1 CS 1656 – Introduction to Data Science

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1.2 ## Lab 06: Cypher+Neo4j+Python

In this lab, we will query a Neo4j graph database using with Cypher language and Python. Neo4j is a highly scalable, native graph database purpose-built to leverage not only data but also its relationships. Cypher is a declarative graph query language that allows for expressive and efficient querying and updating of the graph store.

```
In [1]: # Use the following to get the neo4j database password from the user
        import getpass
        print ("Give me your neo4j password:")
        neopass = getpass.getpass()
        #print ("You typed:", neopass)
```

```
Give me your neo4j password:
........
```

```
In [2]: from neo4j import GraphDatabase

        # More information on neo4j python API at:
        # http://neo4j.com/docs/api/python-driver/current/

        #Connect to the database
        uri = "bolt://localhost:7687"
        #auth=("neo4j", neopass)
        driver = GraphDatabase.driver(uri, auth=("neo4j", neopass))

        #Start new session
        session = driver.session()

        #Start new transaction
        transaction = session.begin_transaction()
```

1.2.1 Queries

Q1) Find the actor named "Tom Hanks".

```
In [ ]: result = transaction.run("""
        MATCH (tom:Actor {name: 'Tom Hanks'})
        RETURN tom
        ;""")
        for record in result:
            print (record)
```

1.2.2 Tasks

Q2) Find the movie with title "Avatar".

Q3) Find movies released in the 1990s.

Q4) List all Tom Hanks movies.

Q5) Who directed "Avatar".

Q6) Tom Hanks' co-actors.

Q7) How people are related to "Avatar".

Q8) Extend Tom Hanks co-actors, to find co-co-actors who haven't worked with Tom Hanks.

Q9) Find someone to introduce Tom Hanks to Tom Cruise.

Let's close the session and the transaction.

```
In [ ]: transaction.close()
        session.close()
```