>item3</PrimitiveElement>
  <ObjectElement>
    <number>1</number>
    <object>sword</object>
```

```
</ObjectElement>
  <ObjectElement>
     <number>2</number>
     <object>arrow</object>
  </ObjectElement>
</User>'
```

GET - SELF:

curl -X GET "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&Email=tanya12@example.org"

GET - SUBSCRIPTION:

curl -X GET "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&SubscriptionID=1000&method=GET"

GET - PAYMENT:

curl -X GET "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&PaymentMethodID=1000&method=GET"

get - CHARACTER:

<Class>updated_Class2</Class>

curl -X GET "https://wwwlab.cs.univie.ac.at/ \sim alrubayem88/assignment6/server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&CharacterID=f1264a91-3623-4465-ab20-0bc61c24bd5b&method=GET"

PUT - SELF:

```
<Strength>150</Strength>
<PrimitiveElement>item1</PrimitiveElement>
<PrimitiveElement>item2</PrimitiveElement>
<PrimitiveElement>item3</PrimitiveElement>
<ObjectElement>
<number>1</number>
<object>sword</object>
</ObjectElement>
<number>2</number>
<objectSelement>
</objectElement>
</objectElement>
</objectElement>
</objectElement>
</objectShield</object>
</ObjectElement>
</ObjectElement>
</objectShield</object>
</ObjectElement>
```

DELETE - SELF:

curl -X DELETE "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&Email=tanya12@example.org&method=DELETE"

Task C - RFC 6902

PATCH:

curl -X PATCH

```
"https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=666c4b716d0b3&Email=newu ser@example.com" \
-H "Content-Type: application/json" \
-d '[{"op": "replace", "path": "/PaymentMethod/Type", "value": "Mastercard by TASK C RFC 6902"}]' \
-i
```