



Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology  
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## DBMS TASK - 9 REPORT

Title: CRUD operations in Graph databases

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## TASK 9

### CRUD operations in Graph databases

#### AIM:

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

*The steps to get started with Neo4j's Aura Graph Database:*

*Step1: Copy and paste the following link into your web browser:*

*<https://neo4j.com/cloud/platform/aura-graph-database/?ref=docs-get-started-dropdown>*

*Step2: Click on "Start Free."*

*Step3: Choose the option to "Continue with Google."*

*Step4: Click the "Open" button.*

*Step5: After clicking "Open," a text file will be automatically downloaded. This file contains your user ID and password details.*

*Step6: Copy the password from the downloaded text file and paste it where required.*

*Step7: Close the "Get started with Neo4j with beginner guides" if it's open.*

*Step8: You're now ready to begin practicing with the Graph Database.*

#### Create Node with Properties

Properties are the key-value pairs using which a node stores data. Create a node with properties using the CREATE clause and need to specify these properties separated by commas within the flower braces "{ }".

#### Syntax

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

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

#### Syntax:

```
MATCH (n) RETURN n
```

## Creating Relationships

To create a relationship using the CREATE clause and 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:**

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

**Syntax:**

```
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 and need to specify the details of the node in the place of "n" in the above query.

**Syntax:**

```
MATCH (node:label {properties ..... }) DELETE node
```

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

### Create a CrickenBoard Node:

```
create(cb:CricketBoard{BoardID:'BID01',Name:'Chennai Cricket Board', Address:'Chennai',  
Phone:9988776699}) return cb
```

### Create Team Nodes:

```
create(t1:Team{teamID:'CCB01',BoardID:'BID01',name:'ABS EXPRESS', Coach:'G.D.RAMESH',  
Captain:'SAMPATH KUMAR'}) return t1
```

```
create(t2:Team{teamID:'CCB02',BoardID:'BID01',name:'AVG EXPRESS',Coach: 'T.KARTHIKH',  
Captain:'Y.JOHN'}) return t2
```

### Create Player Nodes:

```
create(p1:Player{PlayerID:'1',TeamID:'CCB01',Name:'Raj',Age:23,DateofBirth:'29-JUN-1996',  
PlayingRole:'Bowler',email:'rajn@gmail.com'}) return p1
```

```
create(p2:Player{PlayerID:'33',TeamID:'CCB01',Name:'Anand',Age:23,DateofBirth:'02-JAN-1999',  
PlayingRole:'Batsman',email:'balajid@gmail.com'}) return p2
```

```
create(p3:Player{PlayerID:'65',TeamID:'CCB02',Name:'Suresh',Age:27,DateofBirth:'02-JUN-1996',  
PlayingRole:'Batsman',email:'sureshd@gmail.comm'}) return p3
```

```
create(p4:Player{PlayerID:'75',TeamID:'CCB02',Name:'Rohit',Age:33,DateofBirth:'02-JUN-1991',  
PlayingRole:'Batsman',email:'srohit@gmail.comm'}) return p4
```

### Creating Relationship among CricketBoard and Teams:

```
match(cb:CricketBoard{BoardID:'BID01'}),(t1:Team{teamID:'CCB01'}) create(cb)-[r:has]->(t1) return  
cb,r,t1
```

```
match(cb:CricketBoard{BoardID:'BID01'}),(t2:Team{teamID:'CCB02'}) create(cb)-[r:has]->(t2) return  
cb,r,t2
```

### Creating Relationship among Players and Teams:

```
match(p1:Player{PlayerID:'1'}),(t1:Team{teamID:'CCB01'}) create(p1)-[r1:playfor]->(t1) return p1,r1,t1
```

```
match(p2:Player{PlayerID:'33'}),(t1:Team{teamID:'CCB01'}) create(p2)-[r2:playfor]->(t1) return  
p2,r2,t1
```

```
match(p3:Player{PlayerID:'65'}),(t2:Team{teamID:'CCB02'}) create(p3)-[r3:playfor]->(t2) return  
p3,r3,t2
```

```
match(p4:Player{PlayerID:'75'}),(t2:Team{teamID:'CCB02'}) create(p3)-[r4:playfor]->(t2) return  
p4,r4,t2
```

**Display All nodes:** `match(n) return n`

### Output:

The screenshot displays the Neo4j Aura interface. On the left, the 'Database Information' panel shows 8 nodes (CricketBoard, Player, Team) and 7 relationships (has, playfor). The main area shows the query `neo4j$ match(n) return n` executed, resulting in a graph view with 8 nodes and 7 relationships. The 'Results Overview' panel on the right shows the counts: CricketBoard (1), Player (4), and Team (2). The bottom status bar indicates the system is at 35°C, partly sunny, on 06-10-2023 at 22:05.

## OUTPUT:

The screenshot displays the Neo4j Workspace interface. On the left, the 'Database Information' panel shows 8 nodes (CricketBoard, Player, Team) and 7 relationships (has, playfor). The central query editor contains the Cypher query: `neo4j $ match(n) return n`. Below the query, a graph visualization shows a network of nodes and relationships. On the right, the 'Node Details' panel for a 'Team' node displays the following properties:

Property	Value
<id>	6
BoardID	"BID01"
teamID	"CCB01"
name	"ABS EXPRESS"
Captain	"SAMPATH KUMAR"
Coach	"G.D.RAMESH"

The bottom of the image shows a Windows taskbar with the date 06-10-2023 and time 22:07.

*Retrieve particular player details:*

*`match(p:Player{PlayerID:'33'}) return p`*

The screenshot shows the Neo4j Workspace interface. On the left, the 'Database Information' panel displays 8 nodes (CricketBoard, Player, Team) and 7 relationships (has, playfor). The main graph view shows a single node labeled 'Anand'. The 'Node Details' panel on the right shows the properties for the selected node:

Property	Value
<id>	1
PlayerID	"33"
PlayingRole	"Batsman"
DateofBirth	"02-JAN-1999"
TeamID	"CCB01"
email	"balajid@gmail.com"
Age	23
Name	"Anand"

The query bar at the top shows the command: `neo4j$`. The bottom status bar indicates the last update was at 9:31:11 pm.

*Update particular player details:*

*match(p:Player{PlayerID:'1'}) set p.age=27 return p*

**Output:**

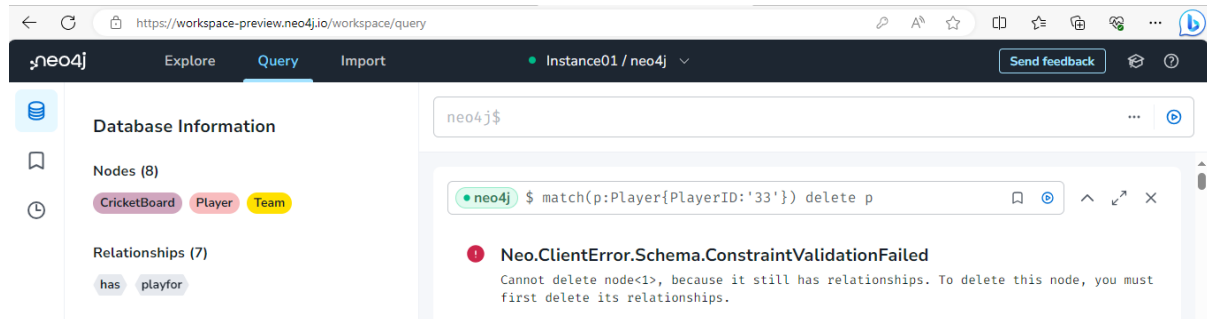
The screenshot shows the Neo4j Workspace interface after executing the update query. The main graph view now shows a single node labeled 'Raj'. The 'Node Details' panel on the right shows the updated properties for the selected node:

Property	Value
<id>	8
PlayerID	"1"
PlayingRole	"Bowler"
DateofBirth	"29-JUN-1996"
TeamID	"CCB01"
age	27
email	"rajn@gmail.com"
Age	23
Name	"Raj"

The query bar at the top shows the command: `neo4j$ match(p:Player{PlayerID:'1'}) set p.age=27 return p`. The bottom status bar indicates the last update was at 10:10:55 pm.

*Delete particular player from the team:*

*match(p:Player{PlayerID:'33'}) delete p*



**Result:**

*Thus the CRUD operations like creating, inserting, querying, finding, deleting operations on graph spaces were executed successfully.*