ITESO

Universidad Jesuita
de Guadalajara

Ingeniería en Sistemas Computacionales

Bases de Datos No Relacionales

Práctica en Clase: Merge y Constraints en Neo4j

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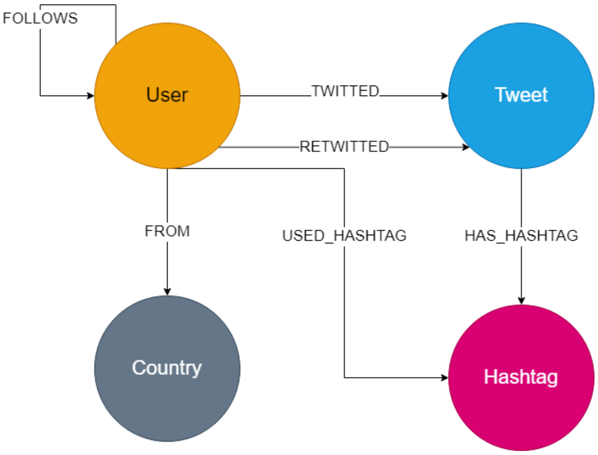
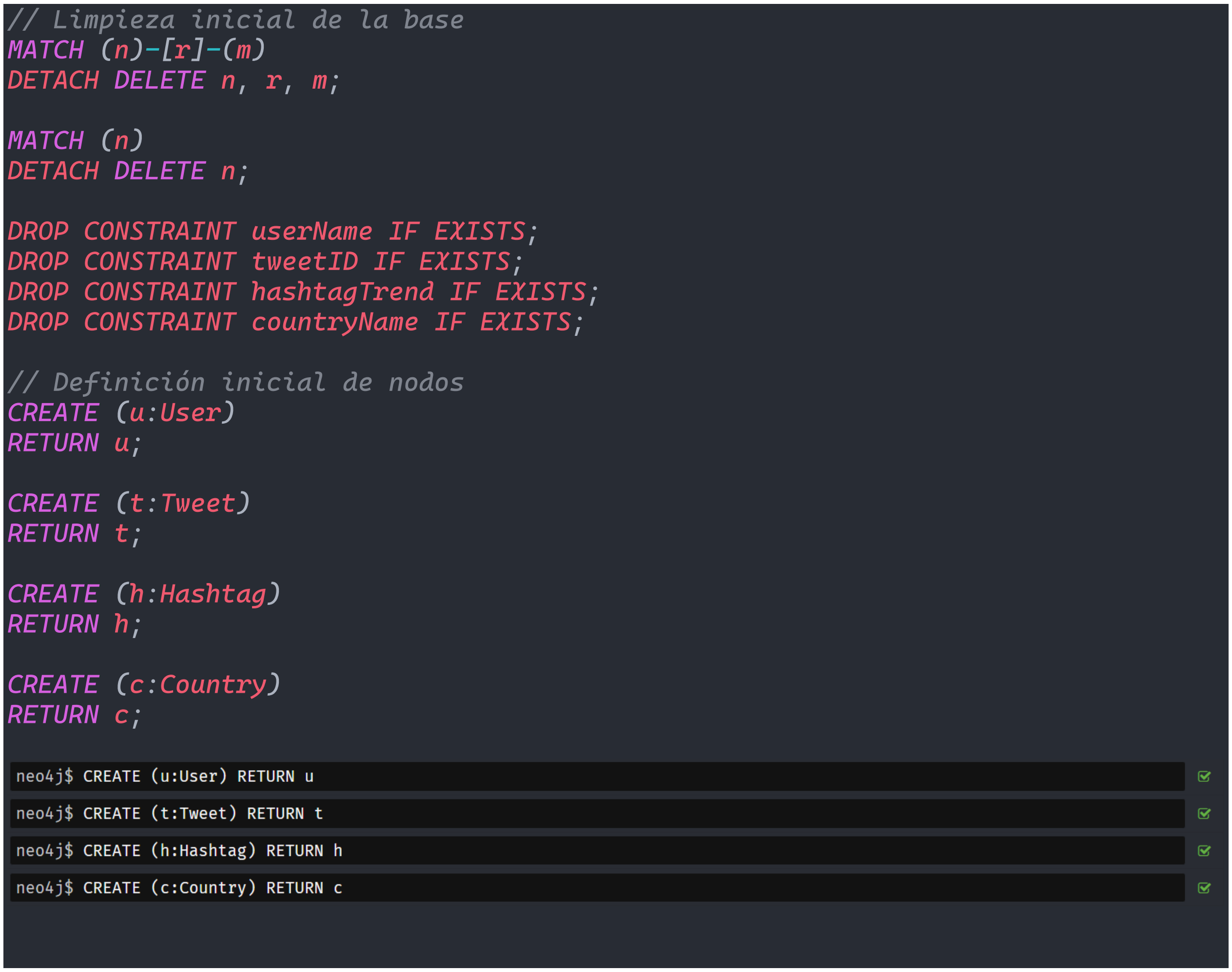
Dado el siguiente diagrama



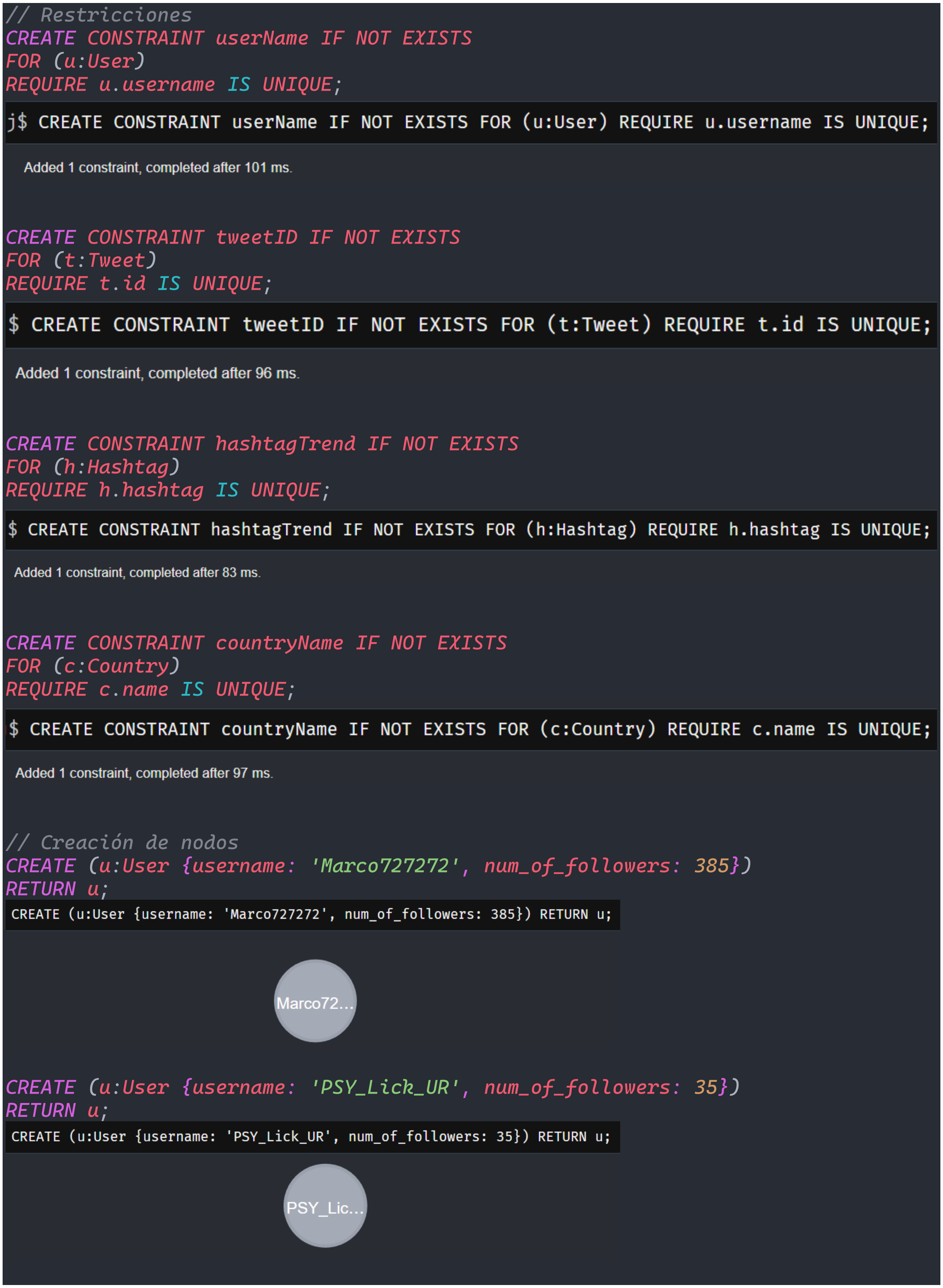
Se solicita realizar las consultas necesarias para replicar el mismo comportamiento dentro de Neo4j a través de su lenguaje de consulta Cypher.

Las sentencias utilizadas fueron las siguientes:



```
// Limpieza inicial de la base
MATCH (n)-[r]-(m)
DETACH DELETE n, r, m;

MATCH (n)
DETACH DELETE n;

DROP CONSTRAINT userName IF EXISTS;
DROP CONSTRAINT tweetID IF EXISTS;
DROP CONSTRAINT hashtagTrend IF EXISTS;
DROP CONSTRAINT countryName IF EXISTS;

// Definición inicial de nodos
CREATE (u:User)
RETURN u;

CREATE (t:Tweet)
RETURN t;

CREATE (h:Hashtag)
RETURN h;

CREATE (c:Country)
RETURN c;
```

```
neo4j$ CREATE (u:User) RETURN u
neo4j$ CREATE (t:Tweet) RETURN t
neo4j$ CREATE (h:Hashtag) RETURN h
neo4j$ CREATE (c:Country) RETURN c
```



```
// Restricciones
CREATE CONSTRAINT userName IF NOT EXISTS
FOR (u:User)
REQUIRE u.username IS UNIQUE;
```

```
j$ CREATE CONSTRAINT userName IF NOT EXISTS FOR (u:User) REQUIRE u.username IS UNIQUE;
```

```
Added 1 constraint, completed after 101 ms.
```

```
CREATE CONSTRAINT tweetID IF NOT EXISTS
FOR (t:Tweet)
REQUIRE t.id IS UNIQUE;
```

```
$ CREATE CONSTRAINT tweetID IF NOT EXISTS FOR (t:Tweet) REQUIRE t.id IS UNIQUE;
```

```
Added 1 constraint, completed after 96 ms.
```

```
CREATE CONSTRAINT hashtagTrend IF NOT EXISTS
FOR (h:Hashtag)
REQUIRE h.hashtag IS UNIQUE;
```

```
$ CREATE CONSTRAINT hashtagTrend IF NOT EXISTS FOR (h:Hashtag) REQUIRE h.hashtag IS UNIQUE;
```

```
Added 1 constraint, completed after 83 ms.
```

```
CREATE CONSTRAINT countryName IF NOT EXISTS
FOR (c:Country)
REQUIRE c.name IS UNIQUE;
```

```
$ CREATE CONSTRAINT countryName IF NOT EXISTS FOR (c:Country) REQUIRE c.name IS UNIQUE;
```

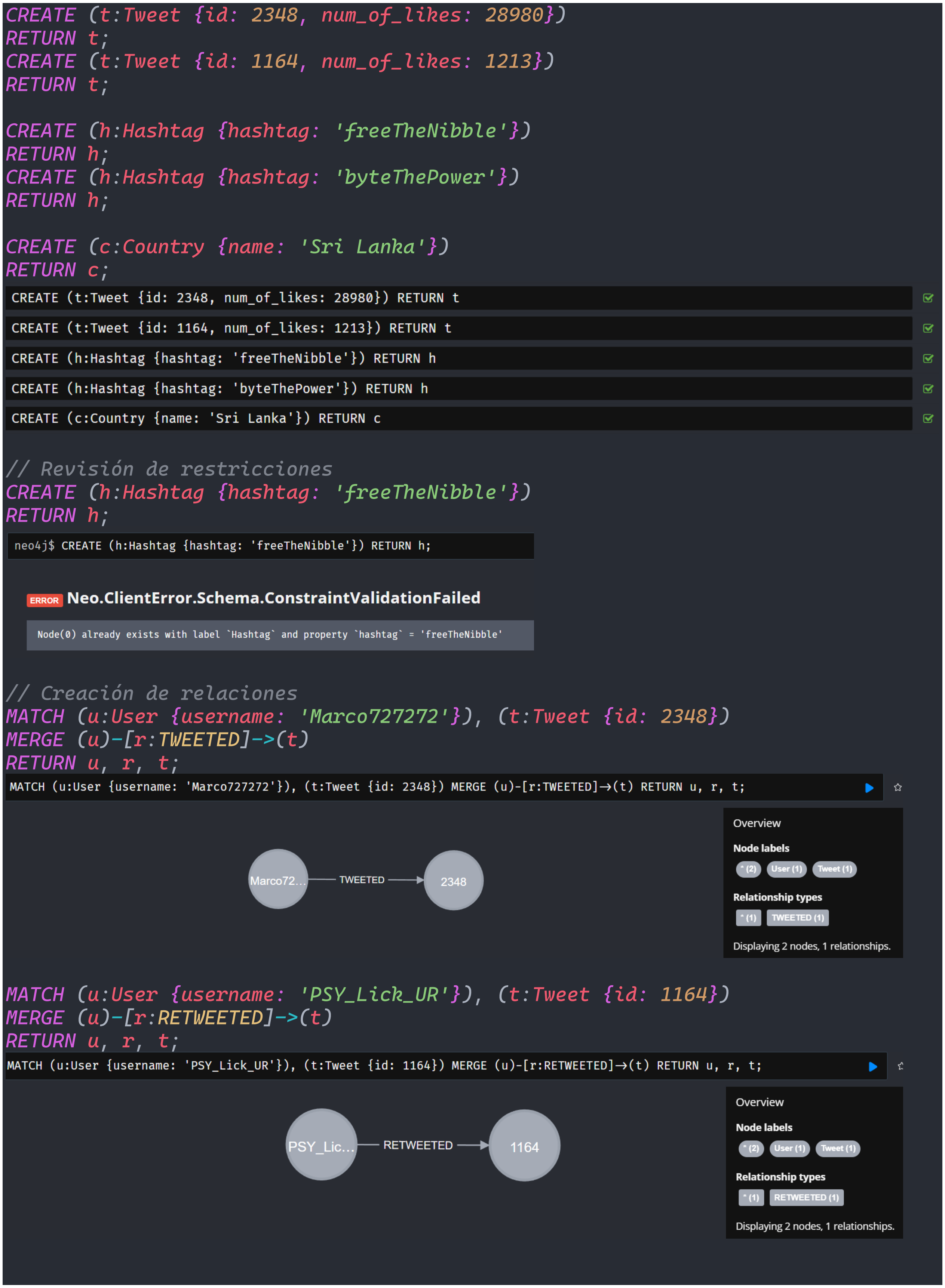
```
Added 1 constraint, completed after 97 ms.
```

```
// Creación de nodos
CREATE (u:User {username: 'Marco727272', num_of_followers: 385})
RETURN u;
```

```
CREATE (u:User {username: 'Marco727272', num_of_followers: 385}) RETURN u;
```

```
CREATE (u:User {username: 'PSY_Lick_UR', num_of_followers: 35})
RETURN u;
```

```
CREATE (u:User {username: 'PSY_Lick_UR', num_of_followers: 35}) RETURN u;
```



```
CREATE (t:Tweet {id: 2348, num_of_likes: 28980})
RETURN t;
CREATE (t:Tweet {id: 1164, num_of_likes: 1213})
RETURN t;

CREATE (h:Hashtag {hashtag: 'freeTheNibble'})
RETURN h;
CREATE (h:Hashtag {hashtag: 'byteThePower'})
RETURN h;

CREATE (c:Country {name: 'Sri Lanka'})
RETURN c;
```

```
CREATE (t:Tweet {id: 2348, num_of_likes: 28980}) RETURN t
CREATE (t:Tweet {id: 1164, num_of_likes: 1213}) RETURN t
CREATE (h:Hashtag {hashtag: 'freeTheNibble'}) RETURN h
CREATE (h:Hashtag {hashtag: 'byteThePower'}) RETURN h
CREATE (c:Country {name: 'Sri Lanka'}) RETURN c
```

```
// Revisión de restricciones
CREATE (h:Hashtag {hashtag: 'freeTheNibble'})
RETURN h;
```

```
neo4j$ CREATE (h:Hashtag {hashtag: 'freeTheNibble'}) RETURN h;
```

ERROR **Neo.ClientError.Schema.ConstraintValidationFailed**

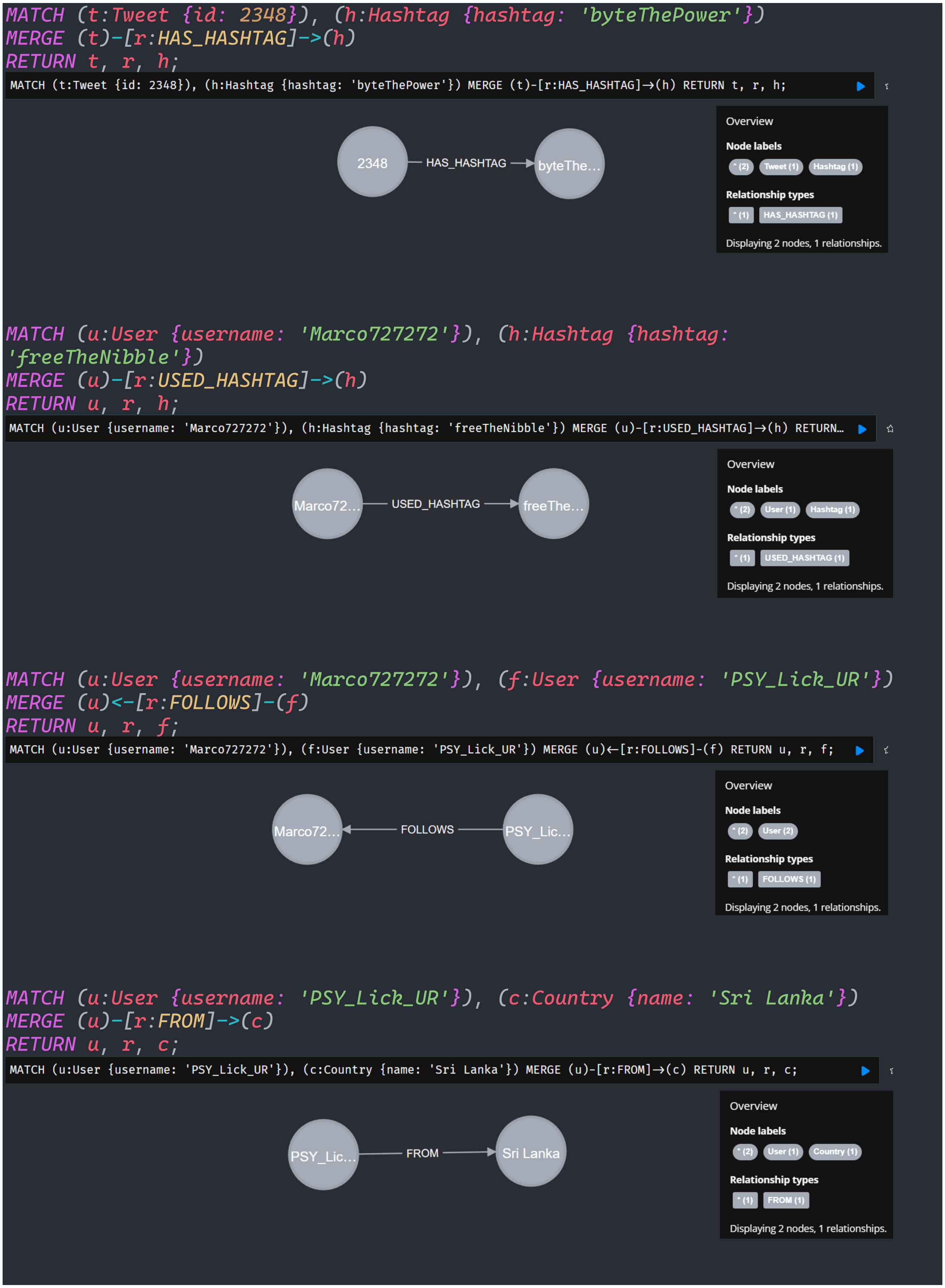
```
Node(0) already exists with label `Hashtag` and property `hashtag` = 'freeTheNibble'
```

```
// Creación de relaciones
MATCH (u:User {username: 'Marco727272'}), (t:Tweet {id: 2348})
MERGE (u)-[r:TWEETED]->(t)
RETURN u, r, t;
```

```
MATCH (u:User {username: 'Marco727272'}), (t:Tweet {id: 2348}) MERGE (u)-[r:TWEETED]→(t) RETURN u, r, t;
```

```
MATCH (u:User {username: 'PSY_Lick_UR'}), (t:Tweet {id: 1164})
MERGE (u)-[r:RETWEETED]->(t)
RETURN u, r, t;
```

```
MATCH (u:User {username: 'PSY_Lick_UR'}), (t:Tweet {id: 1164}) MERGE (u)-[r:RETWEETED]→(t) RETURN u, r, t;
```



```
MATCH (t:Tweet {id: 2348}), (h:Hashtag {hashtag: 'byteThePower'})
MERGE (t)-[r:HAS_HASHTAG]->(h)
RETURN t, r, h;
```

```
MATCH (t:Tweet {id: 2348}), (h:Hashtag {hashtag: 'byteThePower'}) MERGE (t)-[r:HAS_HASHTAG]→(h) RETURN t, r, h;
```

```
MATCH (u:User {username: 'Marco727272'}), (h:Hashtag {hashtag:
'freeTheNibble'})
MERGE (u)-[r:USED_HASHTAG]->(h)
RETURN u, r, h;
```

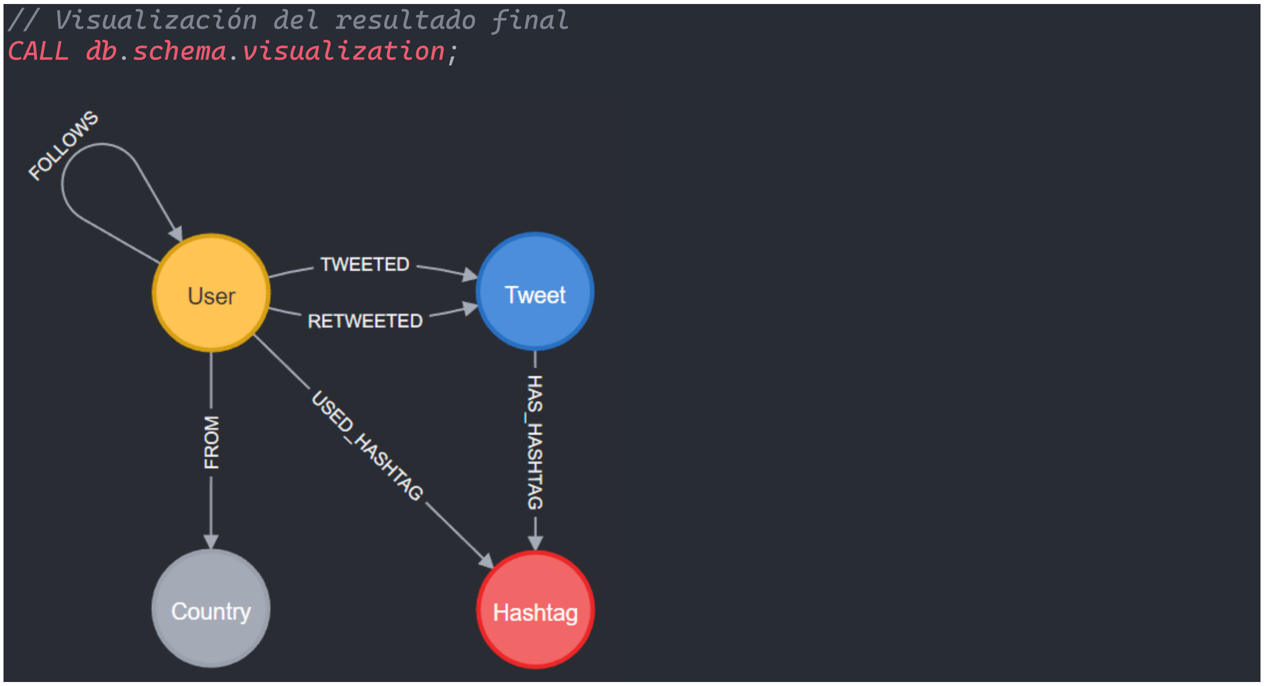
```
MATCH (u:User {username: 'Marco727272'}), (h:Hashtag {hashtag: 'freeTheNibble'}) MERGE (u)-[r:USED_HASHTAG]→(h) RETURN…
```

```
MATCH (u:User {username: 'Marco727272'}), (f:User {username: 'PSY_Lick_UR'})
MERGE (u)<-[r:FOLLOWS]-(f)
RETURN u, r, f;
```

```
MATCH (u:User {username: 'Marco727272'}), (f:User {username: 'PSY_Lick_UR'}) MERGE (u)←[r:FOLLOWS]-(f) RETURN u, r, f;
```

```
MATCH (u:User {username: 'PSY_Lick_UR'}), (c:Country {name: 'Sri Lanka'})
MERGE (u)-[r:FROM]->(c)
RETURN u, r, c;
```

```
MATCH (u:User {username: 'PSY_Lick_UR'}), (c:Country {name: 'Sri Lanka'}) MERGE (u)-[r:FROM]→(c) RETURN u, r, c;
```



```
// Visualización del resultado final
CALL db.schema.visualization;
```