Homework for Today

• Chapters 5 and 10 from the *Learning SQL* book
• Exercises at the end of assigned chapters
How many **rows** does the following query return?

```
SELECT e.fname, e.lname, e.dept_id, d.name
FROM Employee e JOIN Department d using (dept_id)
```

A. 0  
B. 3  
C. 5  
D. 15
How many **columns** does the following query return?

**SELECT** e.*, d.*
**FROM** Employee e **JOIN** Department d using (dept_id)

**A. 0**  **B. 3**  **C. 4**  **D. 5**
Quiz Question 3

When can the `using` subclause be used in a join between two tables?

A. Only when the join column has the same name in both tables
B. Only when doing a Cartesian product (or cross join)
C. Only when doing an inner join
D. Only when doing an outer join
E. None of the above
Quiz Question 4

Which one is equivalent to a JOIN between two tables?

A. A left outer join
B. A right outer join
C. A full outer join
D. A cross join
E. An inner join
How many **rows** does the following query return?

```
SELECT *
FROM Customer c LEFT OUTER JOIN Account a
ON c.cust_id = a.cust_id;
```

A. 3  
B. 4  
C. 5  
D. 6
Suppose we want to know who was enrolled in CS 327E last Spring. How do we answer this query from this schema?

Assume:
- 'CS 327E' in Class.name
- 'Spring 2016' in Class.semester
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Assume:
- 'CS 327E' in Class.name
- 'Spring 2016' in Class.semester

```sql
select *
from Student s
join Enrollment e on s.eid = e.eid
join Class c on e.unique = c.unique
where c.name = 'CS 327E'
and c.semester = 'Spring 2016'
order by s.eid
```
Concept Question 1

Suppose we replace the inner join on Student and Enrollment in the query below with a left-outer join. What additional results would we get back if any?

A. Enrollments without students
B. Other class enrollments (e.g. CS 303E, etc.)
C. Students who are not enrolled in CS 327E
D. Students who have taken the class more than once
E. No extra records, nothing would change

```sql
select *
from Student s
join Enrollment e on s.eid = e.eid
join Class c on e.unique = c.unique
where c.name = 'CS 327E'
and c.semester = 'Spring 2016'
order by s.eid
```
Concept Question 2

Suppose we work for an employment agency and we want to find all job candidates who are skilled in both 'MySQL' and 'Python'. How can we do that based on the table definition below?

CREATE TABLE CandidateSkills
(
   candidate_id INTEGER NOT NULL,
   skill_code CHAR(15) NOT NULL,
   PRIMARY KEY (candidate_id, skill_code)
);

INSERT INTO CandidateSkills VALUES(1, 'MySQL');
INSERT INTO CandidateSkills VALUES(1, 'Python');
INSERT INTO CandidateSkills VALUES(2, 'Python');
INSERT INTO CandidateSkills VALUES(3, 'MySQL');
INSERT INTO CandidateSkills VALUES(3, 'Oracle');

A. Use this query:
SELECT candidate_id
FROM CandidateSkills
WHERE skill_code = 'MySQL'
OR skill_code = 'Python'

B. First, select all candidates with MySQL and second, select all candidates with Python. Take the intersection of the two result sets inside the application.

C. Use this query:
SELECT c1.candidate_id
FROM CandidateSkills as c1,
     CandidateSkills as c2
WHERE c1.candidate_id = c2.candidate_id
AND c1.skill_code = 'MySQL'
AND c2.skill_code = 'Python'

D. Use this query:
SELECT candidate_id
FROM CandidateSkills
WHERE skill_code IN ('MySQL', 'Python')
Concept Question 3

Suppose we change the relationship between Customer and Account in the Bank database from 1:n to m:n. Unfortunately, we lose some data integrity with this change. How? Which of these queries will find all “orphan” accounts in the database (i.e. accounts without owners)?

A. select a.account_id, ca.acct_id from Account a join Cust_Acct ca on a.account_id = ca.acct_id where ca.acct_id is not null

B. select a.account_id, ca.acct_id from Account a join Cust_Acct ca on a.account_id = ca.acct_id where ca.acct_id is null

C. select a.account_id, ca.acct_id from Account a left outer join Cust_Acct ca on a.account_id = ca.acct_id where ca.acct_id is null

D. select a.account_id, ca.acct_id from Cust_Acct ca right outer join Customer c on ca.customer_id = c.cust_id where ca.acct_id is null
Homework for Next Time

- Read chapter 8 from the book
- Exercises at the end of assigned chapter