

Assignment7_theory

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Graph Database

Question 6.A

The ER diagram has been made with following assumptions:

- All relationships are many-to-many.
- A Student can buy multiple books.
- A Student can enroll in multiple courses.
- Student can have multiple majors.
- Book can cite multiple books.

Major is an entity with an attribute major, majors_in is a relation that connects Student and Major.

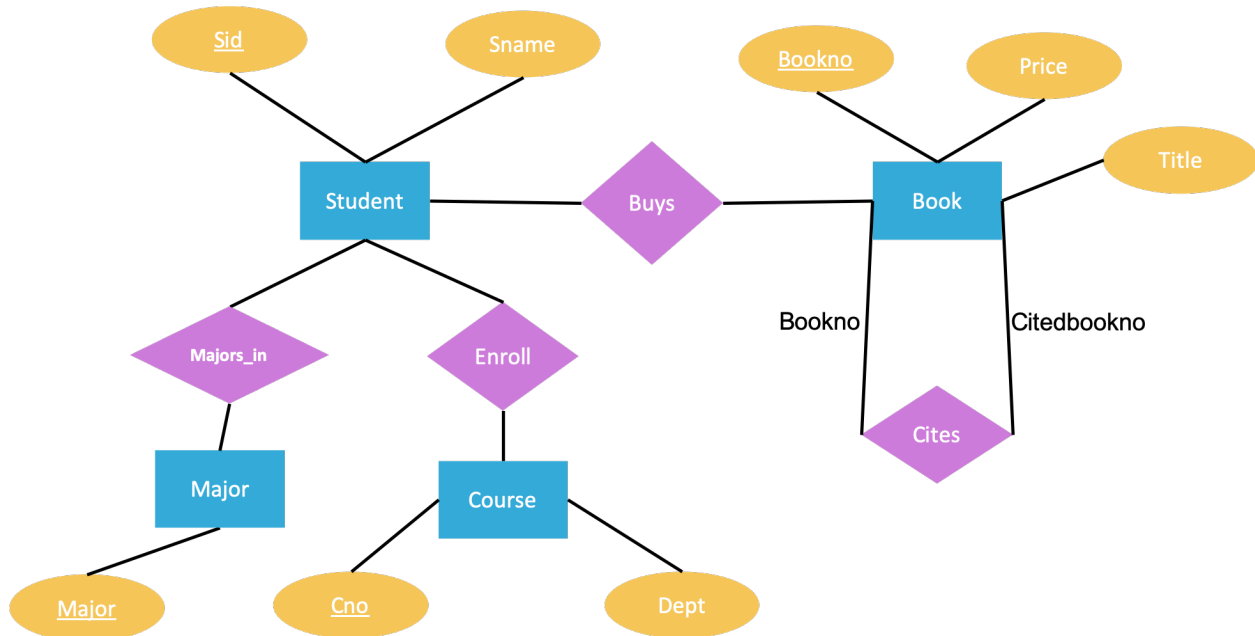


Figure 1: Entity-Relationship Diagram

Question 6.B

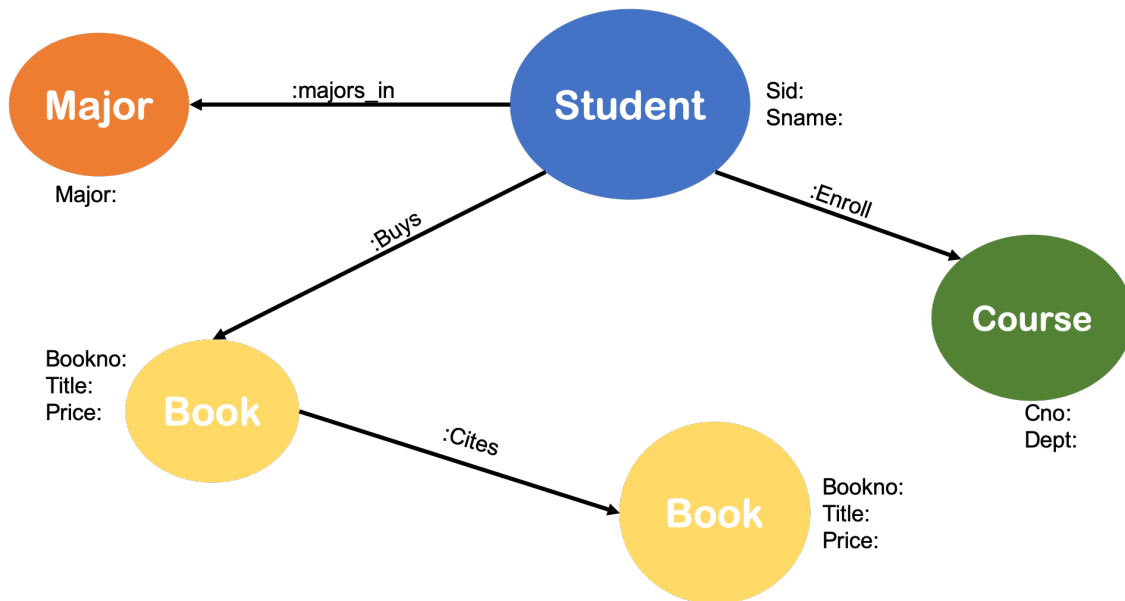


Figure 2: Property Graph

Question 7.a

```
MATCH (:Student )-[r]->()
RETURN type(r)
```

Question 7.b

```
MATCH(s: student{sname: 'John'}) -[:buys]->(b:book)
where b.price >=50
return s
```

Question 7.c

```
MATCH(s:student) -[:buys]-> (b1:book),
(b1) -[:cites]-> (b2:book)
where b2.price >= 50
return s
```

Question 7.d

```
MATCH (b1: Book) -[:cites*] -> (b2:book)
where b1.price >50
return b2
```

Question 7.e

```
MATCH (b:book)<-[:buys]-(s:student),
(s)-[:majors_in]->(m1:Major{major:'Math'}),
(s)-[:majors_in]->(m2:Major{major:'CS'})
return b, count(s)
```