COSC 416. Lab 2: Cypher

Submit your lab work in a PDF format. The lab consists of 8 Questions. Put your answers into a Word document, convert it to a PDF file and submit on the moodle page before the deadline.

Create graph

1. Create a new RDBMS "Lab2" in Neo4j Desktop.
2. Run the following statements in neo4j database to create data for this lab.

```
// RUN this script to create the initial database for Lab 2
// Run it only once. ;)
// If you run it twice,
// Use `MATCH (n) DETACH DELETE n` to start over.

CREATE (:Movie {title: 'Apollo 13', tmdbId: 568, released: '1995-06-30',
imdbRating: 7.6, genres: ['Drama', 'Adventure', 'IMAX']})
CREATE (:Person {name: 'Tom Hanks', tmdbId: 31, born: '1956-07-09'})
CREATE (:Person {name: 'Meg Ryan', tmdbId: 5344, born: '1961-11-19'})
CREATE (:Person {name: 'Danny DeVito', tmdbId: 518, born: '1944-11-17'})
CREATE (:Person {name: 'Jack Nicholson', tmdbId: 514, born: '1937-04-22'})
CREATE (:Movie {title: 'Sleepless in Seattle', tmdbId: 858, released:
'1993-06-25', imdbRating: 6.8, genres: ['Comedy', 'Drama', 'Romance']})
CREATE (:Movie {title: 'Hoffa', tmdbId: 10410, released: '1992-12-25',
imdbRating: 6.6, genres: ['Crime', 'Drama']})
;
```

Question 1 (2 marks)

Run the following in the Browser, take a screenshot of the graph and add to your submission.

```
match(p) return p;
```

Question 2 (MERGE) (4 marks)

Create relationships ACTED_IN and DIRECTED to store the following information:

- Tom Hanks acted in Apollo 13
- Meg Ryan and Tom Hanks acted in Sleepless in Seattle
- Jack Nicholson and Danny DeVito acted in Hoffa
- Hoffa was directed by Danny DeVito

Run "`match(p) return p;`" in the Browser, take a screenshot of the graph and add to your submission.

Question 3 (MATCH) (6 marks)

Answer the following questions. Write Cypher queries and the Answers in the space provided. Use MERGE statement to answer questions.

Question	Cypher query	Answer
Who acted in "Sleepless in Seattle"?		
What person directed "Hoffa"?		
What movies did Jack Nicholson acted in?		
Who is the youngest person to act in a movie "Hoffa"?		
What is the highest rated movie released in 90-s according to imDB?		
What drama movie did Jack Nicolson acted in?		

Question 4 (MERGE) (6 marks)

1. Add movie "One Flew Over the Cuckoo's Nest" to the Drama category.
2. The movie has tmdbId 510 and was released on November 19, 1975
3. Add its director Milos Forman who was born on 1932-02-18. His tmdbId is 3974.
4. Add the information that both Jack Nicholson and Danny DeVito acted in this movie.

Run

```
match(p) return p;
```

in the Browser, take a screenshot of the graph and add to your submission.

Question 5 (Node Properties) (2 mark)

Update "One Flew Over the Cuckoo's Nest" and set the property imdbRating to 8.7.

Create a Cyper query that would run this update and add it to the submission.

Question 6 (Relationship Properties) (6 marks)

Update ACTED_IN relationships setting its property *roles* with the following information. Use the List data type for *roles* property.

- Danny DeVito played "Martini" in One Flew Over the Cuckoo's Nest
- Danny DeVito played 'Robert "Bobby" Ciarro' in Hoffa
- Jack Nicholson played 'Randle McMurphy' in in One Flew Over the Cuckoo's Nest
- Jack Nicholson played 'Hoffa' in Hoffa

- Tom Hanks played 'Jim Lovell' in Apollo 13
- Tom Hanks played 'Sam Baldwin' in Sleepless in Seattle
- Meg Ryan played 'Annie Reed' in Sleepless in Seattle

Create a Cyper statement (or statements) that would run all these updates and add it to the submission. Create a Cyper query that would return names of actors, their roles and movies' titles sorted by the actor's name. Add the query and the result into the submission.

Question 7 (MERGE SET) (3 marks)

Suppose we do not know if we have the movie *You've Got Mail* in our graph. If it is not in the graph, we want to set the *createdAt* property with the value of `datetime()`. The `datetime()` function returns the current date and time. If it is in the graph, we want to set the *matchedAt* property with the value of `datetime()`. In either case, we want to set the *updatedAt* property with the value of `datetime()`. Use MERGE processing for the *Movie* node with the *title* "You've Got Mail".

- If the node already exists (ON MATCH SET clause):
    - Set the matchedAt property for the node referenced by m to datetime().
- If the node does not exist (ON CREATE SET clause):
    - Set the createdAt property to datetime().
- For either case:
    - Set the updatedAt property to datetime().

Execute your code twice to ensure that the the MERGE processing occurs. Add ACTED_IN relationships to Meg Ryan and Tom Hanks using MERGE.

Run the query

```
MATCH(m:Movie{title: "You've Got Mail") RETURN m;
```

and include the result in the Table form (not Graph form) to your submission.

Question 8 (DELETE) (1 mark)
Delete the movie "You've Got Mail" from the database. Run

```
MATCH(p) RETURN p;
```

in the Browser, take a screenshot of the graph and add to your submission.