

## INF3580/4580 – MANDATORY EXERCISE no. 3

**Published date:** 06.02.2018.

**Due date:** 14.02.2018 23:59.

**Delivery files:** 7: `exercise_1.rq`, ..., `exercise_7.rq`.

**Delivery attempts:** 1.

It is wise to read through the whole exercise text first. In these exercises we will write SPARQL queries to retrieve data from a Simpsons RDF file similar to the file we wrote in a previous mandatory exercise. For each of the exercises below write a SPARQL query whose results answer the question in the exercise. The data source will use the same vocabulary as in the first mandatory exercise. An example file is found at <http://sws.ifi.uio.no/inf3580/v15/oblig/3/simpsons.ttl><sup>1</sup>.

The same file is loaded into a SPARQL endpoint, <http://sws.ifi.uio.no/sparql/simpsons/>, which is also accessible through <http://sws.ifi.uio.no/sparqler/simpsons/>.

Each exercise which requires a **SELECT** query specifies the result variable names you must use, i.e., the variable names that shall follow the **SELECT** word. We require this in order to easier be able to test your delivery.

See W3C's SPARQL 1.1 Query Language<sup>2</sup> for definitions and examples. The SPARQLer Validator<sup>3</sup> might also come in handy.

### Exercise 1

Query: Find all Persons and order them by identifier, list also optionally their name. Use the result variable names `?person`, `?name`.

**Tip:** This is a simple query, where you will need to use **SELECT**, **WHERE**, **OPTIONAL** and **ORDER BY**. It is also important to set namespaces correctly in order for the query to work. If you do not get any results, try the query

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<sup>1</sup>Some parts of the `sws.ifi.uio.no`-server is at the time of publishing experiencing some issues, and we are working on fixing this. However, *MrOblig* is still working, so you can test your queries using that as described below.

<sup>2</sup><https://www.w3.org/TR/rdf-sparql-query/>

<sup>3</sup><http://sparql.org/query-validator.html>

```
SELECT ?s ?p ?o
WHERE {?s ?p ?o}
```

and see if you get the expected results and namespaces. This query lists *all* triples in the graph.

Mr. Oblig should also be helpful in weeding out typos and similar simple mistakes.

## Exercise 2

Query: Find everyone who has a mother or a father and list both the person and the mother or father. Order by mother/father. Use the result variable name `?person`, `?parent`.

## Exercise 3

Query: Find everyone with a name with 'M' as first letter. Result variable name: `?person`.

## Exercise 4

Query: Find all of Maggie's grandmothers. Result variable name: `?grandmother`.

## Exercise 5

Query: Find everyone older than 10. Order by age, oldest first. Output name and age. Result variable names: `?person`, `?age`.

## Exercise 6

Query: Is Herb the brother of Homer?

**Tip:** Use `ASK`.

## Exercise 7

Write a `CONSTRUCT` SPARQL query that produces a FOAF file for Homer, adding his name, a `foaf:knows` relationship to his spouse, and the name of his spouse.

## Ending notes

### Delivery, Devilry

Mandatory exercises are to be handed in using Devilry. Make sure that you are registered in the system by logging on and finding that an `oblig3` is available as an assignment in INF3580 or INF4580. *Check this before you start solving the exercises!* If you are not registered in the system, give notice to `leifhka@ifi.uio.no`.

You shall deliver one file per exercise. Name the files `exercise_X.rq`, where X is the exercise number.

### Mr. Oblig

You can, and should, use Mr. Oblig to test your delivery before handing it in. Mr. Oblig is located at `http://sws.ifi.uio.no/mroblig/`. Note that Mr. Oblig comes without any warranty. A non-functioning Mr. Oblig will not have any effect on the due date of this mandatory exercise, and a flawless test report from Mr. Oblig does not guarantee that your delivery will be graded with *passed*. Also, since there may be many correct answers to an exercise, it is possible that Mr. Oblig does not agree with your solution even though it is correct. However, a perfect score from Mr. Oblig is an indication that your delivery is good and that it does not contain any "stupid" errors.

*Good Luck!*