

Data Bases II

XQuery exercises

Michele Beretta

michele.beretta@unibg.it



Restaurants

Given the following DTD:

```
<!ELEMENT restaurants (restaurant+)>
<!ELEMENT restaurant (name, dish+)>
<!ELEMENT dish (name, ingredient+, price)>
<!ELEMENT ingredient (name, weight)>
<!ELEMENT name (#PCDATA)>
<!ELEMENT weight (#PCDATA)>
<!ELEMENT price (#PCDATA)>
```

Restaurants

Answer the following:

1. List all dishes served by restaurant "UnibgFood"
2. For each restaurant, return the number of available dishes
3. How many restaurants serve dishes with mushrooms?
4. For each restaurant identify the most expensive dish(es)
5. For each restaurant identify the dishes that cost at least 90% of the price of the most expensive dish (in desc. price order)
6. Which is the restaurant with the maximum number of dishes?
7. For each ingredient return the list of restaurants that use it
8. For each restaurant list the names of its dishes, sorting them by number of contained ingredients

Santa Claus goes geek

The website of Good Old Santa allows children to submit letters with their wishlist for Christmas via Web Service invocations, whose WSDL exposes an interface with the following format for data encoding:

```
<!ELEMENT Letters (Letter*)>
<!ELEMENT Letter ( ChildName, Address, Country, Toy+ )>
<!ELEMENT NameChild (#PCDATA)>
<!ELEMENT Address (#PCDATA)>
<!ELEMENT Country (#PCDATA)>
<!ATTLIST Country TimeZone CDATA #Implied>
<!ELEMENT Toy (#PCDATA)>
<!ATTLIST Toy weight CDATA #Required>
```

1. Find the names of all children who did not ask for a mobile phone
2. Find the name of the Italian child whose letter has the heaviest toy list
3. For each country extract the average number of toys asked by children

Hierarchy of components

A shop sells electronic components, described in document catalog.xml. For each component the cost is represented and, for complex components, the internal structure:

```
<!ELEMENT Catalog (Component+)>
<!ELEMENT Component (Description, Component*)>
<!ATTLIST Component Code ID #REQUIRED,
                Cost CDATA #REQUIRED>
```

Where Description only contains PCDATA.

1. Extract the component that has the greatest number of sub-components (direct and indirect)
2. Build in XQuery an XML document that shows, for each leaf component *c*, the list of the codes of the components that contain *c*, ordered from the “lower” one to the “higher” one in the containment hierarchy