

6.932 Data Linked Ventures

Technical Homework 1 (100 points)

Assigned: September 8, 2011

Due: 4pm, September 22, 2011

(on Stellar <https://stellar.mit.edu/S/course/15/fa11/15.377/index.html>)

I. Read “The Semantic Web” by Tim Berners-Lee, James Hendler, and Ora Lassila, from the May 2001 issue of Scientific American. This article is available online through the MIT libraries and nature.com at:
<http://www.nature.com/scientificamerican/journal/v284/n5/pdf/scientificamerican0501-34.pdf>

II. Watch Tim Berners-Lee's 2009 TED Talk: Introduction to Linked Open Data.

Link here: http://www.ted.com/talks/tim_berniers_lee_on_the_next_web.html

III. Friend of a Friend (FOAF) (20 points)

1. Develop a FOAF profile (see <http://xmlns.com/foaf/spec/> for more information) using FOAF-a-matic (<http://www.ldodds.com/foaf/foaf-a-matic>).
2. Add at least 5 (five) people in the class as friends using their FOAF URIs. Make sure you meet your classmates and get their URIs. (Fill in the “Friend—name” field with their URI; please see Tim Berners-Lee's URI as an example <http://dig.csail.mit.edu/2008/webdav/timbl/foaf#i>)
3. Name this file <username>_foaf.rdf (ex. vwang11_foaf.rdf).
4. Store in athena locker public folder.
5. Upload this file onto Stellar.
6. Convert this file into Turtle using <http://any23.org/>
7. Name this file <username>_foaf.n3(ex. vwang11_foaf.n3).
8. Open the file in an editor and add your twitter id (if you have one) using holdsAccount property and your location using based_near.
9. Store this file in athena locker public folder.
10. Upload this file onto Stellar.
11. NOTE: always validate your data using a tool such as <http://rdfabout.com/demo/validator/>

IV. Programming in Python (80 points)

1. Write a program using Python and the Python library RDFLib (<http://www.rdflib.net/>) to print those people that both you and your friends know. If not using Setup instructions below, make sure you use Python 2.6.5 and RDFLib 3.0 version.
Name the file <username>_hw1-1.py (ex. vwang11_2-1.py)
2. Write another program using RDFLib to print those people that both you and your friends' friends know (i.e. 1 degree of separation).

- Name the file <username>_hw2-2.py (ex. vwang11_2-2.py)
3. Upload both these .py files to Stellar.

Extra Credit (10 points)

Write a FOAF generator in Python that accepts values from a Web form and creates a FOAF file in Turtle. Name this file <username>_ec1.py (ex. vwang11_ec1.py). Upload this file to Stellar.

Business Homework 1 (100 points)

Assigned: September 8, 2011

Due: 4pm, September 15, 2011

(on Stellar <https://stellar.mit.edu/S/course/15/fa11/15.377/index.html>)

1. **Ideabank:** Write a one paragraph description of an idea for a product or service that uses Linked Data to be better than what exists today.
2. **Readings:** <http://www.businessmodelgeneration.com/canvas>
3. Take your Ideabank idea and add a discussion of Value Propositions. Customer Segments, and Revenue Streams.
4. Upload to Stellar one document named <username>_bhw1.pdf (ex. vwang11_bhw1.pdf)

Instructions for Athena and RDFLib

Logging into Athena

Please follow these instructions to log into Athena from your own home desktop or laptop. (Alternatively, you can work on an Athena workstation on campus and skip this section)

1. Open a terminal (in Linux or Mac, or use PUTTY for Windows)
2. SSH into an Athena workstation using the following terminal command:
`$ ssh <username>@athena.dialup.mit.edu`
where <username> is your Kerberos name
3. Answer “yes” if prompted with whether to permanently accept this key.
4. Enter your Kerberos password to complete the login process.

Setup the RDFLib Python library

Please follow these instructions to download and extract the RDFLib library package into your `~/ldv/lib` directory.

For more information about RDFLib, see

<http://readthedocs.org/docs/rdfliib/en/latest/gettingstarted.htm>

1. Create lib folder in home directory
 - \$ cd ~ (change to home directory)
 - \$ mkdir ldv (acronym for Linked Data Ventures)
 - \$ mkdir lib (create a directory called lib)
 - \$ ls (make sure lib folder was created in ~/ldv)
2. Download the RDFLib package into the ~/ldv/lib directory
 - \$ cd ~/ldv/lib (change to ~/ldv/lib directory)
 - \$ wget <http://www.rdflib.net/rdflib-3.0.0.tar.gz> (download the file)
3. Extract the RDFLib package into the ~/ldv/lib directory
 - \$ tar -xvf rdflib-3.0.0.tar.gz (extract the gz file)
 - \$ ls (you should see rdflib-3.0.0.tar.gz and the rdflib-3.0.0 directory)
4. Clean up
 - \$ rm rdflib-3.0.0.tar.gz (delete the gz file)

You should have the RDFLib package in your ~/ldv/lib folder now.

Creating and running your first program

Please follow these instructions to create and run your Python program.

1. Download from Stellar first.py and place into ~/ldv directory
\$ cd ~/ldv (first change to ~/ldv directory)
2. Open first.py in ldv directory using any text editor (emacs, vi, gedit, IDLE)
3. Compile and run your program
\$ python first.py
4. If the library was set up properly, the program should show you a list of raw triples and return no errors.