Czech Technical University in Prague, Faculty of Information Technology

MIE-PDB: **Advanced Database Systems**

http://www.ksi.mff.cuni.cz/~svoboda/courses/171-MIE-PDB/

Practical Classes 10 and 11

Cypher

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NDBI040: **Big Data Management and NoSQL Databases**

Data Model

Database system structure

Instance $\rightarrow$ single **graph**

Property graph = directed labeled multigraph

- Collection of vertices (nodes) and edges (relationships)

Node

- Internal identifier
- Set of labels, set of properties

Relationship

- Internal identifier
- **Direction**, start and end node
- Exactly one type, set of properties

Exercise 1

Express the following Cypher query

- **Find movies with identifier *medvidek***
- Return movie nodes together with title properties

Exercise 2

Express the following Cypher query

- **Find actors born in *1965* or later**
- Return actor names and years they were born
- Sort the result using years (in descending order) and then names (in ascending order)

Exercise 3

Express the following Cypher query

- **Find titles of movies in which *Jiri Machacek* played**

Exercise 4

Express the following Cypher query

- **Find movies where at least one actor played**

Exercise 5

Express the following Cypher query

- **Find actors who played with *Ivan Trojan***

Exercise 6

Express the following Cypher query

- **Find all friends of actor *Ivan Trojan***
- Include friends of friends etc.
- Return actor names

Exercise 7

Express the following Cypher query

- **Find pairs of movies and their actors**
- Include movies without actors as well

Exercise 8

Express the following Cypher query

- **Find actors who played in movies having above average number of actors**
- Return actor names