Concordia University

Engineering and Computer Science

COMP 6741

Intelligent Systems

Project-1 Report

Roboprof

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We certify that this submission is the original work of members of the group and meets the Faculty's Expectations of Originality

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1. Vocabulary

1.1 Vocabulary

For our project, we used some of the public and most widely used vocabularies.

Prefix	URI
rdf	*<http://www.w3.org/1999/02/22-rdf-syntax-ns#>*
rdfs	*<http://www.w3.org/2000/01/rdf-schema#>*
foaf	*<http://xmlns.com/foaf/0.1/>*
vivo	*<http://vivoweb.org/ontology/core#>*
ex	*<http://example.org/ns#>*
dbo	*<http://dbpedia.org/ontology/>*
dbr	*<http://dbpedia.org/resource/>*

Vocabulary files used for this project:

1. Courses.ttl
2. Lectures.ttl
3. Students.ttl

1.2 Schema

1.3 Classes

This section provides a detailed description of the different classes used for building the schema.

1. University :

```
ex:University a rdfs:Class ;
   rdfs:label "University"@en ;
       rdfs:comment "An institution of higher education and research."@en .
```

2. Course:

```
ex:Course a rdfs:Class ;
   rdfs:label "Course"@en ;
       rdfs:comment "A unit of teaching that typically lasts one academic term, is led by one or more
    instructors, and has a fixed roster of students."@en .
```

3. Lecture:

```
ex:Lecture a rdfs:Class ;
   rdfs:label "Lecture"@en ;
       rdfs:comment "A lecture is a specific instance of instruction within a course."@en .
```

4. Topic :

```
ex:Topic a rdfs:Class ;
   rdfs:label "Topic"@en ;
       rdfs:comment "A specific subject matter covered within the academic content of a course."@en .
```

5. Student:

```
ex:Student a rdfs:Class ;
   rdfs:label "Student"@en ;
   rdfs:subClassOf foaf:Person ;
       rdfs:comment "An individual who is studying at a university or other place of higher
    education."@en
```

1.4 Property

1. hasName

```
ex:hasName a rdf:Property ;
    rdfs:label "has Name"@en ;
    rdfs:domain rdfs:Resource ;
        rdfs:range rdfs:Literal .
```

2. hasLink

```
ex:hasLink a rdf:Property ;
    rdfs:label "has Link"@en ;    rdfs:domain rdfs:Resource ;
        rdfs:range rdfs:Literal .
```

3. offersCourse

```
ex:offersCourse a rdf:Property ;
    rdfs:label "offers Course"@en ;
    rdfs:domain ex:University ;
        rdfs:range ex:Course .
```

2. Knowledge Base Construction

2.1 Dataset

2.2 Development Process

3. Graph Queries

3.1 List all courses offered by [university]

3.2 In which courses is [topic] discussed?

3.3 Which [topics] are covered in [course] during [lecture number]?

3.4 List all [courses] offered by [university] within the [subject] (e.g., “COMP”, “SOEN”).

3.5 What [materials] (slides, readings) are recommended for [topic] in [course] [number]?

3.6 How many credits is [course] [number] worth?

3.7 For [course] [number], what additional resources (links to web pages) are available?

3.8 Detail the content (slides, worksheets, readings) available for [lecture number] in [course] [number].

3.9 What reading materials are recommended for studying [topic] in [course]?

3.10 What competencies [topics] does a student gain after completing [course] [number]?

3.11 What grades did [student] achieve in [course] [number]?

3.12 Which [students] have completed [course] [number]?

3.13 Print a transcript for a [student], listing all the course taken with their grades.

4. Triplestore and SPARQL Endpoint Setup