

Exercise 4

- (a) Write an RDF/RDFS model representing the following statements about URIs `Employee`, `Manager`, `Division`, `TopManager`, `Person`, `Man`, `Woman`, `City`, `livesIn`, `worksWith`, `isManagerOf`, `leadsDivision`, `worksInDivision`, `locatedIn`, `Ann`, `Bob`, `Jane`, `Joe`, `Rome`, `Naples`, `Milan`, `ABC`, `XYZ`.

1. `Employee`, `Manager`, `TopManager`, `Division`, `Man`, `Woman` and `City` are classes;
2. `TopManager` is a subclass of `Manager` which is a subclass of `Employee`;

3. `worksWith`, `livesIn`, `isManagerOf`, `leadsDivision` and `locatedIn` are properties;
4. `isManagerOf` is a subproperty of `worksWith`;
5. `isManagerOf` has domain `Manager` and range `Employee`;
6. `worksInDivision` has domain `Employee` and range `Division`;
7. `worksWith` has domain `Employee` and range `Employee`;
8. `livesIn` has domain `Person` and range `City`;
9. `locatedIn` has domain `Division` and range `City`;
10. Jane is a manager;
11. Bob and Ann are employees;
12. Joe is manager of Bob;
13. Jane lives in Rome;
14. Mary leads division XYZ of the company;
15. division ABC is located in Milan.

- (b) Write SPARQL queries corresponding to the following requests: (b1) return all the female managers of the male employees that live in Naples; (b2) return the cities of the divisions for which at least a male manager works; (b3) return every manager that works in a division located in Rome, and, optionally, the city where the manager lives.

b)

(b1)

PREFIX

rdf: <<http://www.w3.org/1999/02/22/rdf-syntax-ns#>>

myns: <<http://www.example.org/myVocabulary>>

SELECT ?f

WHERE{

?f rdf:type myns:Woman.

?f myns:isManagerOf ?e.

```
?e rdf:type myns:Man.  
?f myns:livesIn myns:Naples.  
}
```

(b2)

PREFIX

```
rdf: <http://www.w3.org/1999/02/22/rdf-syntax-ns#>  
myns: <http://www.example.org/myVocabulary>
```

SELECT ?c

WHERE{

```
?d myns:locatedIn ?c.  
?m myns:worksInDivision ?d.  
?m rdf:type myns:Manager.  
?m rdf:type myns:Man.
```

}

PREFIX

```
rdf: <http://www.w3.org/1999/02/22/rdf-syntax-ns#>  
myns: <http://www.example.org/myVocabulary>
```

SELECT ?m ?c

WHERE{

```
?m rdf:type myns:Manager.  
?m myns:worksInDivision ?d.  
?d myns:locatedIn myns:Rome.  
OPTIONAL{?m myns:livesIn ?c}.
```

}