

# Knowledge Graphs

## Exercise 2: RDF

### 2.1. Modeling in RDF

Model the following statements as RDF.

- Brass is an alloy made from copper and zinc.
- SPIEGEL is a German news magazine, whose headquarter is in Hamburg.
- An essay is comprised of an introduction, a main part, and a conclusion.
- Markus knows that Jutta lives in Darmstadt.
- Jutta says that her friend lives in Mannheim.
- Stefan thinks that Anna knows that he knows her father.

You can use RDF Distiller for validating your solutions:

<http://rdf.greggkelllogg.net/distiller>

**In case you are already familiar with jupyter notebooks, you can also use the Jupyter-RDFify [1] extension. An example notebook with installation and usage instructions is available in Ilias.**

[1] <https://github.com/SemWebNotebooks/Jupyter-RDFify>

## 2.2. Interpreting RDF

You are given the following RDF document telling you which students visit which courses.

```
:Peter :visits :Semantic_Web_Technologies .  
:Mary :visits :Semantic_Web_Technologies .  
:Peter :visits :Distributed_Systems .  
_:x :visits :Semantic_Web_Technologies .  
_:x :visits :Data_Mining .  
:Peter :visits _:y .  
:Mary :visits _:y .
```

How do you interpret this document? Think of questions like:

- Who is visiting which lecture?
- How many people visit a certain lecture?
- How many lectures are there?

Try to come up with a natural language paraphrase of the RDF document which is as precise as possible.

## 2.3. RDFa and Microdata

Create a small web page about a book, a movie or the like of your choice. Add RDFa annotations and validate the result in a web browser (for humans) and in Google's Developer Tools:

<https://developers.google.com/structured-data/testing-tool/>

Now try the same with Microdata.

## 2.4. FOAF

FOAF (an acronym for Friend of a Friend) is a semantic vocabulary for describing persons, their activities and their relations to other people and objects. Look up the specification at <http://xmlns.com/foaf/spec/> and write your own FOAF file in Turtle Syntax. Validate it afterwards.

You can also use a FOAF generator like <http://www.ldodds.com/foaf/foaf-a-matic.html>