

Metropolitan State University  
ICS 311-50 Database Management System  
Summer 2023  
Homework 3

**Due Date: 7/13/2023**  
**Total Points: 40**

**Question1 (10 Points)**

**Checking entity and referential integrity**

Use the database created in Assignment 2 to do complete Question 1 of this assignment.

Write an SQL statement to do each of the following tasks in the given order (try 1, 2, 3, 4, then 5). Explain whether the statement is correctly executed or not, if it does not execute correctly, explain why it did not.

1. Insert the following entry in CUSTOMER  
10011, 'Juan', 'Rodriguez', 'J', 612, 7788776

**INSERT INTO Customer**

**(cus\_code,cus\_lname,cus\_fname,cus\_initial,cus\_areacode,cus\_phone)**  
**VALUES (10011,'Juan', 'Rodriguez', 'J',612, 7788776);**

Unsuccessful, because the cus\_code 10011 already exists within the database. Two customers cannot have the same customer code. Primary key must be unique.

2. Insert the following entry in INVOICE  
1005, 10012, '2017-11-30'

**INSERT INTO Invoice (inv\_number,cus\_code,inv\_date) VALUES**  
**(1005,10012,'2017-11-30');**

Successfully executed

3. Insert the following entry in PRODUCT  
12321, 'nail', 9, 23, 236

**INSERT INTO Product**

**(prod\_code,prod\_desc,prod\_price,prod\_quant,vend\_code )**  
**VALUES**  
**(12321,'nail', 9, 23, 236);**

Unsuccessful, because the prod\_code 12321 already exists in the database. Each product must have unique ID, ID cannot be duplicated.

4. Insert the following entry to the VENDOR table  
231,'Adam', 'Eric', 615, 2158995

**INSERT INTO Vendor**

```
(vend_code,vend_name,vend_contact,vend_areacode,vend_phone)  
VALUES  
(231,'Adam','Eric', 615, 2158995);
```

Successfully executed

5. Insert the following entry in PRODUCT  
12322, 'coil', 189, 20, 237

**INSERT INTO Product**

```
(prod_code,prod_desc,prod_price,prod_quant,vend_code )  
VALUES  
(12322,'coil',189, 20, 237);
```

Unsuccessful, cannot add or update child row, must insert query within the vendor table first, then run this query

**Question 2: ( 30 points )**  
**ERD design**

Although you always wanted to be a dog trainer, you ended up being an expert on databases because you love to work with data and logic. Your old love is still there, however, so you set up a database company, DogTraining that builds a product for dog kennels. The core of this product is a database with a schema that captures all the information that kennels need to maintain. Kennels keep information about dog trainers, their names (which are unique), birthplaces, age, and style of training. For each dog, the trainer, the year it was born, its unique name, the type of dog (e.g., Brittany, German Shepard, Collie, etc.), and its price must be stored. Dogs are also classified into groups of various kinds, for example, hunting, guard, working; a given dog may belong to more than one group. Each group is identified by a name (like those just given) that describes the group. Finally, kennels keep information about customers. For each customer, kennels keep that person's unique name, address, total amount of dollars spent at the kennel (very important!), and the trainers and groups (not types) of dogs that the customer tends to like.

- 1) Draw the ER diagram for the database. ( 15 points )

Please see attached

- 2) Identify the relational schema for the database. Make sure to clearly indicate primary keys and foreign keys. ( 15 points )

**DogTrainers**(name(primary ID), birthplace, age, training\_style)

**Dog**(trainer(foreign key references DogTrainers(name), birth\_year, dog\_name(primary ID), dog\_type, price, dog\_group(foreign key references Groups(dog\_group\_name)))

**Customers**(c\_name(primary ID), c\_address, c\_expense, preferred\_traininer foreign key references DogTrainers(name), preferred\_group foreign key references Dog(dog\_group))

**Groups**(dog\_group\_name(primary ID), description)