About the Course

February 21, 2014

Outline

Course Information

What we offer ?

- to provide you an overview of ontologies, semantic web and linked data
- to teach you building semantic web ontologies and thesauri
- to teach you various technologies for building semantic web applications

What we require from you ?

- before the course – to know basics of databases, mathematical logics and web technologies.
- during the course
  - regular active participation in tutorials
  - successful completion of the semestral project
  - successful completion of two tests during the term

Fact sheet

- `https://cw.felk.cvut.cz/wiki/courses/osw` – here you will find everything important. Read carefully
- 2+2
- 4 credits

Lectures

Lectures Syllabus

1. Evolution of the semantic web, semantic web stack
2. Semantic web languages – syntax and semantics of RDF, RDFS
3. Semantic web languages – syntax and semantics of OWL (2), SWRL
4. Semantic web languages – syntax and semantics of SPARQL
5. Ontological engineering, design and modeling of ontologies
6. Ontology design patterns
7. Ontology alignment and ontology matching
8. Thesauri, vocabularies, SKOS
9. Linked Data
10. Persistence of ontologies, triple stores, accessing ontologies programatically
11. Semantic annotation of web content – microformats, RDF-A
12. Data integration on the semantic web, rule-based systems, selected applications
13. Semantic GIS, GeoSPARQL
14. Selected Topics

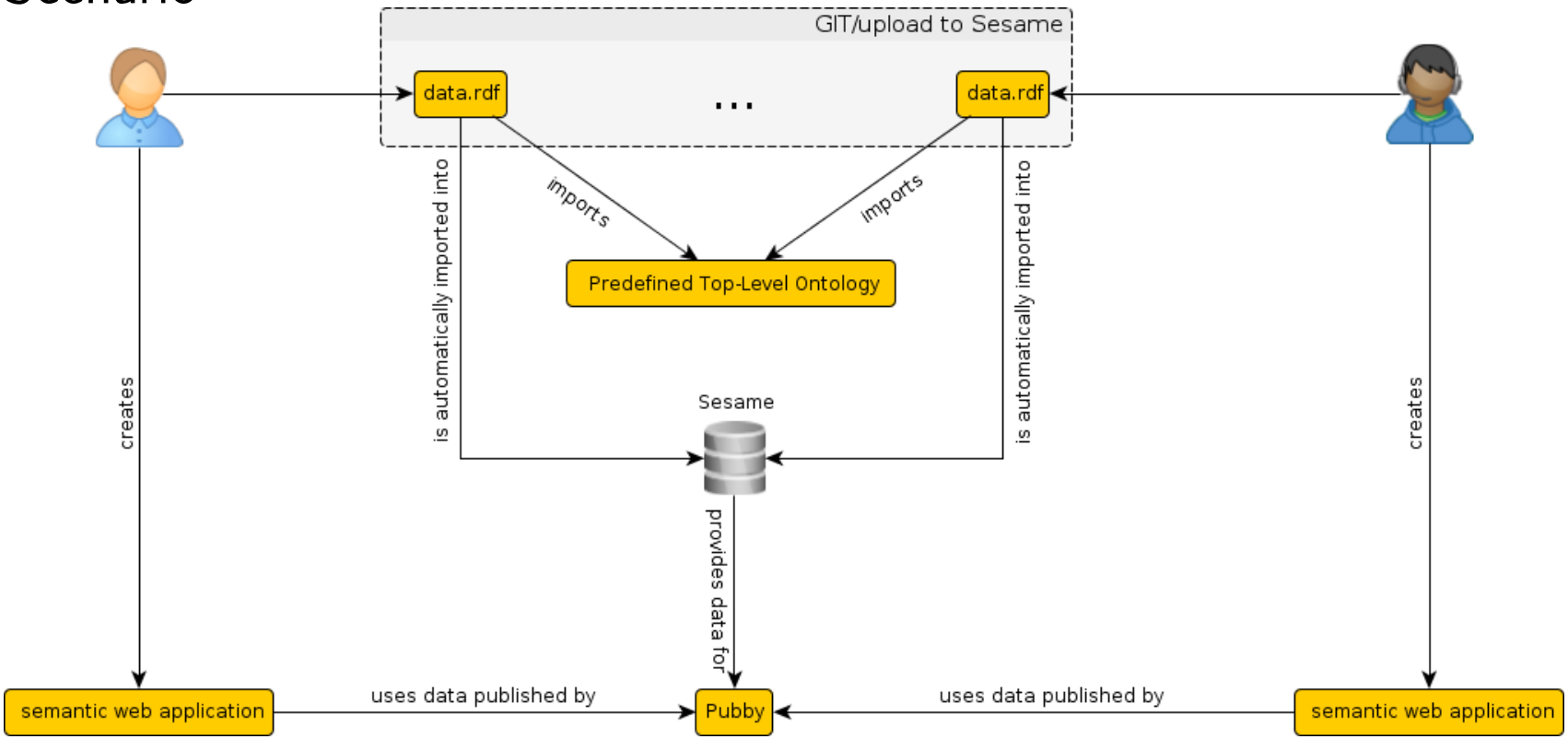
Seminars

Seminars Syllabus

1. Introduction, organization, project assignment, Protégé 3.4
2. Examples on RDF, RDFS, inferencing (Jena, Sesame), **checkpoint 0**
3. Examples on OWL, SWRL, inferencing (Protégé 4, NeON)
4. Analysis and design of SPARQL queries
5. Ontology design – example in known domain and comparison to relational databases
6. Ontology design – application of design patterns, **test 1**
7. Examples on ontology matching, consultation on semestral project
8. Design of SKOS thesaurus, **checkpoint 1**
9. Linked Data tools
10. Sesame/Virtuoso
11. Design of semantically annotated web page, consultation on semestral project
12. Data integration on the semantic web, consultation on semestral project,
13. GeoSPARQL, consultation on semestral project
14. **test 2, checkpoint 2**

Semestral Project Overview

- Basic goal – **Create a Linked Data set together with an associated ontology and an application using the data.**
- Scenario –



Semestral Project Checkpoints

- Three checkpoints

  checkpoint 0 (6 pts) – topic selection, source selection, short annotation of the data

  checkpoint 1 (24 pts) – ontology, UML depicting the main dependencies in the model, single representative data record, short SRS

  checkpoint 2 (30 pts) – at least 20 records based on the ontology (checkpoint 1), application using integrated data (any data from the domain)

To pass, you need 50% from **each** checkpoint. For each week behind the deadline, you will be penalized with 6 points. This penalization is not taken into account when deciding on passing/failing a checkpoint.

Grading

Grading

- two tests during seminars, 20 points each. You need 10 points from **each** test,
- semestral project, 60 points max,
- in total 100 points – transformed to grades according to the ECTS scale,