E02 The Linked Data Principles

1. Quiz

Decide whether the following statements are true or false.

Q1.1 All data published as Linked Data should be in RDF.

Q1.2 In Turtle syntax, “a” is short for “One”^^<http://www.w3.org/2001/XMLSchema#integer>.

Q1.3 Blank nodes are allowed on object position of an RDF triple.

Q1.4 Literals are allowed on subject position of an RDF triple.

Q1.5 In Turtle syntax, » <#foo> <#bar> false . « is short for , » <#foo> <#bar> "false"^^<http://www.w3.org/2001/XMLSchema#boolean> . «

2. Exercises

E2.1 Draw a graphical representation of the following RDF document:

```
@prefix : <http://example.org/bar#> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .

:alice  :knows     :bob .
:alice  :name      “Alice” .
:bob    :knows     :alice .
:bob    :knows     _:c .
:bob    :name      “Robert”@en .
:bob    :dob       “1970”^^xsd:date.
:bob    :homepage  <http://bob.example.org>.
_:c     :name      “Carl” .
```

E2.2 Provide an abbreviated version of the set of triples from Question E2.1 using the Turtle notation. Use as many abbreviations as possible.

E2.3 Provide the simple triples to the following Turtle document:

```
@prefix : <http://example.org/bar#> .
[ :name “Alice” ; :knows [
    :name “Bob” ;
    :knows [
       :name “Clara” ];
     :mbox <mailto:bob@example.org> ] ].
```

E2.4 Decide whether the following RDF documents adhere to the Linked Data principles and explain why and why not. The content of the documents is described in the following. Assume that URIs within the documents are dereferenceable.

Linked Data Principles:
1. Use URIs as names for things.
2. Use HTTP URIs so that people can look up those names.
3. When someone looks up a URI, provide useful information, using the standards (RDF*, SPARQL).
4. Include links to other URIs, so that they can discover more things.

- Document available at **ftp://example.org/france.ttl**

```
@prefix exr: <ftp://example.org/france.ttl#> .

exr:Eiffel_Tower exr:location    exr:Paris, exr:France ;
     exr:buildingEndDate   "15 March 1889" .
```

- Document available at **http://example.org/germany1.ttl**

```
@prefix : <#> .
:Berlin    :areaTotal      "891850000.00” ;
           :leaderTitle    :Governing_Mayor_of_Berlin .
:Karlsruhe :name           "Karlsruhe"@de ;
           :country        :Germany ;
           :federalState   :Baden-Wuerttemberg .
```

- Document available at **http://example.org/germany2.ttl**

```
@prefix : <#> .
@prefix owl: <http://www.w3.org/2002/07/owl#> .
@prefix geodata: <http://www.geonames.org/> .

:Germany    :name "Germany"@en, "Deutschland"@de, "Alemania"@es ;
            :capital :Berlin .

:Berlin    :areaTotal      "891850000.00” ;
           owl:sameAs      geodata:Berlin .

:Karlsruhe  :name           "Karlsruhe"@de ;
            :country        :Germany ;
           owl:sameAs      geodata:Karlsruhe .
```

Fill the following table indicating whether the previous documents adhere to each LD principle.

Document	**Principle 1**	**Principle 2**	**Principle 3**	**Principle 4**
ftp://example.org/france.ttl				
http://example.org/ germany1.ttl				
http://example.org/ germany2.ttl				

5. Practices

P3.1 Use the IDLab Turtle Validator to correct the syntax of the broken Turtle file below.

```
PREFIX ex: <www.example.de/>
@prefix dum: <www.dummy.de/> .

ex:bob  ex:knows   _:alice ,
                   [ du:name jim]

:alice dum:age "20" .
```

P3.2 Retrieve the resource behind DBpedia's URI for Nuremberg with cURL `https://dbpedia.org/resource/Nuremberg`.

```
curl.exe https://dbpedia.org/resource/Nuremberg
```

P3.3 Check out the response header of Nuremberg's information resource to find the link to download the data in Turtle format. It is best to use a text editor instead of the terminal. For that. We save the header as header.txt.

```
curl.exe -o header.txt --head https://dbpedia.org/page/Nuremberg
```

P3.4 Retrieve the RDF data of Nuremberg from DBpedia and save it as nuremberg.ttl.

```
curl.exe -o nuremberg.ttl  https://dbpedia.org/data/Nuremberg.ttl
```

P3.5 We can use triplr to convert the Turtle data to ntriples. Open a Web browser and insert the following URL.

```
https://triplr.org/ntriples/dbpedia.org/data/Nuremberg.ttl
```

P3.6 Install Mozilla Firefox and add the RDF Browser extension. Now go to `https://dbpedia.org/data/Nuremberg.ttl` with the extension activated. URIs are now clickable.