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**COMP 6741**

**Intelligent Systems**

Project-1 Report

Unibot

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Submitted To: Prof. Dr. René Witte

Date : 21 March, 2021

Team **FL\_G\_03**

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**Introduction**

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**ABSTRACT:**

The first phase of our project was to gather information on all Concordia University courses.

This information was used to generate a Knowledge Graph. This report will discuss the details regarding the three steps (obtaining, shaping and testing data) of phase one.

**Vocabulary:**

*Description how you modeled the schema for your knowledge base, including the vocabularies you reused, any vocabulary*

*extensions you developed, etc. Give brief justifications where appropriate (e.g., choice of existing vocabulary).*

Table 1 : Vocabulary

|  |  |  |
| --- | --- | --- |
| RDF | Type | For defining classes and properties |
| Property |
| RDFS | Class | For defining classes |
| subClassOf | For extending class definitions |
| domain | For defining properties |
| range |
| FOAF | Person | A student is a person |
| topic | Property used to relate a topic to a university course |
| mbox | Mail info of the student |
| DBO | document | For defining our transcripts document seemed a fitting concept. |
| type | For use of the Public\_university type |
| DBR | Course\_(education) | Suitable for broadly defining the courses offered at universities |
| Public\_university | Suitable definition for Universities |
| XSD | string | Literal strings serve as the object of several properties we have generated. |
| DCTERMS | relation | A related resource. |
| DCMITYPE | event | A non-persistent, time-based occurrence. |

We used the focu schema <http://focu.io/schema#> and the ex schema <http://example.org/> to contain instances of the remaining classes and properties. Their definitions and details concerning their usage are given below. Each class and property created for our vocabulary contains an rdfs:label and rdfs:comment property as per project requirement.

focu:Student

a rdfs:Class;

rdfs:subClassOf foaf:Person;

Class to describe a student at the university

focu:Lecture

a rdfs:Class;

rdfs:subClassOf dcmitype:Event;

Class to describe lecture as a Dublin Core Event

focu:Course

a rdfs:Class;

rdfs:subClassOf dbr:Course\_\(education\);

Class to describe Course at the university in the combined form of Subject + Catalog

focu:courseTaken

a rdf:property ;

rdfs:domain <Student> ;

rdfs:range <Course>;

Property to describe what course has been taken by a Student

focu:hasContent

a rdf:property ;

rdfs:subClassOf dcterms:relation ;

rdfs:domain <Lecture> ;

rdfs:range xsd:string;

Property to describe content for a specific lecture

focu:competencies

a rdf:Property;

rdfs:domain <Student>;

rdfs:range xsd:string;

Property to describe topics in which a Student is competent in

focu:Record

a dbo:document;

Property to describe information regarding course and grade achieved by a Student

focu:hasRecord

a rdf:Property;

rdfs:domain <Student>;

rdfs:range <Record>;

Property to describe what records a Student has

focu:subject

a rdf:Property;

rdfs:domain <course>;

rdfs:range xsd:string;

Property to describe course subject (“COMP”, “SOEN”)

focu:catalog

a rdf:Property;

rdfs:domain <course>;

rdfs:range xsd:string;

Property to describe course catalog number (“474”, “6741”)

focu:credits

a rdf:Property;

rdfs:domain <course>;

rdfs:range xsd:int;

Property to describe number of credits a course contains

focu:grade

a rdf:Property;

rdfs:domain <Record>;

rdfs:range xsd:string;

Property to describe what grade is scored by a student in particular course

focu:provenance

a rdf:Property;

rdfs:domain foaf:topic;

rdfs:range xsd:string;

Property to describe the source of topic identified for the course

focu:firstName

a rdf:Property;

rdfs:domain <Student>;

rdfs:range xsd:string;

Property to describe first name of the student

focu:lastName

a rdf:Property;

rdfs:domain <Student>;

rdfs:range xsd:string;

Property to describe last name of the student

focu:offeredAt

a rdf:Property;

rdfs:domain focu:Course;

rdfs:range dbr:Public\_university;

Property to describe what course is offered at what university

**Knowledge Base Construction:**

*Describe (a) your dataset and (b) your process and developed tools for populating the knowledge base from the dataset.*

*Describe how to run the tools to create the knowledge base. Explain your process for linking entities to DBpedia*