CSCI E-97
Assignment 1
Due: Wednesday, 9/16/2015

This assignment provides a warm-up Java exercise and to make sure that you have sufficient Java skills to implement your software designs in the assignments to follow. The topic of this assignment is the implementation of a simple knowledge graph engine. You will implement a software design document as a Java program. The file KnowedgeGraphDesignDocument.pdf contains the design.

Assignment Notes:

This assignment will help you become familiar with the contents of a design document and how it can help guide and streamline implementation.

You should implement the classes as defined by the class diagram and class dictionary specified in the design document. All classes except for the TestDriver should be defined within the package "cscie97.asn1.knowledge.engine"

You may vary from the design, but if you do, you should document the changes, provide justification for your changes and describe how your changes continue to support the requirements.

Remember to use Java doc to document class and method headers. Add java comments inline where appropriate to explain code logic.

Sample Data

Here is the content of the sample input triple file (inputTriples.nt):

```
Joe plays_sport Hockey.
Joe plays_sport Soccer.
Joe plays_sport Cricket.
Joe works_at Starbucks.
Joe has_friend Lucy
Lucy works_with Joe.
Lucy works_at Starbucks.
Lucy plays_instrument Guitar.
Lucy plays_sport Soccer.
Lucy has_friend Joe.
Lucy lives_near HarvardSquare.
Lucy likes_to_eat Cake.
Lucy works_at HarvardCoop.
```

```
Starbucks has_store_location HarvardSquare.
Starbucks sells Coffee.
Starbucks sells Cake.
Starbucks provides FreeWIFI.

HarvardCoop sells Coffee.
HarvardCoop sells Book.
HarvardCoop sells Cake.
HarvardCoop has_store_location HarvardSquare.
```

Here is the sample query file (sampleQuery.nt):

```
Starbucks sells Coffee.
Starbucks sells Donuts.
Starbucks sells ?.
? has_store_location HarvardSquare.
Lucy ? ?.
Joe plays_sport ?.
Lucy plays_sport ?.
? plays_sport ?.
? sells Coffee.
? ? HarvardCoop.
```

What To Turn In

You'll turn in a zip file containing

- Your source code (no .class files)
- Your data files (including two posted on the website)
- Results of processing the query file
- Include a document (in pdf format) describing your results:
  - Any changes that you made to the proposed design and how they continue to support the requirements
  - Did the design document help with the implementation?
  - How could the design have been better, clearer, or made the implementation easier?

We should be able to unzip your file into a directory, then cd into that directory and compile your program with the command.

- javac -classpath . cscie97\asn1\knowledge\engine*.java

We should be able to run your program with the command

- java -cp . cscie97.asn1.test.TestDriver inputTriples.nt inputQueries.txt

where inputTriples.nt is a file containing a list of triples as specified above and inputQueries.txt is a list of queries to execute against the resulting KnowledgeGraph.

Caution: When you believe you're done, try zipping your files, then unzipping them into a totally different directory and following the steps above. In other words, test your packaging before you submit your assignment.

Directions for submitting your solution and a grading sheet specifying the criteria for grading this assignment will be posted on the course website.