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

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Course Name : Database Management Systems

Slot No : S1L4

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.

Sep8: 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 CrickerBoard Node:

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

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.comm'}) 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

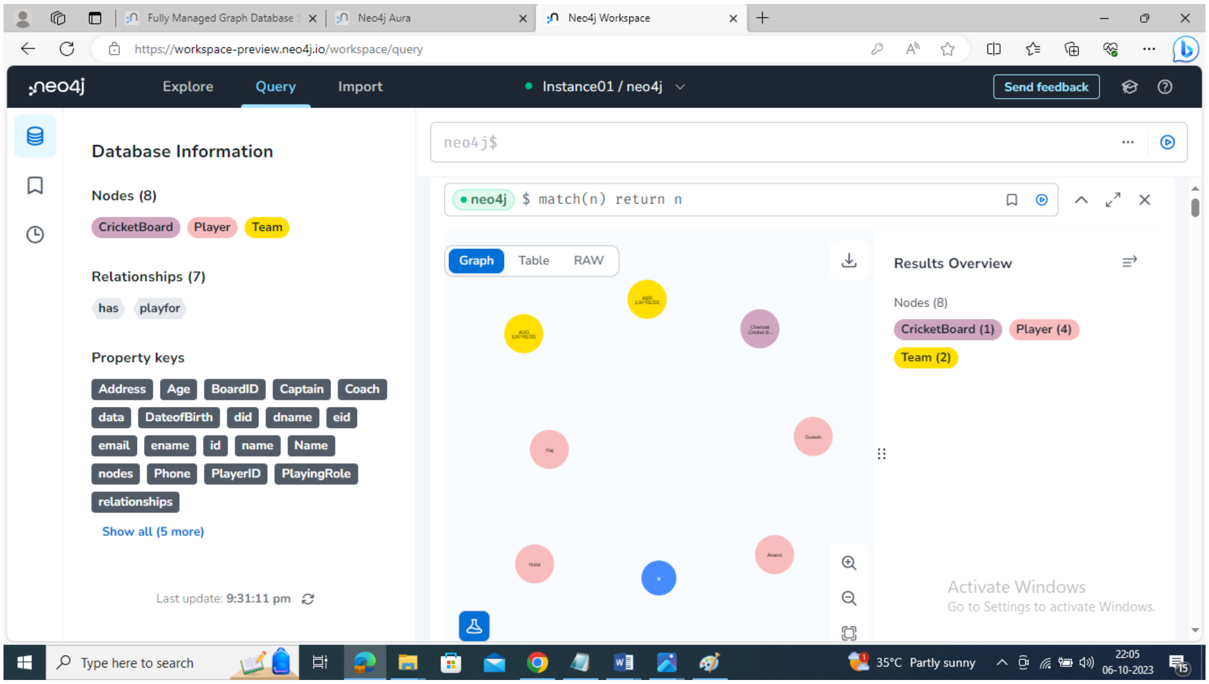
match(p2:Player{PlayerID:'33'}),(t1:Team{teamID:'CCB01'}) create(p2)-[r2:playfor]->(t1) return p2,r2,t1

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:



Database Information

Nodes (8)

CricketBoard Player Team

Relationships (7)

has playfor

Property keys

Address Age BoardID Captain Coach data DateofBirth did dname eid email ename id name Name nodes Phone PlayerID PlayingRole relationships

Show all (5 more)

Last update: 9:31:11 pm

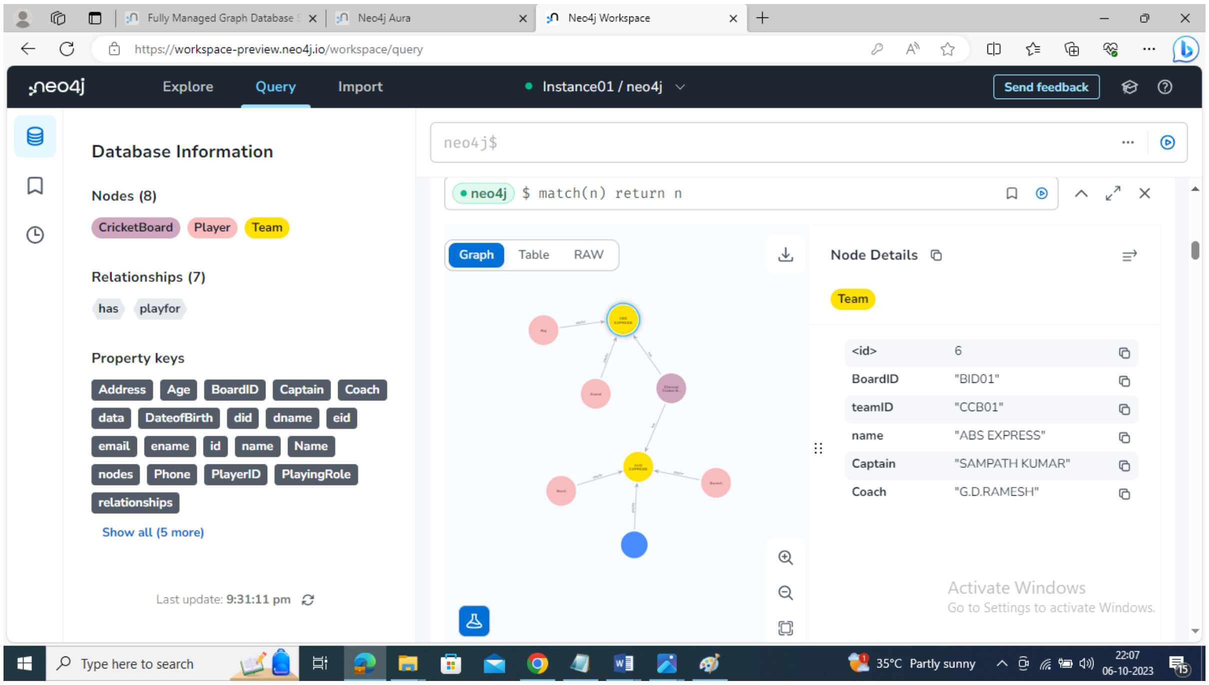
```
neo4j$ match(n) return n
```

Results Overview

Nodes (8)

CricketBoard (1) Player (4) Team (2)

OUTPUT:



```
neo4j$ match(n) return n
```

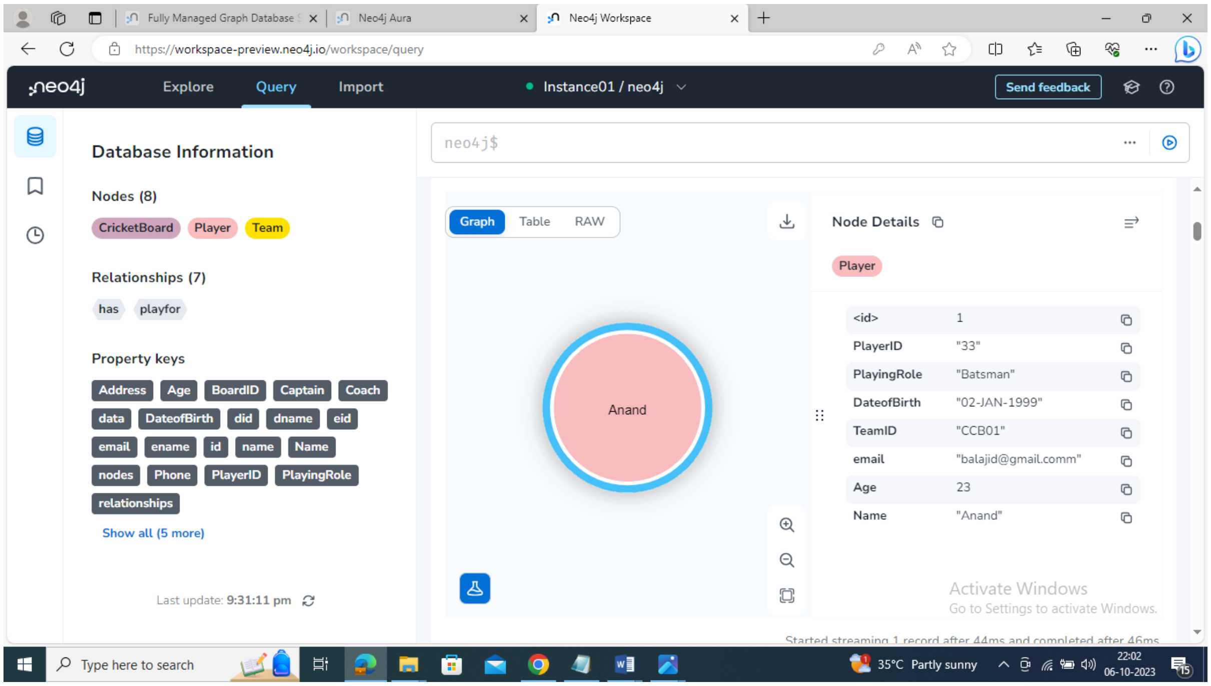
Node Details

Team

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

Retrieve particular player details:

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



Database Information

Nodes (8)

CricketBoard Player Team

Relationships (7)

has playfor

Property keys

Address Age BoardID Captain Coach data DateofBirth did dname eid email ename id name Name nodes Phone PlayerID PlayingRole relationships

Show all (5 more)

Last update: 9:31:11 pm

Node Details

Player

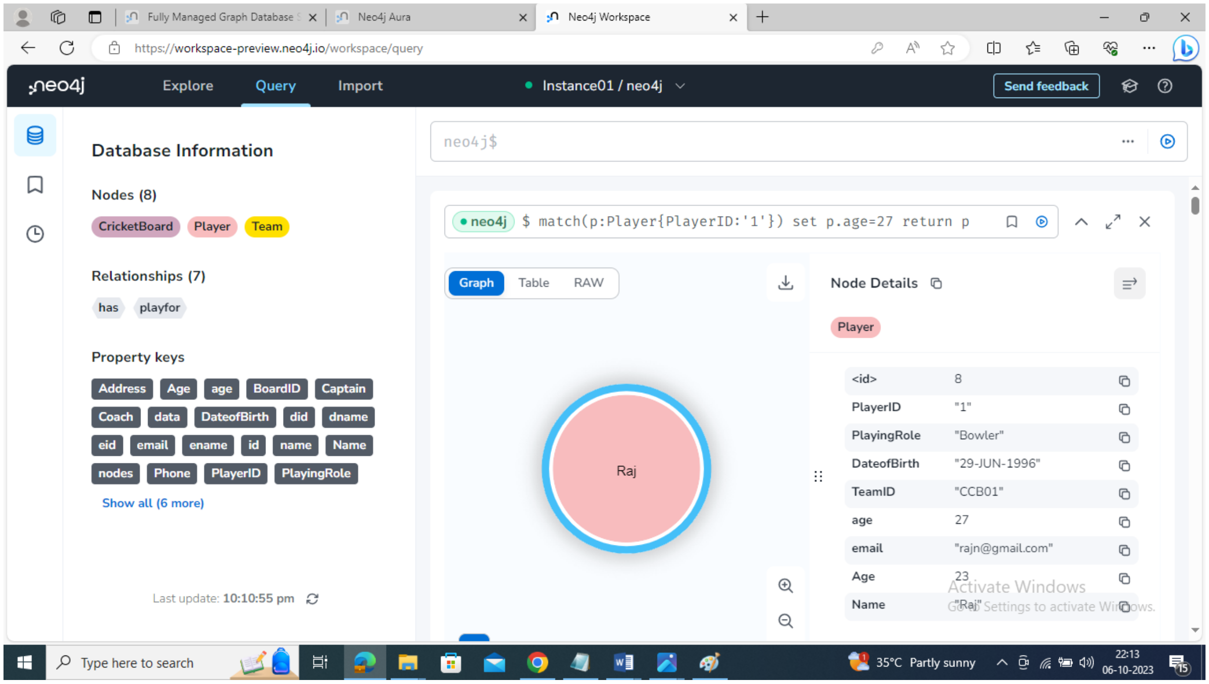
<id>	1
PlayerID	"33"
PlayingRole	"Batsman"
DateofBirth	"02-JAN-1999"
TeamID	"CCB01"
email	"balajid@gmail.comm"
Age	23
Name	"Anand"

Started streaming 1 record after 44ms and completed after 46ms

Update particular player details:

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

Output:



Database Information

Nodes (8)

CricketBoard Player Team

Relationships (7)

has playfor

Property keys

Address Age age BoardID Captain Coach data DateofBirth did dname eid email ename id name Name nodes Phone PlayerID PlayingRole

Show all (6 more)

Last update: 10:10:55 pm

```
neo4j $ match(p:Player{PlayerID:'1'}) set p.age=27 return p
```

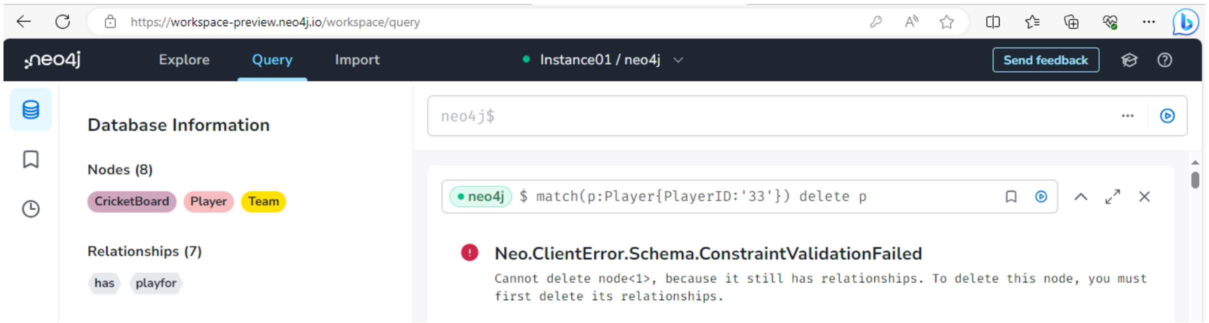
Node Details

Player

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

Delete particular player from the team:

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



```
neo4j $ match(p:Player{PlayerID:'33'}) delete p
```

Neo.ClientError.Schema.ConstraintValidationFailed

```
Cannot delete node<1>, because it still has relationships. To delete this node, you must
first delete its relationships.
```

Result:

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