Task 10 :

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

Syntax :

```
CREATE (node : label { key1 : value, key2 : value, .... 3)
Match (n) Return n
```

Create 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 "→"

Syntax :

```
CREATE (node 1) -[ : RelationshipType]-> (node 2)
```

Creating a Relationship Between the existing nodes

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

Syntax:

```
MATCH (a:LabelofNode1), (b:LabelofNode2)
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 a specify the details of the node in the place of "n" in the above query.

Syntax:

```
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.

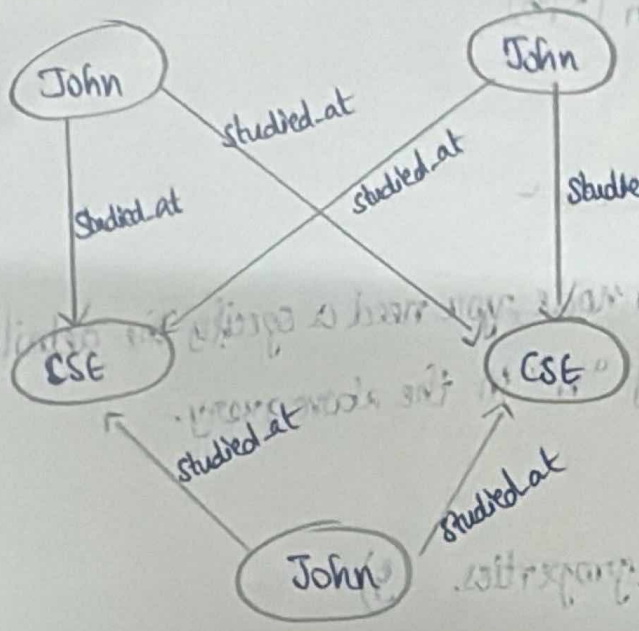
1. Create Nodes :

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

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

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

Output:


John
John
studied_at
studied_at
studied_at
studied_at
CSE
CSE
studied_at
studied_at
John

Output : Added 1 label, created 1 node, set 3 properties.

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

Output: Added 1 label, created 1 node, set 3 properties

2. Match Command to select All Nodes :

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

3. Match Command to select All set. student nodes :

```
MATCH (n: Student) RETURN n
```

4. Create Relationships between students and departments with Arrows

a. 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
```

5. Match all Nodes Again

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

6. Delete a node

```
MATCH (n: student [Sname : 'Dharsana'])
DELETE n
```

Result : Thus the crude operation is executed and verified.