

## Example of XML errors

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Have a look at the XML document below. Identify all the syntax errors.

```
01 <?xml version= "1.0" ?>
02 <!DOCTYPE countryCollection SYSTEM "countryList.dtd">
03 <CountryList>
04 <Nations TotalNations ="3"/>
05 <!--Data from CIA --Year Book -->
06 <Country CountryCode="1">
07 <OfficialName>United States of America</officialName>
08 <Label>Common Names:</label>
09 <CommonName>United States</commonName>
10 <CommonName>U.S.</commonName>
11 <Label>Capital:</capital>
12 <Capital cityNum="1">Washington, D.C. </label>
13 <2ndCity cityNum="2">New York </2ndCity>
14 <Label>Major Cities:</label>
15 <MajorCity cityNum="3">Los Angeles </majorCity>
16 <MajorCity cityNum="4">Chicago </majorCity>
17 <MajorCity cityNum="5">Dallas </majorCity>
18 <Label>Bordering Bodies of Water:</label>
19 <BorderingBodyOfWater> Atlantic Ocean </borderingBodyOfWater>
20 <BorderingBodyOfWater> Pacific Ocean </borderingBodyOfWater>
21 <BorderingBodyOfWater> Gulf of Mexico </borderingBodyOfWater>
22 <Label>Bordering Countries:</label>
23 <BorderingCountry CountryCode="1"> Canada </borderingCountry>
24 <BorderingCountry CountryCode ="52"> Mexico </borderingCountry>
25 </country>
26 <Country CountryCode="81">
27 <OfficialName> Japan </officialName>
28 <Label>Common Names:</label>
29 <CommonName> Japan </commonName>
30 <Label>Capital:</label>
31 <Capital>Tokyo</capital cityNum="1">
32 <2ndCity cityNum="2">Osaka </2ndCity>
33 <Label>Major Cities:</label>
34 <MajorCity cityNum="3">Nagoya </majorCity>
35 <MajorCity cityNum="4">Osaka </majorCity>
36 <MajorCity cityNum="5">Kobe </majorCity>
37 <Label>Bordering Bodies of Water:</label>
38 <BorderingBodyOfWater>Sea of Japan </borderingBodyOfWater>
39 <BorderingBodyOfWater>Pacific Ocean </borderingBodyOfWater>
40 </country>
41 <Country CountryCode="254">
42 <OfficialName> Republic of Kenya </officialName>
```

```

43 <Label>Common Names:</label>
44 <CommonName> Kenya </commonName>
45 <Label>Capital:</label>
46 <Capital cityNum='1'>Nairobi </capital>
47 <2ndCity cityNum='2'>Mombasa</2ndCity>
48 <Label>Major Cities:</label>
49 <MajorCity cityNum='3'>Mombasa </majorCity>
50 <MajorCity cityNum='4'>Lamu </majorCity>
51 <MajorCity cityNum='5'>Malindi </majorCity>
52 <MajorCity cityNum='6' cityNum='7'>Kisumu-Kericho </majorCity>
53 <Label>Bordering Bodies of Water:</label>
54 <BorderingBodyOfWater <!--Also Lake Victoria --> > Indian Ocean
</borderingBodyOfWater>
55 </country>

```

- wrong type of quotes used throughout the document; ASCII-type quotes should be used ( U+0022 and U+0027 ), instead of the directional quotation marks.
- the file "countryList.dtd" should be present in the same folder as the XML document, otherwise it cannot be a valid document
- the word following DOCTYPE must be the same as the root element
- one type of opening quote, different type used for closing on L17, L36
- a sequence of more than one dash characters is not allowed within comments ( L5 )
- on L7, the element OfficialName is terminated in the wrong casing, as officialName; it should be terminated as OfficialName - uppercase 'O', same as the starting tag.
- on L11, the Label element is opened, but for closing the capital tag is used; the closing tag should be label
- on L12, theCapital tag should have a matching Capital closing tag, instead of /Label
- on L13, the element name "2ndCity" is invalid; element names must not begin with numbers (<http://www.w3.org/TR/REC-xml/#NT-NameStartChar> )
- almost all elements in the document have incorrect ending tags - with the first letter in lowercase; the element name should be exactly the same, in both the starting and the ending tags.
- on L31, the ending tag of the Capital element has an attribute - which is illegal. The attribute should be moved in the starting tag.
- on L52, the cityNum attribute is listed twice for the MajorCity element; this is illegal, each attribute is allowed to appear only once ( <http://www.w3.org/TR/REC-xml/#sec-starttags> ).
- on L54, a comment appears inside markup; this is illegal (<http://www.w3.org/TR/REC-xml/#sec-comments> ), it should be moved outside the tag, into the element's contents.
- the document should contain one root element, which must have starting and closing tags - so the CountryList element must be closed with it's respective closing tag.

After correcting the errors, the following well-formed document results:

```

01 <?xml version= "1.0" ?>
02 <!--<!DOCTYPE countryCollection SYSTEM "countryList.dtd">-->
03 <CountryList>
04 <Nations TotalNations ="3"/>

```

```
05 <!--Data from CIA -Year Book -->
06 <Country CountryCode="1">
07 <OfficialName>United States of America</OfficialName>
08 <Label>Common Names:</Label>
09 <CommonName>United States</CommonName>
10 <CommonName>U.S.</CommonName>
11 <Label>Capital:</Label>
12 <Capital cityNum="1">Washington, D.C. </Capital>
13 <SecondCity cityNum="2">New York </SecondCity>
14 <Label>Major Cities:</Label>
15 <MajorCity cityNum="3">Los Angeles </MajorCity>
16 <MajorCity cityNum="4">Chicago </MajorCity>
17 <MajorCity cityNum="5">Dallas </MajorCity>
18 <Label>Bordering Bodies of Water:</Label>
19 <BorderingBodyOfWater> Atlantic Ocean </BorderingBodyOfWater>
20 <BorderingBodyOfWater> Pacific Ocean </BorderingBodyOfWater>
21 <BorderingBodyOfWater> Gulf of Mexico </BorderingBodyOfWater>
22 <Label>Bordering Countries:</Label>
23 <BorderingCountry CountryCode="1"> Canada </BorderingCountry>
24 <BorderingCountry CountryCode ="52"> Mexico </BorderingCountry>
25 </Country>
26 <Country CountryCode="81">
27 <OfficialName> Japan </OfficialName>
28 <Label>Common Names:</Label>
29 <CommonName> Japan </CommonName>
30 <Label>Capital:</Label>
31 <Capital cityNum="1">Tokyo</Capital>
32 <SecondCity cityNum="2">Osaka </SecondCity>
33 <Label>Major Cities:</Label>
34 <MajorCity cityNum="3">Nagoya </MajorCity>
35 <MajorCity cityNum="4">Osaka </MajorCity>
36 <MajorCity cityNum="5">Kobe </MajorCity>
37 <Label>Bordering Bodies of Water:</Label>
38 <BorderingBodyOfWater>Sea of Japan </BorderingBodyOfWater>
39 <BorderingBodyOfWater>Pacific Ocean </BorderingBodyOfWater>
40 </Country>
41 <Country CountryCode="254">
42 <OfficialName> Republic of Kenya </OfficialName>
43 <Label>Common Names:</Label>
44 <CommonName> Kenya </CommonName>
45 <Label>Capital:</Label>
46 <Capital cityNum='1'>Nairobi </Capital>
47 <SecondCity cityNum='2'>Mombasa</SecondCity>
48 <Label>Major Cities:</Label>
49 <MajorCity cityNum='3'>Mombasa </MajorCity>
50 <MajorCity cityNum='4'>Lamu </MajorCity>
51 <MajorCity cityNum='5'>Malindi </MajorCity>
52 <MajorCity cityNum='6'>Kisumu-Kericho </MajorCity>
53 <Label>Bordering Bodies of Water:</Label>
54 <BorderingBodyOfWater > <!--Also Lake Victoria -->Indian Ocean</
BorderingBodyOfWater>
55 </Country>
```

56</CountryList>