TDT 44 – Semantic Web

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About the course

**Goal:** The students get an orientation of the theoretical, methodological and technological background and of the ongoing standardization work that support semantic Web.

You will gain:
- Background theoretical knowledge
- Practice of construction and realization of semantic web
- Insight to relevant problems within Web information resources and services

Mostly self-driven.
Learning Material

BOOK: “Exploiting Linked Data and Knowledge Graphs in Large Organisations.” Jeff Z. Pan, Guido Vetere, Jose Manuel Gomez-Perez, Honghan Wu. (Available online from NTNU network.)

PRESENTATIONS

EXTERNAL LINKS

Follow the course wiki page: https://www.ntnu.no/wiki/display/idiemner/TDT44+-+Semantic+Web
Schedule

26.09.2018  Introductory meeting
TBA         Mid-term follow-up meeting (in October)
29.11.2018  Oral exam

One obligatory assignment that will make up the grade together with a short oral presentation.

The details of the assignment will be available on the wiki page soon.
Brief Introduction to Semantic Web
Semantic Web

Machines understanding the meaning
or
Meaning is machine readable.

Why do we need it?
Too much information, too little structure.
Meaning (semantics) of data is only human readable.
Application areas

“Smart systems of any type”

- Search engines
  - E-learning
  - E-commerce
- Recommender systems
How to do it?

Frameworks, descriptions, structured representation of data, links, inference etc.

**Ontology**

An ontology describes a formal specification of a certain domain. The types of entities and relationships are defined in ontologies.

There are different ontology languages: XML, RDF, OWL ...
An example:
XML

Document is a labeled tree.

- node = label + attr/values + contents

XML Schema: grammars for describing legal trees and datatypes
RDF (Resource Description Framework)

RDF is a standard to describe entities/resources. A resource can be anything we can identify, such as a person, a homepage or great dragons in the Game of Thrones.

Resources in RDF are described as triplets: [subject, predicate, object]
- [lemon, is, yellow]
- [Ann, knows, Barbara]
RDF models the relations between things.

- It has more interoperability,
- Provides better understanding of the data.
In this course you will work with RDF.

- Read and study relevant learning materials.
  - Check last year’s assignment.
  - Follow the course wiki page.
- Contact me for further questions.