CIS 6900 Special Problems in CIS: XML and Semantic Web (Spring 2019)

Online Orientation

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Course Description

The course will demonstrate relation between XML (extensible markup language) and Semantic Web. In the first part of the course, students will learn how to create and validate XML documents, work with schemas, XSLT, and XPath. The second part is devoted to fundamentals of Semantic Web, next-generation Web, which aims at machine-processable information.

Learning Outcomes

Upon completion of the course students will be able to
- explain main concepts of XML, its functionality and use
- create, manipulate, parse, and use style sheets to format well-formed XML documents as well as validate them using DTDs and XML schemas
- transform XML documents using XSLT
- explain the semantic web principles and semantic web standards
- reflecting critically over the semantic web goals.

Textbook and Reading Materials*:

- Ivan’s Semantic Web Presentations: https://www.w3.org/People/Ivan/CorePresentations

*) Complete list of reading materials is on the class’ website.
Prerequisites:

Knowledge acquired in CIS 3000 Internet Technologies is assumed.

System Requirements:

You are expected to have the following computer environment:
- A laptop/desktop computer
- Reliable Internet access using browsers such as Internet Explorer or Firefox (current versions), Java installed, and pop-up blocker turned off
- Microsoft Office 2010 (MS Word) or higher
- Notepad++ with XML Tools plugin (http://notepad-plus-plus.org/, current version: 7.6)

Materials:

Flash Drive - 1 GB (or higher)

Course Outline

- Writing XML
- XSL (EXtensible Stylesheet Language) and XSLT (XSL Transformations)
- XPath Patterns and Expressions
- XPath Functions
- XSL-FO
- Creating a DTD (Document Type Definition)
- Entities and Notations in DTDs
- Validation and Using DTDs
- XML Schema
- Defining Types
- XML Namespaces
- Semantic Web Contents and Standards
- Metadata Frameworks, Resource Description Framework (RDF)/RDF Schema and Ontology
- Web Ontology Language (OWL)
- Applications of the Semantic Web

Deadline for First Login

January 9, 2019