

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

## Screenshots

### Task A : REST

#### - POST

```
maith@debian:~$ 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>'
<User UserID="user_666f4fc4130bf" Email="newuser@example.com" SubscriptionCount="1" PaymentMethodCount="1">
  <Subscription>
    <SubscriptionID>sub_666f4fc4130d9</SubscriptionID>
    <StartDate>2024-01-01T00:00:00</StartDate>
    <EndDate>2025-01-01T00:00:00</EndDate>
    <Amount>49.99</Amount>
  </Subscription>
  <PaymentMethod>
    <PaymentMethodID>pm_666f4fc4130e9</PaymentMethodID>
    <Type>VISA</Type>
    <Details>
      <CardNumber>1234567890123456</CardNumber>
      <ExpiryDate>12/30</ExpiryDate>
    </Details>
  </PaymentMethod>
  <Character>
    <CharacterID>char_666f4fc4130f1</CharacterID>
    <Name>newcharacter</Name>
    <Realm>newrealm</Realm>
    <Race>newrace</Race>
    <Class>newclass</Class>
    <Strength>100</Strength>
    <Notifications/>
  </Character>
  <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>
maith@debian:~$
```

## - PUT

```
/bin/bash
/bin/bash 190x43

[maith@debian]~$ curl -X PUT "https://www1ab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=666de6e4bf003&Email=newuser@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>
  <Race>updated_race</Race>
  <Class>updated_class</Class>
  <Strength>150</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>'
<message>Update successful: The update data validated against schema.xsd and user updated with UserID 666de6e4bf003.</message>[maith@debian]~$
```

## - GET/JSON

```
maith@debian:~$ curl -X GET "https://wwwlab.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
         Dload Upload Total Spent Left Speed
100 670 100 670 0 0 5301 0 --:--:-- --:--:-- --:--:-- 5317
{
  "@attributes": {
    "UserID": "666de6e4bf003",
    "Email": "newuser@example.com",
    "SubscriptionCount": "1",
    "PaymentMethodCount": "1"
  },
  "Subscription": {
    "SubscriptionID": "666de6e4bf01e",
    "StartDate": "2024-01-01T00:00:00",
    "EndDate": "2025-01-01T00:00:00",
    "Amount": "49.99"
  },
  "PaymentMethod": {
    "PaymentMethodID": "666de6e4bf029",
    "Type": "VISA",
    "Details": {
      "CardNumber": "1234567890123456",
      "ExpiryDate": "12/30"
    }
  },
  "Character": {
    "CharacterID": "666de6e4bf02e",
    "Name": "newcharacter",
    "Realm": "newrealm",
    "Race": "newrace",
    "Class": "newclass",
    "Strength": "100",
    "Notifications": {}
  },
  "PrimitiveElement": [
    "item1",
    "item2",
    "item3"
  ],
  "ObjectElement": [
    {
      "number": "1",
      "object": "sword"
    },
    {
      "number": "2",
      "object": "arrow"
    }
  ]
}
```

## - GET/XML

```
/bin/bash
/bin/bash 211x47
[maith@debian] ~$ curl -X GET "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=666de6e4bf003&Email=newuser@example.com" -H "Accept: application/xml"
<User UserID="666de6e4bf003" Email="newuser@example.com" SubscriptionCount="1" PaymentMethodCount="1">
  <Subscription>
    <SubscriptionID>666de6e4bf01e</SubscriptionID>
    <StartDate>2024-01-01T00:00:00</StartDate>
    <EndDate>2025-01-01T00:00:00</EndDate>
    <Amount>49.99</Amount>
  </Subscription>
  <PaymentMethod>
    <PaymentMethodID>666de6e4bf029</PaymentMethodID>
    <Type>VISA</Type>
    <Details>
      <CardNumber>1234567890123456</CardNumber>
      <ExpiryDate>12/30</ExpiryDate>
    </Details>
  </PaymentMethod>
  <Character>
    <CharacterID>666de6e4bf02e</CharacterID>
    <Name>newcharacter</Name>
    <Realm>newrealm</Realm>
    <Race>newrace</Race>
    <Class>newclass</Class>
    <Strength>100</Strength>
    <Notifications/>
  </Character>
  <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>
[maith@debian] ~$
```

## - DELETE

```
/bin/bash
/bin/bash 190x43
[maith@debian]~[~]
$ curl -X DELETE "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=666de6ab2d438&Email=newuser@example.com"
<message>Delete successful: User with UserID 666de6ab2d438 has been deleted.</message> [maith@debian]~[~]
$
```

## TASK B : HATEOAS

### - POST – SELF

```
/bin/bash
/bin/bash 211x47
[maith@debian]~[~]
$ 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>
<User UserID="user_666feb9306645" Email="newuser@example.com" SubscriptionCount="1" PaymentMethodCount="1">
  <Subscription>
    <SubscriptionID>sub_666feb930665d</SubscriptionID>
    <StartDate>2024-01-01T00:00:00</StartDate>
    <EndDate>2025-01-01T00:00:00</EndDate>
    <Amount>49.99</Amount>
  </Subscription>
  <PaymentMethod>
    <PaymentMethodID>pm_666feb9306670</PaymentMethodID>
    <Type>VISA</Type>
    <Details>
      <CardNumber>1234567890123456</CardNumber>
      <ExpiryDate>12/30</ExpiryDate>
    </Details>
  </PaymentMethod>
  <Character>
    <CharacterID>char_666feb9306677</CharacterID>
    <Name>newcharacter</Name>
    <Realm>newrealm</Realm>
    <Race>newrace</Race>
    <Class>newclass</Class>
    <Strength>100</Strength>
    <Notifications/>
  </Character>
  <links>
    <link rel="self" href="server.php?UserID=user_666feb9306645&Email=newuser@example.com&method=GET"/>
    <link rel="update" href="server.php?UserID=user_666feb9306645&Email=newuser@example.com&method=PUT"/>
    <link rel="delete" href="server.php?UserID=user_666feb9306645&Email=newuser@example.com&method=DELETE"/>
    <link rel="subscription" href="server.php?UserID=user_666feb9306645&SubscriptionID=sub_666f677522747&method=GET"/>
    <link rel="paymentMethod" href="server.php?UserID=user_666feb9306645&PaymentMethodID=pm_666f677522754&method=GET"/>
    <link rel="character" href="server.php?UserID=user_666feb9306645&CharacterID=char_666f67752275&method=GET"/>
  </links>
</User> [maith@debian]~[~]
$
```

## - PUT – SELF

```
/bin/bash
/bin/bash 238x52
[maith@debian:~]$
$ curl -X PUT "https://wwwlab.cs.univie.ac.at/~alrubayen88/assignment6/server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&Email=tanya12@example.org&method=PUT" -H "Content-Type: application/xml" -d '<?xml version="1.0" encoding="UTF-8"?>
<User><Email>tanya12@example.org</Email><StartDate>2024-05-01T00:00:00</StartDate><EndDate>2025-05-01T00:00:00</EndDate><Amount>75.00</Amount><Type>Mastercard</Type><CardNumber>5555555555554444</CardNumber><ExpiryDate>12/30</ExpiryDate><Name>updated_jamesconnie</Name><Realm>updated_Realm2</Realm><Race>updated_Race2</Race><Class>updated_Class2</Class><Strength>150</Strength><PrimitiveElement>item1</PrimitiveElement><PrimitiveElement>item2</PrimitiveElement><PrimitiveElement>item3</PrimitiveElement><ObjectElement><number>1</number><object>sword</object></ObjectElement><ObjectElement><number>2</number><object>shield</object></ObjectElement></User>
<User UserID="b49d0554-397b-4496-86c2-e393d78fce91" Email="tanya12@example.org" SubscriptionCount="1" PaymentMethodCount="1">
  <Subscription>
    <SubscriptionID>1000</SubscriptionID>
    <StartDate>2024-05-01T00:00:00</StartDate>
    <EndDate>2025-05-01T00:00:00</EndDate>
    <Amount>75.00</Amount>
  </Subscription>
  <PaymentMethod>
    <PaymentMethodID>1000</PaymentMethodID>
    <Type>Mastercard</Type>
    <Details>
      <CardNumber>5555555555554444</CardNumber>
      <ExpiryDate>12/30</ExpiryDate>
    </Details>
  </PaymentMethod>
  <Character>
    <CharacterID>f1264a91-3623-4465-ab20-0bc61c24bd5b</CharacterID>
    <Name>updated_jamesconnie</Name>
    <Realm>updated_Realm2</Realm>
    <Race>updated_Race2</Race>
    <Class>updated_Class2</Class>
    <Strength>150</Strength>
    <Notifications>
      <notification>
        <title>Sell wind compare tonight budget everyone.</title>
        <message>Own final protect sign Congress or. Close magazine special fly probably
          customer. Happy board later crime kid.</message>
        <event name="camera">
          <date>1975-03-09</date>
          <details>Include practice ready adult behavior mind.</details>
        </event>
      </notification>
    </Notifications>
  </Character>
  <links>
    <link rel="self" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&Email=tanya12@example.org&method=GET"/>
    <link rel="update" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&Email=tanya12@example.org&method=PUT"/>
    <link rel="delete" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&Email=tanya12@example.org&method=DELETE"/>
    <link rel="subscription" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&SubscriptionID=sub_666f67752274&method=GET"/>
    <link rel="paymentMethod" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&PaymentMethodID=pm_666f677522754&method=GET"/>
    <link rel="character" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&CharacterID=char_666f67752275c&method=GET"/>
  </links>
</User>
```



## - GET – SELF

```
/bin/bash
[maith@debian] ~$ curl -X GET "https://www1ab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&Email=tanya12@example.org"
<User UserID="b49d0554-397b-4496-86c2-e393d78fce91" Email="tanya12@example.org" SubscriptionCount="1" PaymentMethodCount="1">
  <Subscription>
    <SubscriptionID>1000</SubscriptionID>
    <StartDate>2023-07-26T13:32:00.011601</StartDate>
    <EndDate>2024-11-06T08:55:53.791368</EndDate>
    <Amount>57</Amount>
  </Subscription>
  <PaymentMethod>
    <PaymentMethodID>1000</PaymentMethodID>
    <Type>VISA 16 digit</Type>
    <Details>
      <CardNumber>3534077888429252</CardNumber>
      <ExpiryDate>06/25</ExpiryDate>
    </Details>
  </PaymentMethod>
  <Character>
    <CharacterID>f1264a91-3623-4465-ab20-0bc61c24bd5b</CharacterID>
    <Name>jamesconnie</Name>
    <Realm>Realm2</Realm>
    <Race>Race2</Race>
    <Class>Class2</Class>
    <Strength>86</Strength>
    <Notifications>
      <notification>
        <title>Sell wind compare tonight budget everyone.</title>
        <message>Own final protect sign Congress or. Close magazine special fly probably
          customer. Happy board later crime kid.</message>
        <event name="camera">
          <date>1975-03-09</date>
          <details>Include practice ready adult behavior mind.</details>
        </event>
      </notification>
    </Notifications>
  </Character>
  <links>
    <link rel="self" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&Email=tanya12@example.org&method=GET"/>
    <link rel="update" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&Email=tanya12@example.org&method=PUT"/>
    <link rel="delete" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&Email=tanya12@example.org&method=DELETE"/>
    <link rel="subscription" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&SubscriptionID=sub_666f677522747&method=GET"/>
    <link rel="paymentMethod" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&PaymentMethodID=pm_666f677522754&method=GET"/>
    <link rel="character" href="server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&CharacterID=char_666f67752275c&method=GET"/>
  </links>
</User>
[maith@debian] ~$
```

## - GET – SUBSCRIPTION – PAYMENT – CHARACTER

```
/bin/bash
/bin/bash 211x47

[maith@debian]~$ curl -X GET "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&SubscriptionID=1000&method=GET"
<Subscription>
  <SubscriptionID>1000</SubscriptionID>
  <StartDate>2023-07-26T13:32:00.011601</StartDate>
  <EndDate>2024-11-06T08:55:53.791368</EndDate>
  <Amount>57</Amount>
</Subscription>
[maith@debian]~$ curl -X GET "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=b49d0554-397b-4496-86c2-e393d78fce91&PaymentMethodID=1000&method=GET"
<PaymentMethod>
  <PaymentMethodID>1000</PaymentMethodID>
  <Type>VISA 16 digit</Type>
  <Details>
    <CardNumber>3534077888429252</CardNumber>
    <ExpiryDate>06/25</ExpiryDate>
  </Details>
</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"
<Character>
  <CharacterID>f1264a91-3623-4465-ab20-0bc61c24bd5b</CharacterID>
  <Name>jamesconnie</Name>
  <Realm>Realm2</Realm>
  <Race>Race2</Race>
  <Class>Class2</Class>
  <Strength>86</Strength>
  <Notifications>
    <notification>
      <title>Sell wind compare tonight budget everyone.</title>
      <message>Own final protect sign Congress or. Close magazine special fly probably
        customer. Happy board later crime kid.</message>
      <event name="camera">
        <date>1975-03-09</date>
        <details>Include practice ready adult behavior mind.</details>
      </event>
    </notification>
  </Notifications>
</Character>
[maith@debian]~$
```

## - DELETE – SELF

```
/bin/bash
/bin/bash 238x52

[maith@debian]~$ 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"
<?xml version="1.0"?>
<links>
  <link rel="all-users" href="server.php?method=GET"/>
  <link rel="create-user" href="server.php?method=POST"/>
</links>
```

## TASK C : RFC 6902

### - PATCH

```
/bin/bash
[maith@debian]~$ curl -X PATCH "https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=666c4b716d0b3&Email=newuser@example.com" \
-H "Content-Type: application/json" \
-d '{"op": "replace", "path": "/PaymentMethod/Type", "value": "Mastercard by TASK C RFC 6902"}' \
-i
HTTP/1.1 200 OK
Date: Mon, 17 Jun 2024 09:08:53 GMT
Server: Apache/2.4.52 (Ubuntu)
Vary: Accept-Encoding
Content-Length: 188
Content-Type: application/xml
<debug>Updated /Users/User[UserID='666c4b716d0b3' and @Email='newuser@example.com']/PaymentMethod/Type to Mastercard by TASK C RFC 6902</debug><success>XML updated successfully.</success>[maith@debian]~$
```

## 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=newuser@example.com" -H "Accept: application/xml"
```

### GET – JSON:

curl -X GET

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

### PUT:

curl -X PUT

```
"https://wwwlab.cs.univie.ac.at/~alrubayem88/assignment6/server.php?UserID=666de6e4bf003&Email=newuser@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>
  <Race>updated_race</Race>
  <Class>updated_class</Class>
  <Strength>150</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>
```

### 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:**

```
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"
```

#### **PUT – SELF:**

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

```
-H "Content-Type: application/xml" \
```

```
-d '<?xml version="1.0" encoding="UTF-8"?>
```

```
<User>
```

```
  <Email>tanya12@example.org</Email>
```

```
  <StartDate>2024-05-01T00:00:00</StartDate>
```

```
  <EndDate>2025-05-01T00:00:00</EndDate>
```

```
  <Amount>75.00</Amount>
```

```
  <Type>Mastercard</Type>
```

```
  <CardNumber>5555555555554444</CardNumber>
```

```
  <ExpiryDate>12/30</ExpiryDate>
```

```
  <Name>updated_jamesconnie</Name>
```

```
  <Realm>updated_Realm2</Realm>
```

```
  <Race>updated_Race2</Race>
```

```
  <Class>updated_Class2</Class>
```

```
<Strength>150</Strength>
<PrimitiveElement>item1</PrimitiveElement>
<PrimitiveElement>item2</PrimitiveElement>
<PrimitiveElement>item3</PrimitiveElement>
<ObjectElement>
  <number>1</number>
  <object>sword</object>
</ObjectElement>
<ObjectElement>
  <number>2</number>
  <object>shield</object>
</ObjectElement>
</User>
```

#### **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=newuser@example.com" \
```

```
-H "Content-Type: application/json" \
```

```
-d '[{"op": "replace", "path": "/PaymentMethod/Type", "value": "Mastercard by TASK C RFC 6902"}]' \
```

```
-i
```