

This exercise complements classroom discussion on XQuery, XSLT, and related XML languages.

1. List the members of your group below. Underline your name.
  
2. Consider an XML database suggested by the following excerpt of a file `ferndb.xml`:

```

<FernDB>
  <Month lang="en">June</Month>
  <Fern>
    <CommonName lang="en">Ostrich Fern</CommonName>
    <BinomialName>
      <Genus>Matteuccia</Genus>
      <Species>struthiopteris</Species>
    </BinomialName>
    <HeightLow units="ft">2</HeightLow>
    <HeightUp units="ft">5</HeightUp>
    <Habitats>
      <Habitat id="woods"/>
    </Habitats>
    <FruitDate>
      <Day>5</Day>
    </FruitDate>
  </Fern>
  <Observation>
    <Date format="ISO">2012-06-01</Date>
    <Location>near shed</Location>
    <Fern>Ostrich Fern</Fern>
  </Observation>
</FernDB>

```

Express the following in XQuery:

- (a) The binomial names of all ferns observed “near shed.”
  
- (b) The common and binomial names of ferns that are listed in all observations “near shed.”
  
- (c) The common and binomial names of ferns that are listed in all observations “near shed” in the year 2012.

3. Express in XSLT:

(a) *Hello, World!* You may skip boilerplate for the *rest* of the questions.

(b) List of languages used by the common names, one per line.

(c) List of all units used by the height elements.

(d) An answer to Question 3c analogous to Figure 12.23 in the textbook produces spurious output. What is it? Why? How may we eliminate it?

(e) How may duplicates be eliminated for Question 3c?

(f) An HTML table of common names of ferns with height consistent with 3 ft.

4. (Homework) Experiment with XSLT using a suitable query engine, such as *xsltpro*. In particular, try the queries from this exercise and the textbook.