

## Exercici 1. Importeu les dades en la BD de Neo4j del projecte.

### Tractament preeliminar de les dades:

#### Creació de restriccions (constraints)

```
// Clau primaria individu
CREATE CONSTRAINT individu_id_unique IF NOT EXISTS
FOR (i:Individu)
REQUIRE i.id IS UNIQUE;

// Clau primaria habitatges
CREATE CONSTRAINT habitatge_composite_key IF NOT EXISTS
FOR (h:Habitatge)
REQUIRE (h.id_llar, h.municipi, h.any_padro) IS NODE KEY;
```

#### Creació dels Index:

```
// Index per any habitatge
CREATE INDEX habitatge_any_padro IF NOT EXISTS
FOR (h:Habitatge)
ON (h.any_padro);

// Index per municipi
CREATE INDEX habitatge_municipi IF NOT EXISTS
FOR (h:Habitatge)
ON (h.municipi);

// Index per direcció (carrer i número)
CREATE INDEX habitatge_adreca IF NOT EXISTS
FOR (h:Habitatge)
ON (h.carrer, h.numero);

// Index per cognoms
CREATE INDEX individu_cognoms IF NOT EXISTS
FOR (i:Individu)
ON (i.cognom1, i.cognom2);

// Index de búsqueda full-text sobre nom y cognoms
CREATE FULLTEXT INDEX individu_fulltext_index IF NOT EXISTS
FOR (i:Individu)
ON EACH [i.nom, i.cognom1, i.cognom2];

SET node.tribut = CASE WHEN row.tribut IS NOT NULL AND row.tribut <> ' ' AND
toLower(row.tribut) <> 'null' THEN row.tribut ELSE NULL END
```

## Conversions de tipus

### Carregar les dades:

```
// =====
// 1. Crear nodes Individu
// =====
LOAD CSV WITH HEADERS FROM 'file:///INDIVIDUAL.csv' AS row
WITH row
WHERE row.Id IS NOT NULL AND row.Id <> " AND toLower(row.Id) <> 'null'
MERGE (i:Individu {id: toInteger(row.Id)})
SET i.nom = CASE WHEN row.name IS NOT NULL AND row.name <> " AND
toLower(row.name) <> 'null' THEN row.name ELSE NULL END,
    i.cognom1 = CASE WHEN row.surname IS NOT NULL AND row.surname <> " AND
toLower(row.surname) <> 'null' THEN row.surname ELSE NULL END,
    i.cognom2 = CASE WHEN row.second_surname IS NOT NULL AND
row.second_surname <> " AND toLower(row.second_surname) <> 'null' THEN
row.second_surname ELSE NULL END,
    i.any_padro = CASE
        WHEN row.Year IS NOT NULL AND row.Year <> " AND toLower(row.Year) <> 'null'
        THEN toInteger(row.Year)
        ELSE NULL
    END;

// =====
// 2. Crear nodes Habitatge
// =====
LOAD CSV WITH HEADERS FROM 'file:///HABITATGES.csv' AS row
WITH row
WHERE row.Id_Llar IS NOT NULL AND row.Id_Llar <> " AND toLower(row.Id_Llar) <> 'null'
    AND row.Any_Padro IS NOT NULL AND row.Any_Padro <> " AND
toLower(row.Any_Padro) <> 'null'
MERGE (h:Habitatge {
    id_llar: toInteger(row.Id_Llar),
    any_padro: toInteger(row.Any_Padro),
    municipi: row.Municipi
})
SET h.carrer = CASE WHEN row.Carrer IS NOT NULL AND row.Carrer <> " AND
toLower(row.Carrer) <> 'null' THEN row.Carrer ELSE NULL END,
    h.numero = CASE
        WHEN row.Numero IS NOT NULL AND row.Numero <> " AND toLower(row.Numero)
<> 'null'
        THEN toInteger(row.Numero)
        ELSE NULL
    END;
```

```
// =====
// 3. Relació VIU (Individu)-[:VIU]->(Habitatge)
// =====
LOAD CSV WITH HEADERS FROM 'file:///VIU.csv' AS row
WITH row
WHERE row.IND IS NOT NULL AND row.IND <> "" AND toLower(row.IND) <> 'null'
  AND row.HOUSE_ID IS NOT NULL AND row.HOUSE_ID <> "" AND
toLower(row.HOUSE_ID) <> 'null'
  AND row.Year IS NOT NULL AND row.Year <> "" AND toLower(row.Year) <> 'null'
MATCH (i:Individu {id: toInteger(row.IND)})
MATCH (h:Habitatge {id_llar: toInteger(row.HOUSE_ID)})
MERGE (i)-[:VIU {any_padro: toInteger(row.Year)}]->(h);

Set 68841 properties, created 68841 relationships, completed after 1305 ms.

// =====
// 4. Relació SAME_AS (Individu)-[:SAME_AS]->(Individu)
// =====
LOAD CSV WITH HEADERS FROM 'file:///SAME_AS.csv' AS row
WITH row
WHERE row.Id_A IS NOT NULL AND row.Id_A <> "" AND toLower(row.Id_A) <> 'null'
  AND row.Id_B IS NOT NULL AND row.Id_B <> "" AND toLower(row.Id_B) <> 'null'
MATCH (a:Individu {id: toInteger(row.Id_A)})
MATCH (b:Individu {id: toInteger(row.Id_B)})
MERGE (a)-[:SAME_AS]->(b);

// =====
// 5. Relacions Familiars
// =====
LOAD CSV WITH HEADERS FROM 'file:///FAMILIA.csv' AS row
WITH row
WHERE row.ID_1 IS NOT NULL AND row.ID_1 <> "" AND toLower(row.ID_1) <> 'null'
  AND row.ID_2 IS NOT NULL AND row.ID_2 <> "" AND toLower(row.ID_2) <> 'null'
  AND row.Relacio_Harmonitzada IS NOT NULL AND row.Relacio_Harmonitzada <> "" AND
toLower(row.Relacio_Harmonitzada) <> 'null'
MATCH (a:Individu {id: toInteger(row.ID_1)})
MATCH (b:Individu {id: toInteger(row.ID_2)})
MERGE (a)-[r:RELACIO]->(b)
SET r.tipus = row.Relacio_Harmonitzada;
```