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09/14/2018

IT 214 – DATABASE FUNDAMENTALS

ASSIGNMENT 1

**QUESTION 1**

Consider the following tables:

CUSTOMER (**CUS\_CODE**, CUS\_LNAME, CUS\_FNAME, CUS\_PHONE)

CAR (**CAR\_VIN**, CAR\_LPLATE, CAR\_MODEL, CUS\_CODE)

For the tables given above, work on the problems below:

1. For each table, identify the primary key.

2. For each table, identify the foreign key(s).

3. Identify at least one candidate key. If there are no candidate keys, give an example of an attribute that could be used as a candidate key.

4. For one of the tables, give examples of a superkey and a secondary key.

5. For the given tables, explain how entity integrity and referential integrity could be violated. Give specific examples.

6. Use Visio to create a detailed Crow's Foot ERD. The diagram must include all entities, attributes, and relationships. Primary keys and foreign keys must be clearly identified on the diagram.

**1.**

The primary key in the first table is CUS\_CODE.

The primary key in the second table is CAR\_VIN.

**2.**

The foreign key is CUS\_CODE.

**3.**

One candidate key could be CUS\_CODE or CUS\_PHONE in the first table or CAR\_VIN or CAR\_LPLATE.

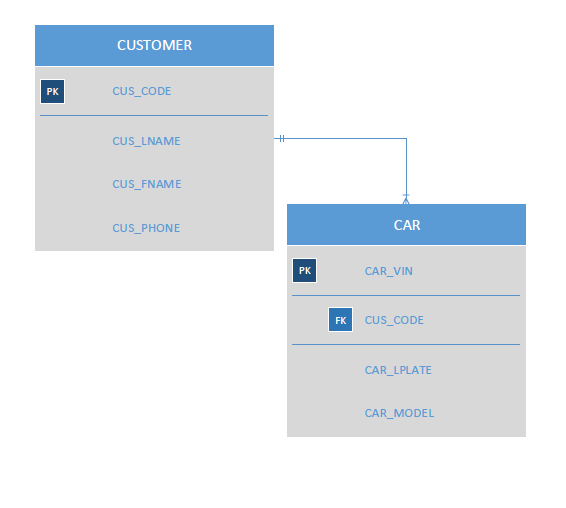
**4.**

For the first table, one superkey could be CUS\_CODE and CUS\_LNAME and a secondary key could be CUS\_LNAME

**5.**

Entity integrity could be violated if, for example, in the first table we choose CUS\_CODE as PK and there’s two customers with the same code. On the other hand, referential integrity could be also violated if we choose as foreign key, for instance, CUS\_DOB (it’s not referenced in the first table).

**6.**

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**QUESTION 2**

1. Consider the following tables:

JOB (**JOB\_CODE**, JOB\_TITLE, JOB\_DESCRIPTION, JOB\_RATE)

EMPLOYEE (**EMP\_CODE**, EMP\_LNAME, EMP\_FNAME, EMP\_PHONE, JOB\_CODE)

For the tables given above, work on the problems below:

1. For each table, identify the primary key.

2. For each table, identify the foreign key(s).

3. Identify at least one candidate key. If there are no candidate keys, give an example of an attribute that could be used as a candidate key.

4. For one of the tables, give examples of a superkey and a secondary key.

5. For the given tables, explain how entity integrity and referential integrity could be violated. Give specific examples.

6. Use Visio to create a detailed Crow's Foot ERD. The diagram must include all entities, attributes, and relationships. Primary keys and foreign keys must be clearly identified on the diagram.

**1.**

The primary key in the first table is JOB\_CODE.

The primary key in the second table is EMP\_CODE.

**2.**

The foreign key is JOB\_CODE.

**3.**

One candidate key could be JOB\_CODE or JOB\_TITLE in the first table or EMP\_CODE or EMP\_LNAME.

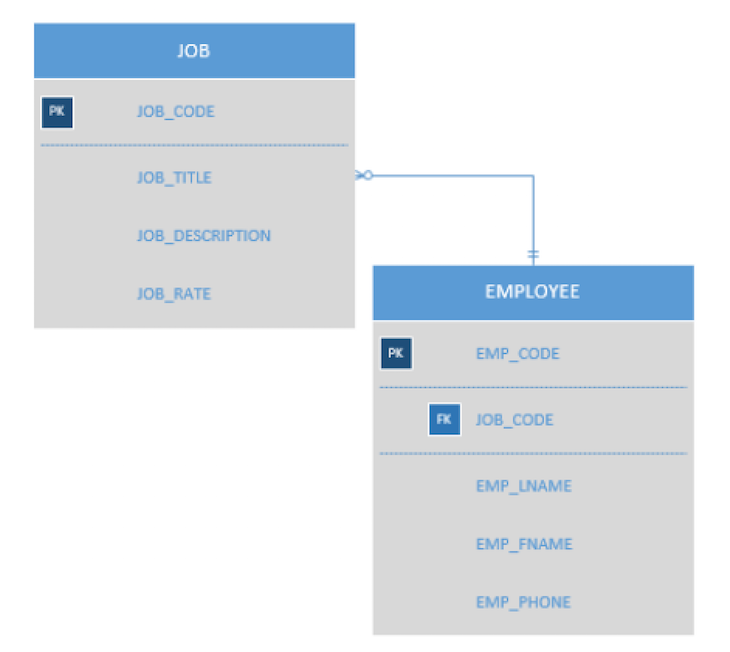
**4.**

For the first table, one superkey could be JOB\_CODE and JOB\_TITLE and a secondary key could be JOB\_TITLE

**5.**

Entity integrity could be violated if, for example, in the first table we choose JOB\_CODE as PK and there’s two customers with the same code. On the other hand, referential integrity could be also violated if we choose as foreign key, for instance, JOB\_COMPANY (it’s not referenced in the first table).

**6.**

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