

Exercise 02-03 - Enhancing messages

Explanation

One of the possible solutions for this exercise is in `solution/solution.sch`:

```
<schema xmlns="http://purl.oclc.org/dsdl/schematron" queryBinding="xslt3">
  <pattern>
    <rule context="/*/book">
      <assert test="exists(@pagecount)">The book with code <value-of select="@code"/
    > must have a pagecount attribute</assert>
    </rule>
    <rule context="/*/magazine">
      <assert test="exists(@articlecount)">The magazine with code <value-of select="@code"/
    > must have an articlecount attribute</assert>
    </rule>
  </pattern>
  <pattern>
    <rule context="/*/*">
      <assert test="string-length(@code) eq 4">The code <value-of select="@code"/
    > is invalid, it must be 4 characters long</assert>
    </rule>
  </pattern>
</schema>
```

It uses the `<value-of select="@code"/>` element to insert the value of the `code` attribute in the messages.

Additional changes

One of the possible solutions for the additional changes requested is in `solution/solution-extended.sch`:

```
<schema xmlns="http://purl.oclc.org/dsdl/schematron" queryBinding="xslt3">
  <pattern>
    <rule context="/*/book">
      <assert test="exists(@pagecount)">The book with code <value-of select="@code"/
    > must have a pagecount attribute</assert>
    </rule>
    <rule context="/*/magazine">
      <assert test="exists(@articlecount)">The magazine with code <value-of select="@code"/
    > must have an articlecount attribute</assert>
    </rule>
  </pattern>
  <pattern>
    <rule context="/*/book/@pagecount">
      <assert test="xs:integer(.) lt 200">The pagecount of <value-of select="."/
    > for book code <value-of select="..@code"/> must be less than 200</assert>
    </rule>
    <rule context="/*/magazine/@articlecount">
      <assert test="xs:integer(.) lt 6">The article count of <value-of select="."/
    > for magazine code <value-of select="..@code"/> must be less than 6</assert>
    </rule>
  </pattern>
  <pattern>
    <rule context="/*/*">
      <assert test="string-length(@code) eq 4">The code <value-of select="@code"/
    > is invalid, it must be 4 characters long</assert>
    </rule>
  </pattern>
</schema>
```

Please notice that the checks for the page and article count are in a pattern on their own. The rules fire on the *attribute* (so not on the element). This makes sure these rules don't apply to (invalid) books/magazines that have no `pagecount/articlecount` attribute.

Also notice the use of the `xs:integer()` function to explicitly convert the value of the attribute to an integer. A numerical comparison will not work without this!