Máster en Bioinformática y

Biología Computacional

UAM
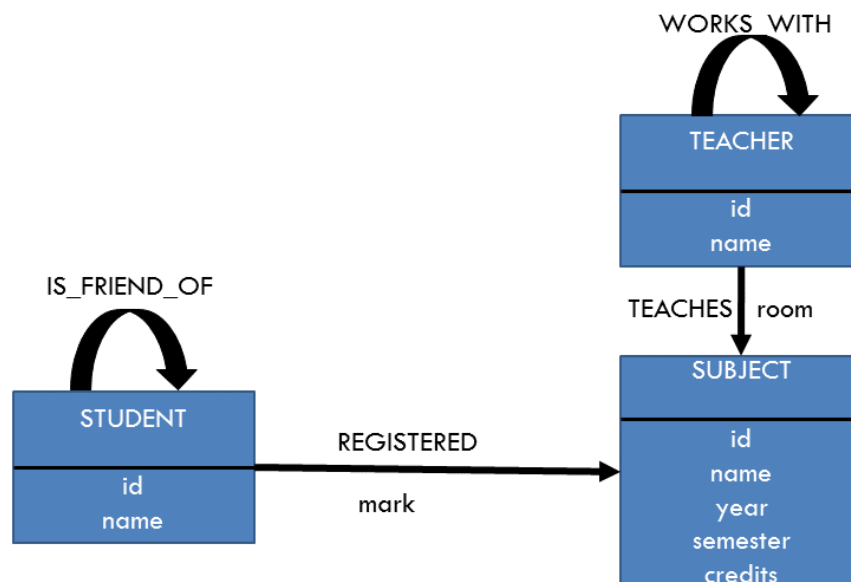UNIVERSIDAD AUTONOMA
DE MADRID

NEO4J

Practical work

A graph-based database has the following design

1. We can create the database in Neo4j (nodes and relationships) using the following commands LOAD CSV

   LOAD CSV WITH HEADERS FROM "file:/estudiantes.csv" AS csvLine CREATE (e:Estudiante { id: toInteger(csvLine.id), nombre: csvLine.nombre})

   LOAD CSV WITH HEADERS FROM "file:/profesores.csv " AS csvLine CREATE (p:Profesor { id: toInteger(csvLine.id), nombre: csvLine.nombre})

   LOAD CSV WITH HEADERS FROM "file:/esamigo.csv" AS csvLine MATCH(e1:Estudiante),(e2:Estudiante) where e1.id= toInteger(csvLine.id1) and e2.id= toInteger(csvLine.id2) create (e1)-[m:esAmigo]->(e2) return m

LOAD CSV WITH HEADERS FROM "file:/asignaturas.csv" AS csvLine CREATE (e:Asignatura { id: toInteger(csvLine.id), nombre: csvLine.nombre, curso: toInteger(csvLine.curso)})

LOAD CSV WITH HEADERS FROM "file:/imparte.csv" AS csvLine MATCH(p:Profesor),(a:Asignatura) where p.id= toInteger(csvLine.id1) and a.id= toInteger(csvLine.id2) create (p)-[m:Imparte{aula:csvLine.aula}]->(a) return m

LOAD CSV WITH HEADERS FROM "file:/matriculado.csv" AS csvLine match(e:Estudiante),(a:Asignatura) where e.id= toInteger(csvLine.id1) and a.id= toInteger(csvLine.id2) create (e)-[m:Matriculado {nota:toInteger(csvLine.nota)}]->(a) return m

LOAD CSV WITH HEADERS FROM "file:/trabajacon.csv" AS csvLine match(p1:Profesor),(p2:Profesor) where p1.id= toInteger(csvLine.id1) and p2.id= toInteger(csvLine.id2) create (p1)-[m:trabajaCon]->(p2) return m

2. Execute the following queries in Neo4j

   A. Names of subjects taught by Professor Clarap
   B. Names of first year subjects
   C. Names of subjects arranged alphabetically
   D. Names of third or fourth year subjects
   E. Eliminate the semester property of the nodes Subject
   F. Change the name of one of the subjects
   G. Number of subjects in which the student Mario is enrolled
   H. Names of Pedro's friends
   I. Names of friends and friends of Pedro's friends
   J. Names of subjects in which one of the friends of the student Mario is enrolled
   K. Names of students who are enrolled in any of the subjects taught by Professor López
   L. Names of students who are enrolled in any of the subjects taught by any of the teachers who work with Professor López

3. Propose two pattern matching queries and solve them

It is necessary to deliver a .zip file that contains the following:

1. all the csv files used to load the database (estudiante.csv, profesor.csv, asignatura.csv, imparte.csv, matriculado.csv, esAmigo.csv, trabajaCon.csv)

2. a file with all the Neo4j queries necessary to load the database and make the proposed queries.