

Write a data transformation Java class that transforms given;

1. list of name:value data into JSON Object data
2. JSON formatted string data into JSON Object data
3. JSON data into name:value Map
4. JSON data into XML data

Within your class, make sure to handle/process;

1. Malformed data
2. Data in wrong format

Solution:

Program code:

Jsonprocessor.java

```
import org.json.*;
import java.util.*;

public class Jsonprocessor {
    public static void main(String args[]) throws JSONException {
        JSONObject myJson = new JSONObject();
        Map < String, String > myMap = new HashMap < String, String > ();
        //map is initialized
        myMap.put("id", "1");
        myMap.put("name", "test_name");
        myMap.put("address", "test_address");

        //convert list of name:value data into JSON Object data
        System.out.println("\nList of name:value data into JSON Object data");
        try {
            myJson = new JSONObject(myMap);
            //display the json object
            System.out.println(myJson);
        } catch (Exception exception) {
            System.out.println("Data not in expected format. Error: " +
exception);
        }

        //convert JSON formatted string data into JSON Object data
        System.out.println("\nJSON formatted string data into JSON Object
data");
        String jsonString = "{
'id':'1','name':'test_name','address':'test_address'}";
        try {
            JSONObject json = new JSONObject(jsonString);
            //display the json object
            System.out.println(json);
        } catch (org.json.JSONException exception) {
```

```

        System.out.println("Given string is not formatted correctly! Error: " + exception);
    }

    //convert JSON data into name:value Map
    System.out.println("\nJSON data into name:value Map");
    try {
        Map mapFromJson = myJson.toMap();
        //display the Map
        System.out.println(mapFromJson.toString());
    } catch (org.json.JSONException exception) {
        System.out.println("Data is not formatted correctly! Error: " + exception);
    }

    //convert JSON data into XML data
    System.out.println("\nJSON data into XML data");
    try {
        String str = XML.toString(myJson);
        //display the XML
        System.out.println(str);
    } catch (org.json.JSONException exception) {
        System.out.println("Data is not formatted correctly! Error: " + exception);
    }
}
}

```

Steps to run the program:

1. Download org.json package which is required by the code.
2. Put the jar file in the same directory where the code lies.
3. Run following command to compile the code
`javac -cp json-20210307.jar Jsonprocessor.java`
4. Finally execute the program
`java -cp json-20210307.jar:. Jsonprocessor`

Explanation:

Map variable myMap is initialized with some data which is transformed to JSON object using JSONObject constructor. Similarly JSON formatted string jsonString is also transformed to JSON object.

JSON Object is then transformed to Map using toMap() method of JSONObject class. Finally, the XML class is used to convert JSONObject to XML.

Outputs:

```
List of name:value data into JSON Object data
{"name":"test_name","address":"test_address","id":"1"}

JSON formatted string data into JSON Object data
{"address":"test_address","name":"test_name","id":"1"}

JSON data into name:value Map
{address=test_address, name=test_name, id=1}

JSON data into XML data
<name>test_name</name><address>test_address</address><id>1</id>
```

Exception Handling when wrong formatted string is supplied to transform to JSONObject:

```
List of name:value data into JSON Object data
{"name":"test_name","address":"test_address","id":"1"}

JSON formatted string data into JSON Object data
Given string is not formatted correctly! Error: org.json.JSONException: Expected a ',' or '}' at 11 [character 12 line 1]

JSON data into name:value Map
{address=test_address, name=test_name, id=1}

JSON data into XML data
<name>test_name</name><address>test_address</address><id>1</id>
```

References:

Albano, J. (2020, March 30). Introduction to JSON With Java. Dzone.Com .

<https://dzone.com/articles/introduction-to-json-with-java>

json Java documentation Version 20210307. (2021, March 7). Jar-Download.

<https://jar-download.com/artifacts/org.json/json/20210307/documentation>