

Taxonomies, Ontologies and Semantic Web course

This file contains **Lab Project** for the course "[Taxonomies, Ontologies and Semantic Web](#)". Course code: MISM 516, MTech, International School of Information Management, Mysore, India.

Please send your reports for the lab projects **by email** to [akerkar8 @ gmail.com](mailto:akerkar8@gmail.com)

The project may be done in a group of maximum 3 students. Please indicate so when submitting a report for the lab projects.

The deadline for project submission is the last day of the course. Each group will present their ontology development efforts in class presentation on last 2 days of the course.

The goal of the project is to give you hands-on experience in using Semantic Web Technologies.

PART I: (Mandatory for each student)

1. Create your [FOAF](#)¹ (Friend of a Friend) file using [FOAF-a-Matic](#)². Upload it in your web page, for example, `http://www.example.in/foaf.rdf`.
2. Install [Tabulator](#)³ or a similar semantic web browser extension to your favorite browser.
3. Open your FOAF file in the browser extension and take a screenshot and email to the instructor.

Submit your FOAF file link and the screenshot (`foaf.jpg`) (2 files with the exact same file names) via email.

Uploading FOAF file to your homepage:

- 1) Open your *ftp* site from a window. Login using your user name and password
- 2) Then create a folder named "`public_html`" (without quotes).
- 3) Go to `public_html` folder and copy the FOAF file there.
- 4) Open your browser and point to your `foaf.rdf` file.

PART II:

You need to construct an ontology (`owl`) using Protégé ontology editor. You will model a university domain with the following restrictions:

- Classes: school, department, course, faculty (part-time, full-time), student.
- Data Properties: (school) name, (department) name, (faculty) name, phone, email, (course) code, name, credit, etc.
- Object Properties: (school) hasDepartment, (department) hasFaculty, (faculty) belongsTo (department), etc.

Your ontology should utilize *rdf* and *rdfs* constructs. It should be comprehensive enough to showcase most information in that area and to be useful in an application.

¹ <http://www.foaf-project.org/>

² <http://www.ldodds.com/foaf/foaf-a-matic>

³ <http://www.w3.org/2005/ajar/tab>

Submit your ontology in the form of rdf/xml (name.owl) and the corresponding graph form (name.jpg) using [OntoViz](#) via email.

Tools:

- [Download](#)⁴ Protégé editor
- [Protégé tutorial from CO-ODE project](#)⁵
- Protégé has a visualizer [OntoViz](#)⁶ that you need to download and add as a plug-in.
- [RDF Validator](#)⁷ (W3C)
- RDF Visualization Tool: [Frodo RDFSviz](#)⁸

PART III:

Design a new ontology in a specific domain (yoga, tour planning, e-business, research, e-health, e-government, library, music, disease, drug, anatomy, locomotive, cinema and transport) using Protégé. In your ontology use the following constructs at least once:

```

rdfs:subClassOf
rdfs:subPropertyOf
rdfs:domain
rdfs:range
rdfs:label
rdfs:comment
equivalentClass
equivalentProperty

```

```

sameAs
inverseOf
TransitiveProperty
SymmetricProperty
FunctionalProperty
InverseFunctionalProperty
ObjectProperty
DatatypeProperty

```

Add instance data to your ontology using Protégé.

Additional Points: Apply reasoning on your ontology data using any of the reasoners.

Submit your work as follows:

Place your knowledge-base in your web page and submit the following via email to the instructor.

1. Assignment page link
2. Send your knowledgebase data as two lists of triples in a table format (3 cols: s+p+o).
The two lists are axiom asserted and inferences you get after reasoning.
3. A report in PDF format (including ontology, graph)
4. RDF/XML file exported from Protégé.

Tool:

[Mindswap RDF/XML to NTriples convertor](#)⁹ to generate tables.

⁴ <http://protege.stanford.edu/>

⁵ <http://owl.cs.manchester.ac.uk/tutorials/protegeowltutorial/>

⁶ <http://protegewiki.stanford.edu/wiki/OntoViz>

⁷ <http://www.w3.org/RDF/Validator/>

⁸ <http://www.dfki.uni-kl.de/frodo/RDFSviz/>

⁹ <http://www.mindswap.org/2002/rdfconvert/>