

Section 6 – XML & XPath

CSE 414

The Mondial Database

The Mondial database holds a variety of facts about countries around the world. It is stored in a large XML file. Below is an example of how the data is arranged:

```
<mondial>
  <continent id="europe">
    <name>Europe</name>
    <area>9562488</area>
  </continent>
  <country car_code="D" capital="cty-Germany-Berlin">
    <name>Germany</name>
    <population>83536115</population>
    <population_growth>0.67</population_growth>
    <infant_mortality>6</infant_mortality>
    <gdp_total>1452200</gdp_total>
    <indep_date>1871-01-18</indep_date>
    <government>federal republic</government>
    <encompassed continent="europe" percentage="100"/>
    <border country="F" length="451"/>
    <border country="A" length="784"/>
    <province id="prov-Germany-2" capital="cty-Germany-9">
      <name>Baden Wurttemberg</name>
      <city id="cty-cid-cia-Germany-9">
        <name>Stuttgart</name>
        <longitude>9.1</longitude>
        <latitude>48.7</latitude>
        <population year="95">588482</population>
      </city>
    </province>
  </country>
  <river id="river-Thjorsa" country="IS">
    <name>Thjorsa</name>
    <to watertype="sea" water="sea-Atlantic"/>
    <area>7530</area>
    <length>230</length>
    <source country="IS">
      <longitude>-18</longitude>
      <latitude>65</latitude>
    </source>
    <estuary country="IS">
      <longitude>-20.8</longitude>
      <latitude>63.9</latitude>
    </estuary>
  </river>
</mondial>
```

Questions

You will practice querying the Mondial database with XPath, which is a way to specify the elements within an XML document using a notation that is reminiscent of the Unix file system.

For each question below, provide an XPath expression that will extract the appropriate data.

Q0. List the entire contents of Mondial.

Q1. Give a list of all the countries in XML.

Q2. Give a list of the countries that Germany borders.

Q3. Give the names of all the countries with population at least 10 million.

Q4. Find all cities located in countries that are partially or fully part of Europe. (The cities themselves don't have to be in Europe.)

Q5. Find the names of all rivers that start north of the equator (at a positive latitude).

Q6. Find the names of all rivers that start in Iceland.

Q7. Get the names of all countries in both Asia and Europe.