

Task 1: Linked Open Data Cloud

Have a look at the Linked Open Data Cloud: lod-cloud.net.

1.1 What does the Linked Open Data Cloud show?

1.2 Can you name central nodes and detect important subgroups of nodes in the cloud?

Task 2: Knowledge Graphs

Find differences and similarities of the information about Hannover in the following knowledge graphs and resources:

DBpedia	http://dbpedia.org/page/Hanover
Wikidata	https://www.wikidata.org/wiki/Q1715
Google Knowledge Graph	https://www.google.com/search?q=hannover
Wikipedia Infoboxes	https://en.wikipedia.org/wiki/Hanover

Task 3: Understanding SPARQL queries

For each of the following queries:

- Explain which results you expect from the query.
- Execute the query at <https://dbpedia.org/sparql> and check the results.

What do you notice when you execute Query 3.3, compared to the other queries?

Query 3.1

```
SELECT ?leader WHERE {  
  ?city rdfs:label "Hanover"@en .  
  ?city dbo:leaderName ?leader .  
}
```

Query 3.2

```
SELECT ?a ?b ?c WHERE {  
  ?a ?b ?c .  
  ?c rdfs:label "Hanover"@en .  
}
```

Query 3.3

```
SELECT ?subject WHERE {  
  ?subject dbo:abstract ?abstract .  
  FILTER regex(?abstract, "Hanover") .  
  FILTER regex(?abstract, "computer", "i") .  
}
```

Query 3.4

```
SELECT ?player WHERE {  
  ?team rdfs:label "Hannover 96"@en .  
  ?player dbo:team ?team .  
  ?player dbo:height ?height .  
  FILTER(?height > 1.95) .  
}
```

Task 4: Writing SPARQL queries

For each of the following queries given in natural language::

- Write a SPARQL query to retrieve the needed information.
- Execute your query at <https://dbpedia.org/sparql> and check the results.

Query 4.1

What is the total population (“dbo:populationTotal”) of Hannover?

Query 4.2

Which entities have a label (“rdfs:label”) that ends with “Hannover”? Show their URIs and labels.

Query 4.3

Which persons were born and died in Hannover?

Query 4.4

Which districts of Hannover have a total population of less than 20,000?

More Information

SPARQL query language definition:

<https://www.w3.org/TR/rdf-sparql-query/>

Wikidata SPARQL endpoint:

<https://query.wikidata.org>

Wikidata SPARQL query examples with explanations:

https://www.wikidata.org/wiki/Wikidata:SPARQL_tutorial

YAGO demos:

<https://www.mpi-inf.mpg.de/departments/databases-and-information-systems/research/yago-naga/yago/demo/>

Google Knowledge Graph Search API (executable with key only):

<https://developers.google.com/knowledge-graph/>