**Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology**

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**School of Computing**

**B.Tech. – Computer Science and Engineering**

**VTR UGE2021- (CBCS) MM-O..MKNK)))(CBCS)**

Academic Year: 2025–2026

SUMMER SEMESTER - SS2526

Course Code : 10211CS207

Course Name: Database Management Systems

Slot No :S2L5

DBMS TASK - 10 REPORT

**Title:** CRUD operations in Graph databases

**Submittedby:**

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**TASK 10**

**CRUD operations in Graph databases**

Perform GraphQL/Neo4j graph space design for recommendation engines. Also perform CRUD operations like creating, inserting, querying, finding, deleting operations on graph spaces.

**AIM:** To perform CRUD operations like creating, inserting, querying, finding, deleting operations on graph spaces.

# Create Node with Properties

Properties are the key-value pairs using which a node stores data. You can create a node with properties using the CREATE clause. You need to specify these properties separated by commas within the flower braces “{ }”.

# Syntax

Following is the syntax to create a node with properties.

CREATE (node:label { key1: value, key2: value, ................... })

Returning the Created Node

To verify the creation of the node, type and execute the following query in the dollar prompt.

MATCH (n) RETURN n

# Creating Relationships

We can create a relationship using the CREATE clause. We will specify relationship within the square braces “[ ]” depending on the direction of the relationship it is placed between hyphen “ - ” and arrow “ → ” as shown in the following syntax.

# Syntax

Following is the syntax to create a relationship using the CREATE clause.

CREATE (node1)-[:RelationshipType]->(node2)

**Creating a Relationship Between the Existing Nodes**

You can also create a relationship between the existing nodes using the MATCH clause.

# Syntax

Following is the syntax to create a relationship using the MATCH clause.

MATCH (a:LabeofNode1), (b:LabeofNode2)

WHERE a.name = "nameofnode1" AND b.name = " nameofnode2"

CREATE (a)-[: Relation]->(b)

RETURN a,b

# Deleting a Particular Node

To delete a particular node, you need to specify the details of the node in the place of “n” in the above query.

# Syntax

Following is the syntax to delete a particular node from Neo4j using the DELETE clause. MATCH (node:label {properties ..................... })

DETACH DELETE node

**Create a graph database for student course registration, create student and dept node and insert values of properties.**

1. **Create Nodes:**

CREATE (n:student {Sid: "VTU14500", Sname: "John", deptname: "CSE"})

**Output:** Added 1 label, created 1 node, set 3 properties, completed after 232 ms.

CREATE (n:student {Sid: "VTU14501", Sname: "Dharsana", deptname: "EEE"})

**Output:** Added 1 label, created 1 node, set 3 properties, completed after 16 ms.

CREATE (n:student {Sid: "VTU14502", Sname: "Vijay", deptname: "CSE"})

**Output:** Added 1 label, created 1 node, set 3 properties, completed after 12 ms.

CREATE (n:dept {deptname: "CSE", deptid: "d001"})

**Output:** Added 1 label, created 1 node, set 2 properties, completed after 72 ms.

1. **Match Command to Select All Nodes:**

MATCH (n) RETURN n

1. **Match Command to Select All Student Nodes:**

MATCH (n:student) RETURN n

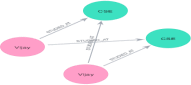
1. **Create Relationships Between Students and Departments with Arrows (Directed Relationships):**
2. **Create Relationship for Student "Vijay" with Department "CSE":**

MATCH (s:student), (d:dept)

WHERE s.Sname = 'Vijay' AND d.deptname = 'CSE'

CREATE (s)-[st:STUDIED\_AT]->(d) RETURN s, st, d

**Output (Visualization with Arrows):**



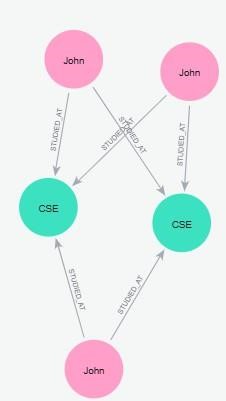
1. **Create Relationship for Student "John" with Department "CSE":**

MATCH (s:student), (d:dept)

WHERE s.Sname = 'John' AND d.deptname = 'CSE'

CREATE (s)-[st:STUDIED\_AT]->(d) RETURN s, st, d

**Output (Visualization with Arrows):**



1. **Match All Nodes Again (with Arrows in the Output):**

MATCH (n) RETURN n

 This will return all nodes with the relationships, and in the graph visualization, the arrows will indicate the direction of relationships.

1. **Delete a Node from Student (Delete Dharsana):**

MATCH (n:student {Sname: 'Dharsana'}) DELETE n **Output:**

Deleted 1 node, completed after 10834 ms.

**RESULT**:Thus the task has been executed and verified sucessfuly.