Homework 7: OWL
INF 558 BUILDING KNOWLEDGE GRAPH

DUE DATE: Sunday, 3/11/2018 @ 11:59pm on Blackboard

Ground Rules

This homework must be done individually. You can ask others for help with the
tools, but the submitted homework needs to be your own work.

Summary

In this homework, you will learn about OWL, Protégé and how to use Protégé to do reasoning on ontology.

Task 1 – Install Protégé

Download and install Protégé from:
https://protege.stanford.edu/products.php#desktop-protege

Task 2 – Protégé tutorial (1 pts)

Do the Protégé OWL tutorial:
http://protegewiki.stanford.edu/wiki/Protege4Pizzas10Minutes
Save the Pizza ontology you created in this task as an OWL file in the Turtle format and include it in your submission.

Task 3 – OWL Ontology (2 pts)

Load the people ontology (http://owl.man.ac.uk/2006/07/sssw/people.owl) using the "Open OWL Ontology from URL" option (or copying the file locally, you may want to take a look at the file itself). Answer the following questions:

1. What's the definition of mad_cow? Give both the formal definition and an explanation in your own words.
2. What constraints does mad_cow inherit from its superclasses?
3. Do you see any problem with that definition? Why?

Task 4 – DL Reasoner (7 pts)

Start a reasoner (the default reasoner, Hermit, in the reasoner tab is fine). Answer the following questions and explain:

1. What happened to the definition of mad_cow? Compare with result when not using reasoner. (Hint: check also the class hierarchy (inferred) tab)

2. What happened to the giraffe class? Compare with result when not using reasoner.
3. Which classes do Tom and Minnie belong to? Compare with result when not using reasoner. (Hint: Minnie has_pet Tom)
4. List all the person instances.
5. Give a complete description of the instance Mick. Which classes do Daily Mirror belong to? Compare with result when not using reasoner.
6. List all the descendant classes of pet owner.
7. How many “pets” must a person have to be considered an animal-lover?
8. Do all the “pets” of an animal-lover need to be animals?
9. Is “old lady” need to be a person?

Submission Instructions

You must submit the following files a single .zip archive named Firstname_Lastname_hw7.zip and submit it via Blackboard:

- Firstname_Lastname_hw7_report.pdf: A pdf file containing answers for Task 3 and Task 4
- pizza.owl: The Pizza ontology you created in Task 2.