TASK 11- CRUD OPERATIONS IN GRAPH DATABASES

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.

```
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(w: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"})
```

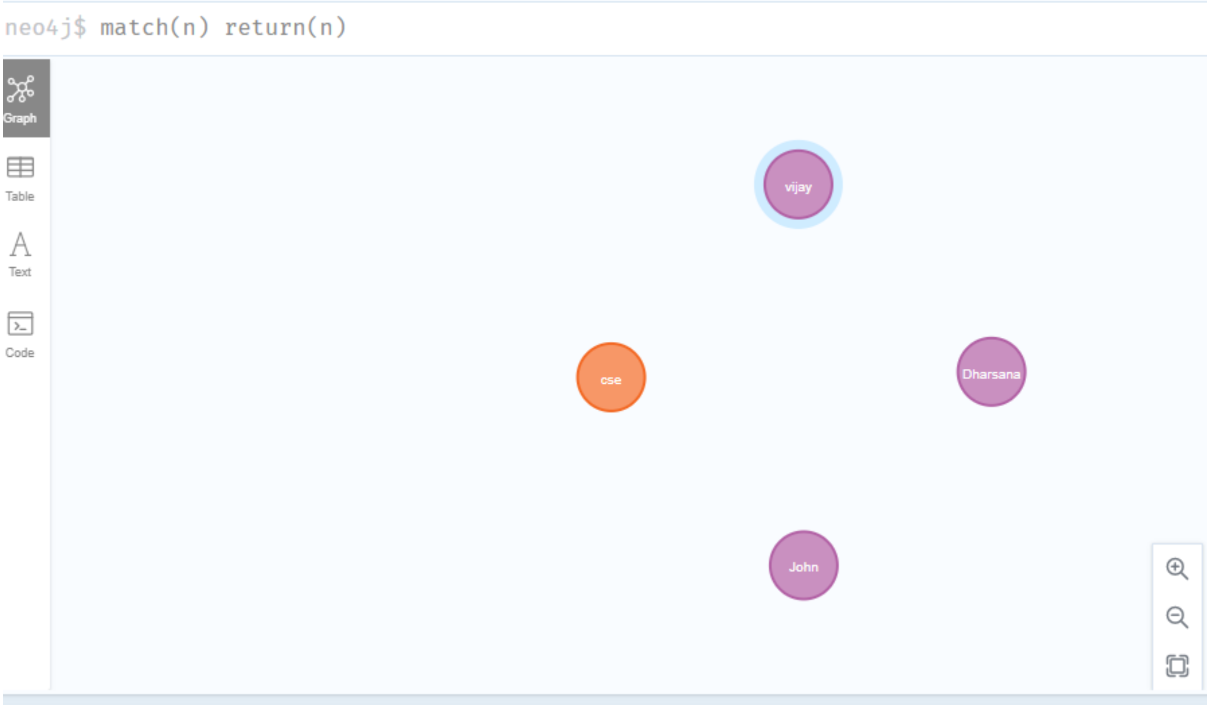
OUTPUT:

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

Select all the nodes in your database using match command

- ✧ **match(n) return(n)**

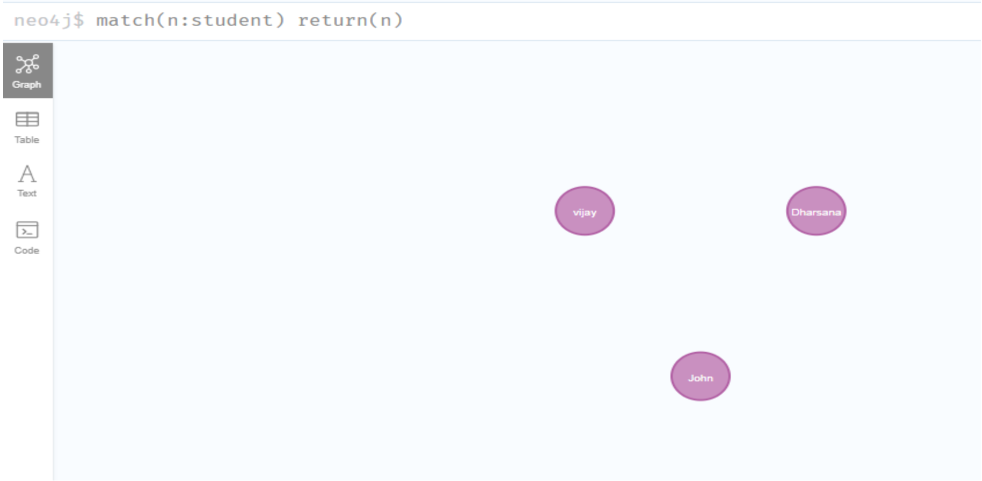
OUTPUT



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

✧ **match(n:student) return(n)**

OUTPUT:



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

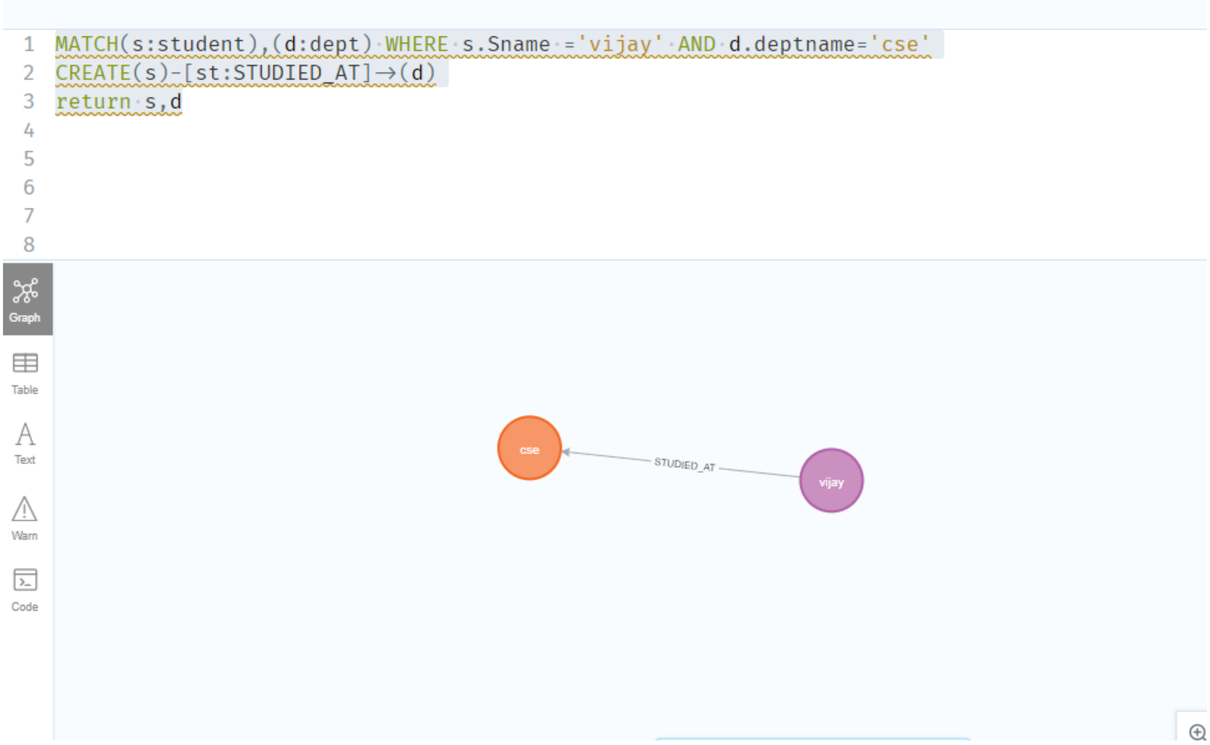
a) **Create relationship between student and cse** .

MATCH(s:student),(d:dept) WHERE s.Sname ='vijay' AND d.deptname='cse'

CREATE(s)-[st:STUDIED_AT]->(d)

return s,d

OUTPUT:



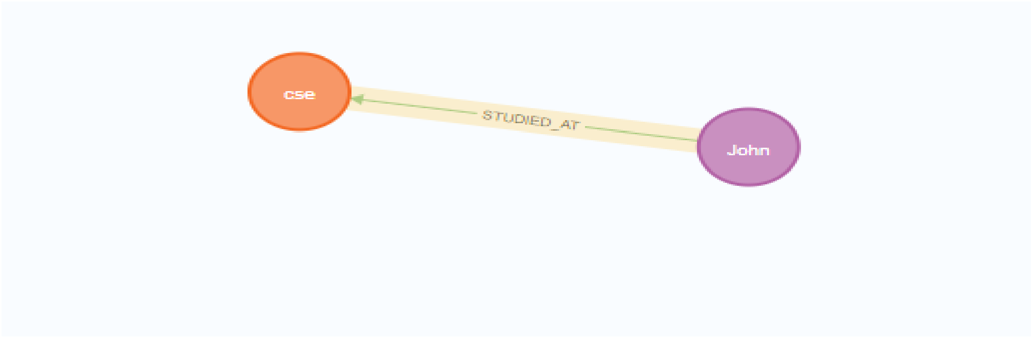
```
MATCH(s:student),(d:dept) WHERE s.Sname ='vijay' AND d.deptname='cse'
CREATE(s)-[st:STUDIED_AT]→(d)
return s,d
```

MATCH(s:student),(d:dept) WHERE s.Sname ='John' AND d.deptname='cse'

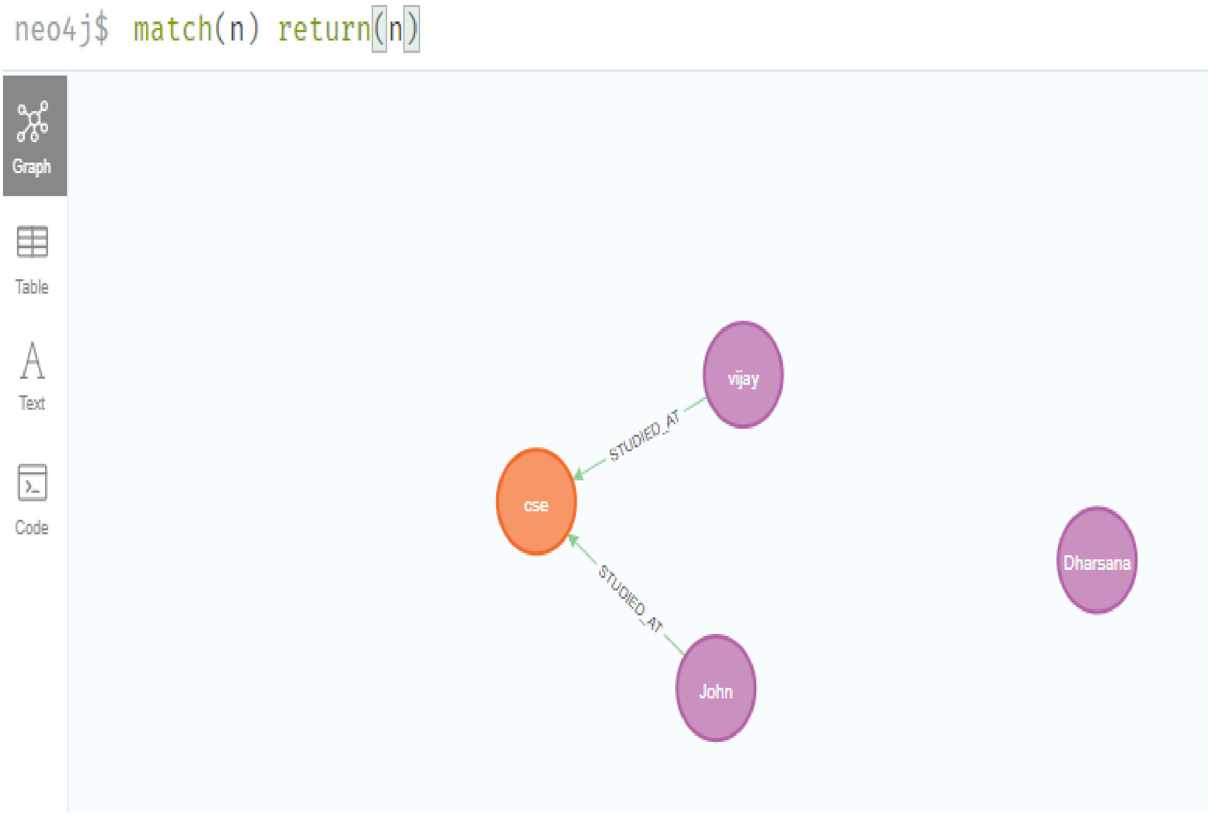
CREATE(s)-[st:STUDIED_AT]->(d)

return s,d

OUTPUT:



match(n) return(n)



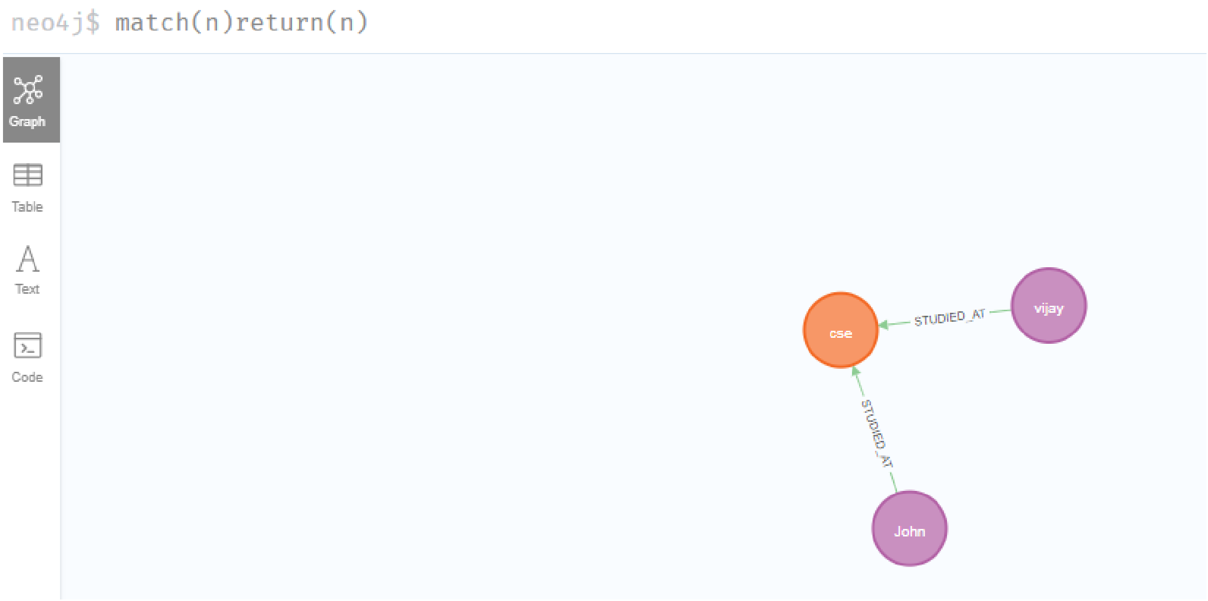
```
neo4j$ match(n) return(n)
```

b) Delete a node from student

match(n:student{Sname:'Dharsana'}) DELETE(n)

OUTPUT:

Deleted 1 node, complaeted after 10834 ms.



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

Result

The implementation of CRUD operations like creating, inserting, finding and removing operations using GraphDB is successfully executed.