Question Answering and Chatbots
1st Practical exercise – SPARQL

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October 4, 2021

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Do you know your Master thesis topic?

Do you want to write your Master thesis in the field of QA and Chatbots?

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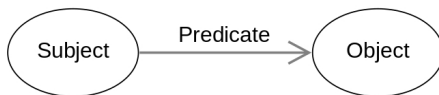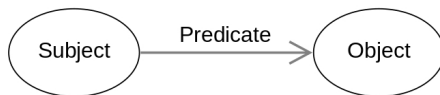

Figure: Basic RDF graph

RDF can be serialized to XML (and many other formats). However, it is easier to store it in human-friendly format **TTL or Turtle**.

SELECT query

```
PREFIX dbp: <http://dbpedia.org/property/>
PREFIX dbr: <http://dbpedia.org/resource/>
PREFIX dbo: <http://dbpedia.org/ontology/>

SELECT DISTINCT ?timeZone
WHERE {
    VALUES ?predicate { dbo:timeZone dbp:timezone } .
    dbr:Wuhan ?predicate ?timeZone .
}
```

Listing 1: What is the timezone in Wuhan (China)?

SPARQL query forms

ASK query

```
PREFIX dbp: <http://dbpedia.org/property/>
PREFIX dbr: <http://dbpedia.org/resource/>
PREFIX dbo: <http://dbpedia.org/ontology/>

ASK
WHERE {
    VALUES ?p { dbp:birthPlace dbo:birthPlace } .
    dbr:Barack_Obama ?predicate dbr:Hawaii .
}
```

Listing 2: Was Barack Obama born in Hawaii?

SPARQL query forms

INSERT query

```
PREFIX oa: <http://www.w3.org/ns/openannotation/core/>

INSERT DATA
{
    GRAPH <replace-with-graph-id>
      {
        <urn:annotation:id1}> oa:class "timeSchedule" .
        <urn:annotation:id1}> oa:groupLabel "MDS2" .
      }
}
```

Listing 3: Annotation for question "Give me time schedule for MDS2."

SPARQL query forms

CONSTRUCT query – transforming information in the graph (e.g. replacing property names).
DESCRIBE query – describing the graph with given conditions (WHERE).

Any questions?

Exercise 1

Task – depending on your exercise **variant** manually write SPARQL queries for the corresponding questions.
The variants are available in my **GitHub repository**.
Also, in the repository, you can find the example of the question-SPARQL query pairs.
Link to the repo: https://github.com/Perevalov/qa_chatbots_exercises

Exercise 1

To submit your solution, please, use corresponding form in the **Moodle**.
If you don't have an access to the Moodle, then use e-mail.

Let's do the exercise. Ask me if you have a question.

Plan for the Exercise 2: work with Natural Language (extract named entities, NER). Libraries to use: NLTK, spaCy etc.

1. SPARQL;
2. Work with Natural Language (NER);
3. Questions classification (ML is possible);
4. Web-Service, Front-end;
5. Simple QA system;
6. Docker;
7. Qanary Framework;
8. ...