CS327E Lecture 5 - Monday 2/8/2016

Quiz Questions
Q1: Ans = D
Q2: Ans = B
Q3: Ans = B
Q4: Ans = D
Q5: Ans = E

Concept Question from last class
Here is a view of the bank schema from our book. From this diagram, what can you tell about the relationship between a customer, an individual, and a business?

The primary key in **business** and the primary key in **individual** are red, indicating that the key **cust_id** is a primary key, versus a **foreign key**.

In this case the answer is D because a customer is either a single business, or a single individual by virtue of the primary key. It is a single individual **or** a single business, not **and** because the **cust_type_cd** field can only be an 'I' or a 'B'.

So consider this situation, what if you pick the 'I' in **customer** and try to assign the **cust_id** into the business table? Will that be okay? Yes, although you would be making a mistake accidentally since the type is 'I' in **customer** but the primary key is still in **business**.

Concept Questions
1. How can we extend the bank schema to support a **joint** account that is owned by multiple accounts?
    a. This is the correct answer because a junction table between accounts and customer will hold the foreign keys for both tables.

2. Can we create an orphan account without a customer? Yes, that is why we use triggers to guarantee data integrity.

3. Now that we have established a many-to-many relationship between the account and customer entities, we need to watch out for "orphan" accounts, namely accounts which belong to no customers. Which of these queries will find all orphan accounts in the bank database?
    a. When we don't specify the join type is, then we will be pulling an inner join, giving us matching records.
    b. When we don't specify the join type is, then we will be pulling an inner join, giving us matching records.
    c. This is the correct answer because when there isn't a match we will still be pulling all values in the left table (even if there are no matching records), in this case, **account**.

d. This is not the correct answer because if we did a right outer join, it will be giving us all the records in customer, losing out on the extra records that may be accounts.

4. The Registrar's Office needs help finding all current classes that have no students enrolled. Which query will compute this answer?
    a. Since **enrollment** is the left table, we will only pull all the records from enrollment.
    b. This is the correct because **classes** is the right table, pulling all the records from classes.
    c. This is incorrect because it will include all non-matches in the left and right table.
    d. This join will be an inner join, only giving us matches.
    e. This is not the correct answer.

5. Consider Member and Locker tables in the Rec Center's database. Suppose we want to see a list of all members and their assigned locker, including those who have not been assigned to a locker. In the same report, we want to see a list of all the lockers, including those that have not been assigned to a member. What SQL query will compute this answer? (Note* You will need a WHERE or an ON keyword, since we are using the explicit join syntax. In this case, you will need an ON since we are using the explicit JOIN syntax).
    a. In this case, we would get all records of **members**, even those who don't have lockers assigned. But, we want lockers who haven't been assigned and we wouldn't get those.
    b. Using the logic in a, this is not the answer either.
    c. This is the correct answer but in mysql you'll have to use a union instead of **full outer join** since **full outer join** does not exist in mysql.
    d. This is not the correct answer because it pulls all matches.

6. The landlord of an apartment complex would like to know who has paid their rent this month. He wants to see a report of all apartment units, tenants, and rent payments, including units with no tenants and tenants who have not paid rent. The time period for the report should be 02/01/16 - 02/08/16
    a. This is the correct answer because units is the parent, otherwise the persistent entity. In this case, we start there and go on to the children.
    b. Not the correct answer because the ordering is off.
    c. Not the correct answer.