Name: _____ USC ID: _____

Quiz 6: Constraints & views (10 points), 10 minutes (afternoon section)

Consider the following tables that you have seen in the last quiz. Note primary keys are underlined.

Product(SerialNo, Brand, Model, Price)
Store(ID, Name, City)
Purchase(BuyerName, SellerName, StoreID, SerialNo, Date)
Person(Name, PhoneNumber, City)

1. [3 points] List all foreign keys in the above tables. For each foreign key, indicates which attribute of which table it refers to.

   *BuyerName, SellerName, StoreID, SerialNo in **Purchase** table are foreign keys.*
   BuyerName refers to Person(Name)
   SellerName refers to Person(Name)
   StoreID refers to Store(ID)
   SerialNo refers to Product(SerialNo)

2. [3 points] For which type(s) (insert, delete, and update) of modifications to the **Person** table, should database check possible violation of foreign key constraints? If yes, which table should be checked? Is "**on delete set null**" a possible action for the affected table? Explain your answer.

   *Delete and Update to the **Person** table should check possible violation of foreign key constraints in **Purchase** table.*

   *"on delete set null" is not possible, since it will change BuyerName or SellerName in Purchase table to NULL when deleting a person tuple in Person table, however it will cause NULL in primary keys in **Purchase** table, which is a violation of primary key.*

3. [2 points] Write a view BrandModelView to compute the **total number** of purchases per brand and model.

   ```
   CREATE VIEW BrandModelView AS
     SELECT Brand, Model, COUNT(*) as 'Total'
     FROM Product, Purchase
    WHERE Product.SerialNo = Purchase.SerialNo
    GROUP BY Brand, Model
   ```

4. [2 points] Use the view obtained in the above question to "find **the total number** of purchases per brand".

   ```
   SELECT Brand, SUM(Total)
   FROM BrandModelView
   GROUP BY Brand
   ```