DBMS LAB 10

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Section-H

Part A: Create Nodes

1. *Create Student Nodes*

```
// Create Student Nodes
CREATE
  (a:Student {name: 'Alice', age: 21, major: 'CSE'}),
  (b:Student {name: 'Bob', age: 22, major: 'ECE'}),
  (c:Student {name: 'Charlie', age: 20, major: 'CSE'});
```

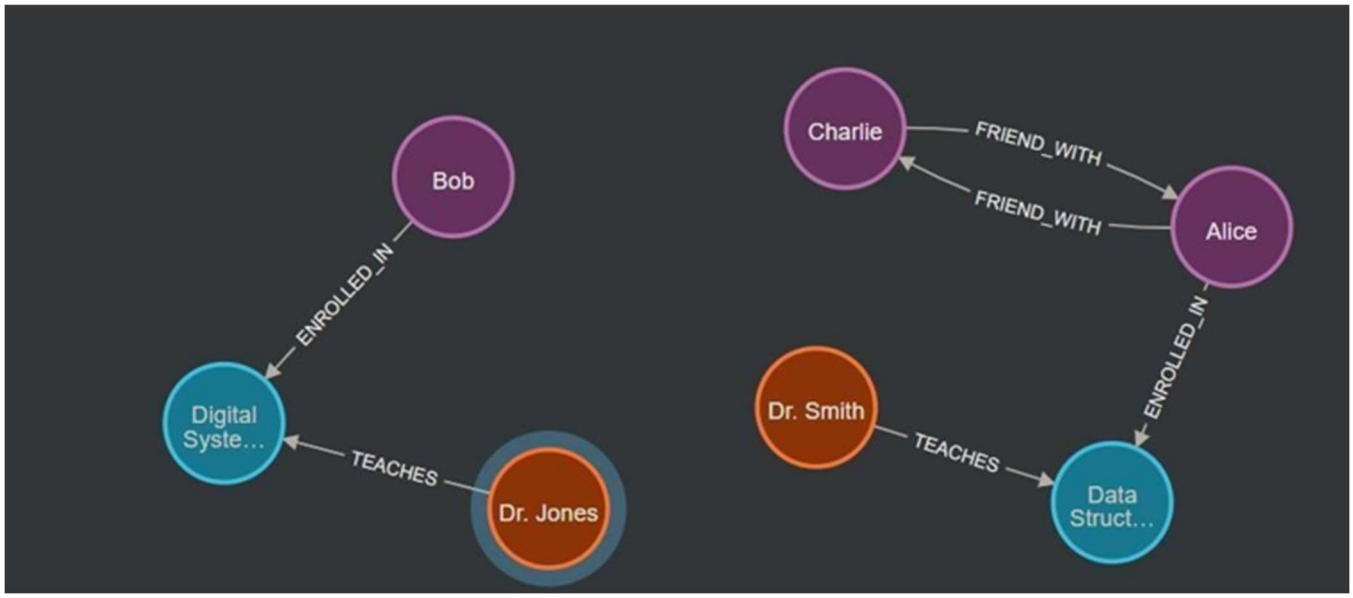
2. *Create Professor Nodes*

```
// Create Professor Nodes
CREATE
  (s:Professor {name: 'Dr. Smith', department: 'CSE'}),
  (j:Professor {name: 'Dr. Jones', department: 'ECE'});
```

3. *Create Course Nodes*

```
// Create Course Nodes
CREATE
  (cs:Course {code: 'CS101', title: 'Data Structures'}),
  (ec:Course {code: 'EC202', title: 'Digital Systems'});
```

Graph Creation



Part B: Create Relationships

4.

```
// Enrollments
MATCH (a:Student {name: 'Alice'}), (cs:Course {code: 'CS101'})
CREATE (a)-[:ENROLLED_IN]→(cs);

MATCH (b:Student {name: 'Bob'}), (ec:Course {code: 'EC202'})
CREATE (b)-[:ENROLLED_IN]→(ec);
```

5.

```
// Teaching
MATCH (s:Professor {name: 'Dr. Smith'}), (cs:Course {code: 'CS101'})
CREATE (s)-[:TEACHES]→(cs);

MATCH (j:Professor {name: 'Dr. Jones'}), (ec:Course {code: 'EC202'})
CREATE (j)-[:TEACHES]→(ec);
```

```
// Friendship
MATCH (a:Student {name: 'Alice'}), (c:Student {name: 'Charlie'})
CREATE (a)-[:FRIEND_WITH]→(c),
       (c)-[:FRIEND_WITH]→(a);
```

6.

Q7. List All Students

```
MATCH (s:Student)
RETURN s.name AS Student, s.age AS Age, s.major AS Major;
```

	Student	Age	Major
1	"Alice"	21	"CSE"
2	"Bob"	22	"ECE"
3	"Charlie"	20	"CSE"

Q8. Courses Taught by Dr. Mehta

```
MATCH (p:Professor {name:'Dr. Smith'})-[:TEACHES]→(c:Course)
RETURN c.title AS Course, c.code AS Code;
```

	Course	Code
1	"Data Structures"	"CS101"

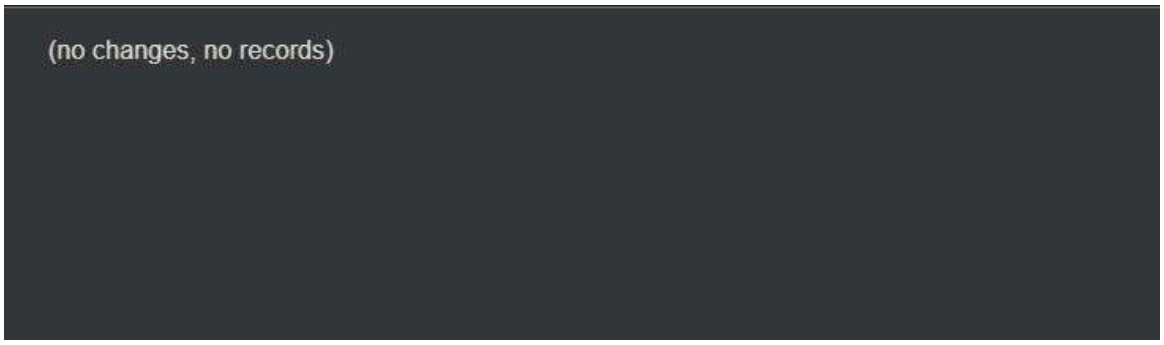
Q9. Friends of Neha

```
MATCH (c:Student {name:'Charlie'})-[:FRIEND_WITH]→(f:Student)
RETURN f.name AS Friends;
```

	Friends
1	"Alice"

Q10. Students in the Same Course

```
MATCH (s1:Student)-[:ENROLLED_IN]→(c:Course)←[:ENROLLED_IN]-(s2:Student)
WHERE s1.name < s2.name
RETURN c.title AS Course, s1.name AS Student1, s2.name AS Student2;
```



Q11. Professors Who Teach Riya's Courses

```
MATCH (a:Student {name:'Alice'})-[:ENROLLED_IN]→(c:Course)←[:TEACHES]-(p:Professor)
RETURN p.name AS Professor, c.title AS Course;
```

Professor	Course
"Dr. Smith"	"Data Structures"

Q12. Friends Enrolled in the Same Course

```
MATCH (s1:Student)-[:FRIEND_WITH]→(s2:Student),
      (s1)-[:ENROLLED_IN]→(c:Course)←[:ENROLLED_IN]-(s2)
RETURN s1.name AS Student1, s2.name AS Student2, c.title AS Course;
```

Q13. Courses with More Than One Student

```
1 MATCH (s:Student)-[:ENROLLED_IN]→(c:Course)
2 WITH c, count(s) AS studentCount
3 WHERE studentCount > 1
4 RETURN c.title AS Course, studentCount;
5
```

(no changes, no records)