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Practical 7: CRUD operations using Neo4j

Create Person, City, and Hobby Nodes

```
// Create Person nodes
CREATE (:Person {name: 'Alice', age: 30})
CREATE (:Person {name: 'Bob', age: 35})
CREATE (:Person {name: 'Charlie', age: 28})

// Create City nodes
CREATE (:City {name: 'London'})
CREATE (:City {name: 'New York'})
CREATE (:City {name: 'Paris'})

// Create Hobby nodes
CREATE (:Hobby {name: 'Reading'})
CREATE (:Hobby {name: 'Hiking'})
CREATE (:Hobby {name: 'Painting'})
```

Define Relationships

```
// Define relationships
// Alice lives in London and likes Reading
CREATE (alice)-[:LIVES_IN]->(london)
CREATE (alice)-[:LIKES]->(reading)

// Bob lives in New York and likes Hiking
CREATE (bob)-[:LIVES_IN]->(newYork)
CREATE (bob)-[:LIKES]->(hiking)

// Charlie lives in Paris and likes Painting
CREATE (charlie)-[:LIVES_IN]->(paris)
CREATE (charlie)-[:LIKES]->(painting)
```

Added 9 labels, created 18 nodes, set 12 properties, created 6 relationships, completed after 6 ms.

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Add New Nodes and Relationships

```
// Create a new person
CREATE (:Person {name: 'David', age: 25})

// Create a new city
CREATE (:City {name: 'Berlin'})

// Create a new hobby
CREATE (:Hobby {name: 'Gardening'})

// Create a relationship: David lives in Berlin and likes Gardening
CREATE (david)-[:LIVES_IN]->(berlin)
CREATE (david)-[:LIKES]->(gardening)
```
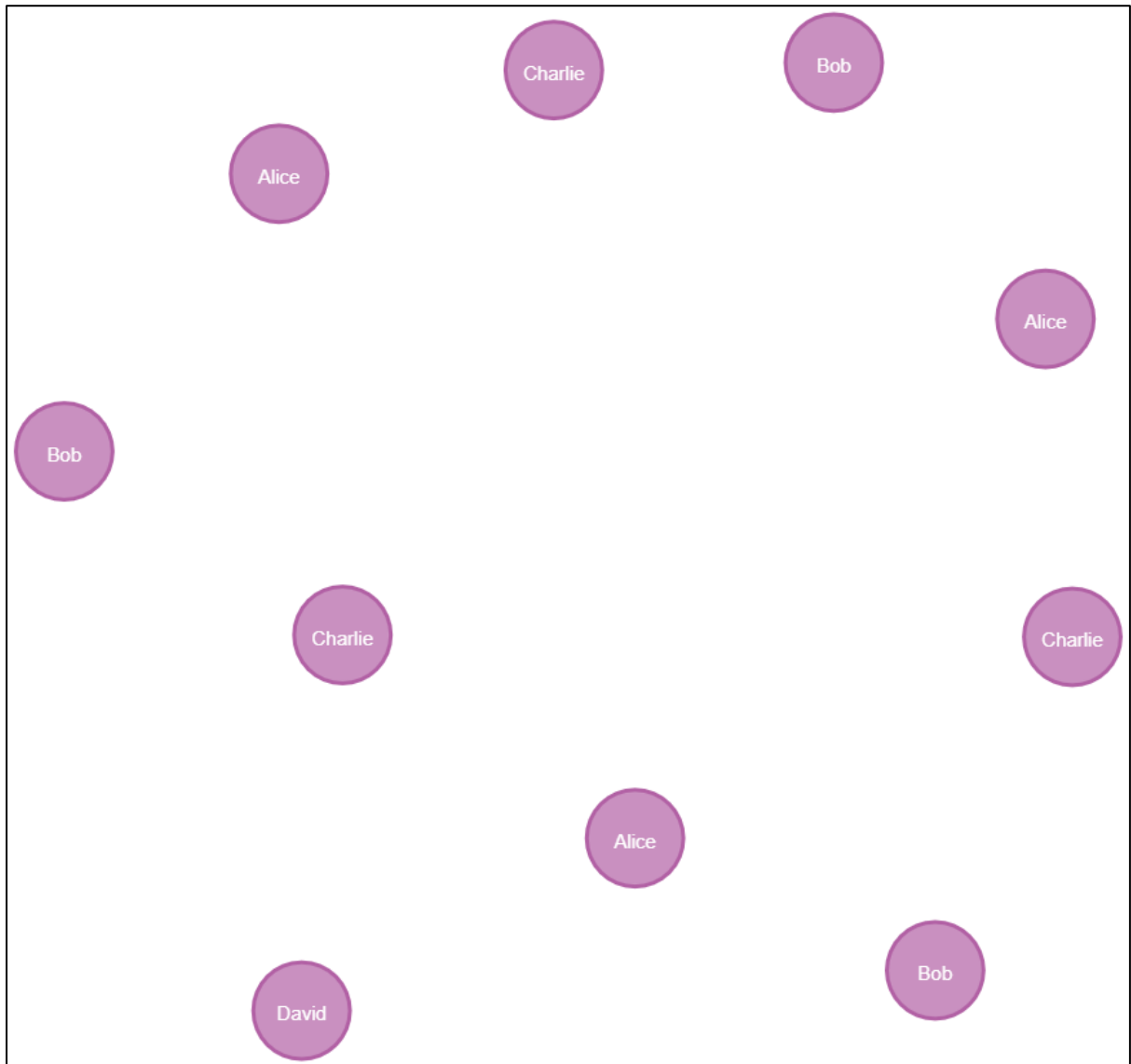
Added 3 labels, created 6 nodes, set 4 properties, created 2 relationships, completed after 21 ms.

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Retrieve Data

```
// Retrieve all persons
MATCH (p:Person)
RETURN p
```
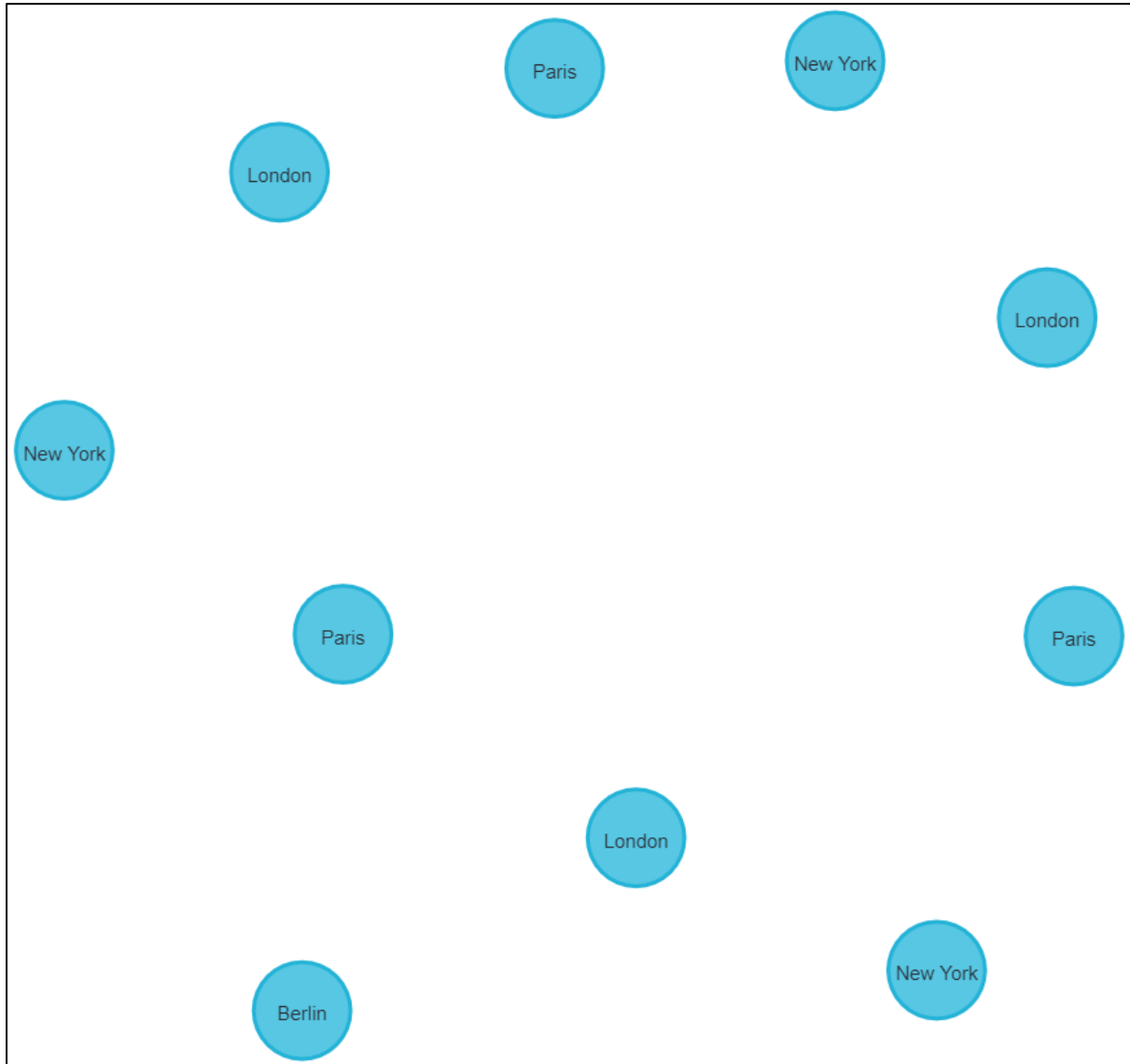
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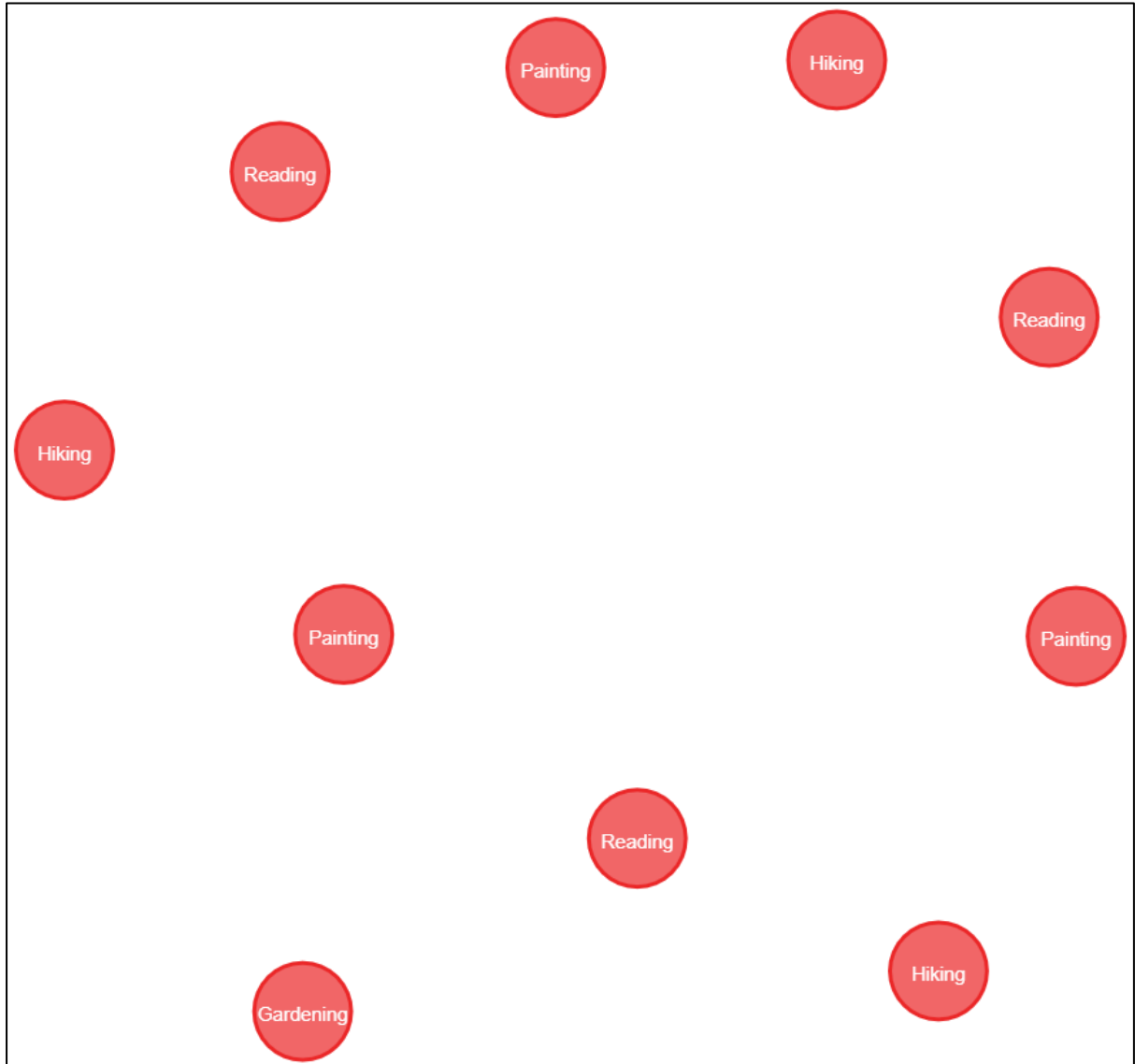
// Retrieve all cities
MATCH (c:City)
RETURN c

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```
// Retrieve all hobbies
MATCH (h:Hobby)
RETURN h
```
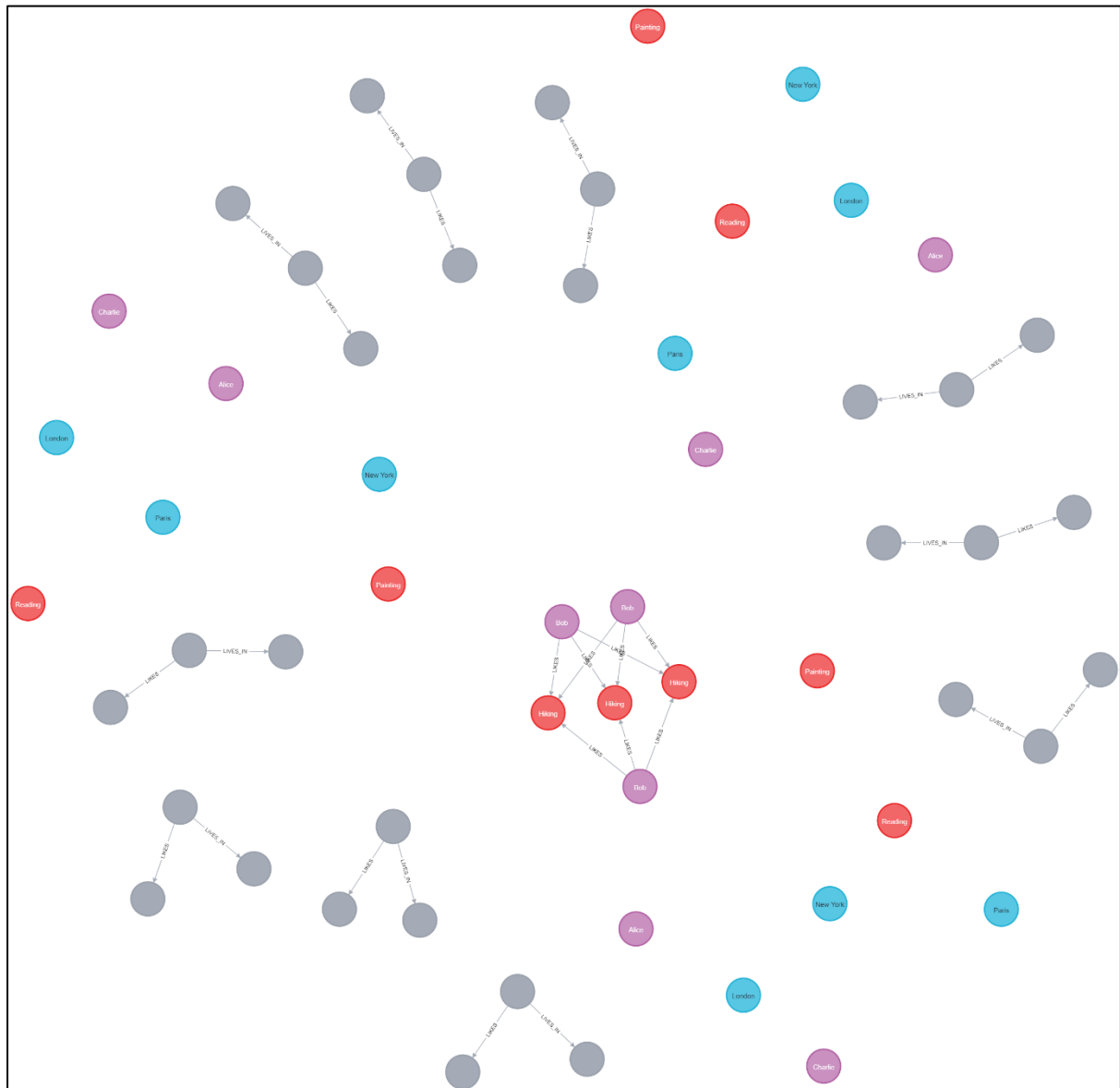
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MATCH (n)
OPTIONAL MATCH (n)-[r]->(m)
RETURN n, r, m

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Update Data

```
// Update Alice's age
MATCH (alice:Person {name: 'Alice'})
SET alice.age = 31
```

Set 3 properties, completed after 31 ms.

Modify Relationships

```
// Add a new hobby for Bob
MATCH (bob:Person {name: 'Bob'})
MERGE (hiking:Hobby {name: 'Hiking'})
CREATE (bob)-[:LIKES]->(hiking)
```
Created 9 relationships, completed after 26 ms.

Delete Nodes and Relationships

```
// Delete a specific person (e.g., David) and all relationships associated with them
MATCH (david:Person {name: 'David'})
DETACH DELETE david
```

Deleted 1 node, completed after 15 ms.

```
// Delete a specific city (e.g., Berlin) and all relationships associated with it
MATCH (berlin:City {name: 'Berlin'})
DETACH DELETE berlin
```

Deleted 1 node, completed after 15 ms.

```
// Delete a specific hobby (e.g., Gardening) and all relationships associated with it
MATCH (gardening:Hobby {name: 'Gardening'})
DETACH DELETE gardening
```

Deleted 1 node, completed after 17 ms.