

Semantic Web

Assignment 4

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Please submit your solutions to your group's OLAT folder.
Always list all group members contributing to the solution!
Do not plagiarize from others!

For all the assignment questions that require you to code, make sure to include the code in the answer sheet, along with a separate Python file.

Team Name: gamma



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1 RDF

15 points

Consider the following information:

Los Angeles is a city in the state of California in the USA. Its population is estimated at 4 million. The author Bret Easton Ellis, who is 57 years old, is a citizen of Los Angeles. His most famous work, *American Psycho*, was published in 1991.

1.1

5 points

Create an RDF graph which incorporates the information given above.

1.2

5 points

Represent the information above in RDF using Turtle syntax. You must provide at least 7 statements. For this task use the following URIs for their respective elements:

Los Angeles	https://en.wikipedia.org/wiki/Los_Angeles
California	https://en.wikipedia.org/wiki/California
Bret Easton Ellis	https://en.wikipedia.org/wiki/Bret_Easton_Ellis
American Psycho	https://en.wikipedia.org/wiki/American_Psycho

```
1: @prefix wiki: <https://en.wikipedia.org/wiki/> .
2: @prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
3: @prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
4: @prefix rel: <http://www.perceive.net/schemas/relationship/> .
5:
6: wiki:Los_Angeles rel:is "City"^^xsd:string ;
7: rel:in_State wiki:California ;
8: rel:in_Country "USA"^^xsd:string ;
9: rel:has_Population "4000000"^^xsd:integer ;
10: rel:has_citizen wiki:Bret_Easton_Ellis .
11:
12: wiki:Bret_Easton_Ellis rel:age_in_Years "57"^^xsd:integer ;
13: rel:has_Profession "Author"^^xsd:string ;
14: rel:Citizen wiki:Los_Angeles ;
15: rel:most_famous_work wiki:American_Psycho .
16:
17: wiki:American_Psycho rel:year_published "1991"^^xsd:integer ;
18: rel:author wiki:Bret_Easton_Ellis .
```

1.3

5 points

Translate your Turtle RDF into RDF/XML. You must submit it in a separate file. You can use <https://www.w3.org/RDF/Validator/> to check if your RDF document is well-formed.

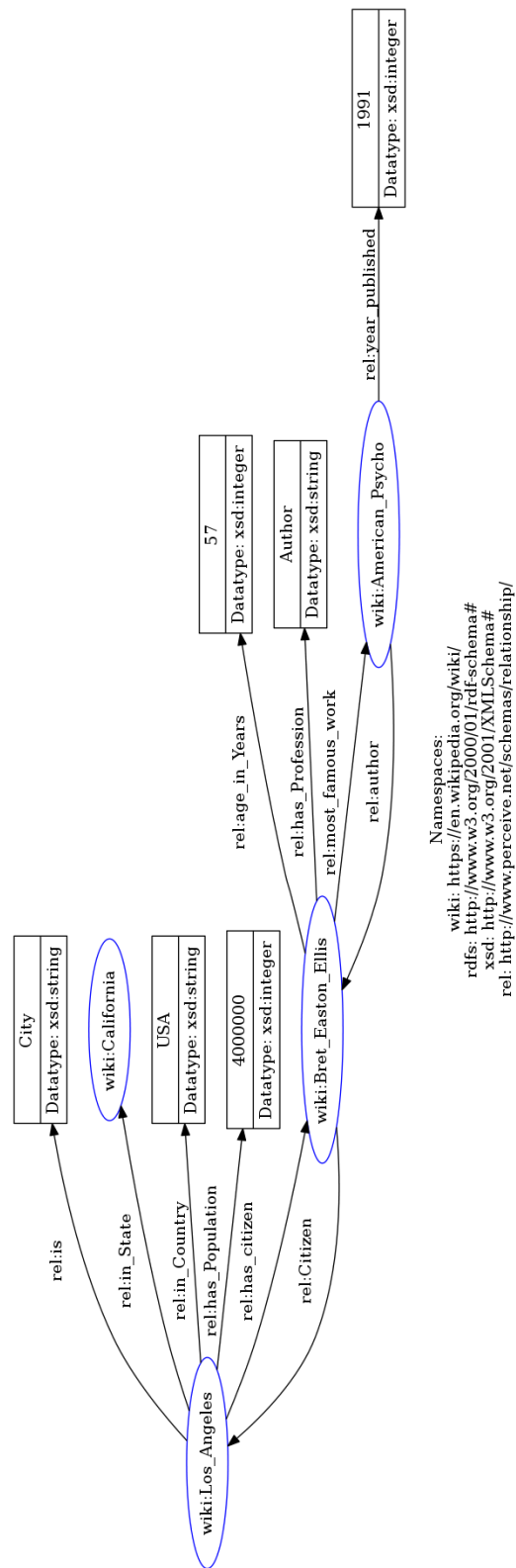


Figure 1: Caption in landscape to a figure in landscape.

2 Programming Task

5 points

In this task you shall write some code in Python for loading and analyzing RDF data from DBpedia. Your code must get the description of Berlin (<http://dbpedia.org/data/Berlin.rdf>). You can use RDFLib https://rdflib.readthedocs.io/en/stable/intro_to_parsing.html to parse RDF files. You must write a function with the signature `RELATEDTO(PROPERTYURI)` that prints all the resources that relate to Berlin via the URI `PROPERTYURI`. For instance, `RELATEDTO("http://dbpedia.org/property/namedAfter")` should print http://dbpedia.org/resource/422_Berolina.

Provide the Python code in an external file.

Important Notes

Submission

- Solutions have to be submitted to your group's OLAT folder.
- The name of the group and the names of all participating students must be listed on each submission.
- Solution format: all solutions as *one* PDF document. Programming code has to be submitted as Python code to the OLAT folder. Upload *all* `.py` files of your program! Use **UTF-8** as the file encoding. *Other encodings will not be taken into account!*
- Check that your code compiles without errors.
- Make sure your code is formatted to be easy to read.
 - Make sure you code has consistent [indentation](#).
 - Make sure you comment and document your code adequately in English.
 - Choose consistent and intuitive names for your identifiers.
- Do *not* use any accents, spaces or special characters in your filenames.

Acknowledgment

This pdfLaTeX template was adapted by Isabelle Kuhlmann based on the LuaLaTeX version by Lukas Schmelzeisen.

ℒ_AT_EX

Use `pdflatex assignment_X.tex` to build your PDF.