SQL Review 01

Practice Exercise –4NF

**Name: Vivek Panchal**

Do not add any attributes, like surrogate keys. They could be added at implementation if needed.

1. Consider the following relation

OrderList (orderNum, food, beverage, tableNum)

orderNum uniquely identifies an order. Orders are for only one table.

Customers can order multiple food items and beverage items on the same order.

An example order could be for table 3, 2 foods (a Veggi Burger and French Fries) and two drinks (A Cola and Water).

* What is the primary key of the relation?
* In what normal form is this relation?
* Are there any multi-valued dependencies and if so, what are they?
* Normalize the relation to fourth normal form. Express the answer in relational notation and show the relationships, foreign keys and primary keys.

**Answer Here:**

1.) 'orderNum' is the primary key of relation.

2.) It is in BCNF as it satisfies the condition of every determinant being a candidate key.

3.) Yes, there are multivalued dependencies. They are as follows:

orderNum ->> foods

orderNum ->> beverage

4.)Given relation : OrderList (orderNum , food, beverage ,tableNum)

Order(orderNum ,tableNum )

OrderFood (*orderNum* , foods)

Order(orderNum) mei OrderFood(orderNum)

OrderBeverage*(orderNum* , beverage)

Order(orderNum) mei OrderBeverage(orderNum)

2. Consider the following scenario:

We are going to design a database for a small clinic. The clinic just has primary care physicians at the present time. Since there are no specialists, each patient must be assigned to one and only one primary care physician.

The physicians have an ID number, a name (first and last), a home address made up of street address, city, state and zip code, a license number and one or more phone numbers (home, business and mobile) and one or more email addresses.

The patients have an ID, first and last names, a home address made up of street address, city, state and zip code, one or morephone numbers (home, business and mobile) and one or more email addresses.

* What are the attributes of this database?
* Determine the relations involved in this database.
* Normalize the relations to 4NF. Show all foreign key relationships.
* Draw the normalized EER diagram for this database using MySQL Workbench and paste it into the MS Word document.

**Answer Here(Paste the EER drawing into the word document):**

Patient(Id,firstName,lastName,streetAddress,city,state,zipcode,*PhysicianId*)

Patient(Physician\_Id) mei Physician(Id)

Patient\_EmailAddress(*Id*, PtEmailAddress)

Patient\_EmailAddress(Id) mei Patient(Id)

Patient\_Phone(*Id*, PtPhoneNumber)

Patient\_Phone(Id) mei Patient(Id)

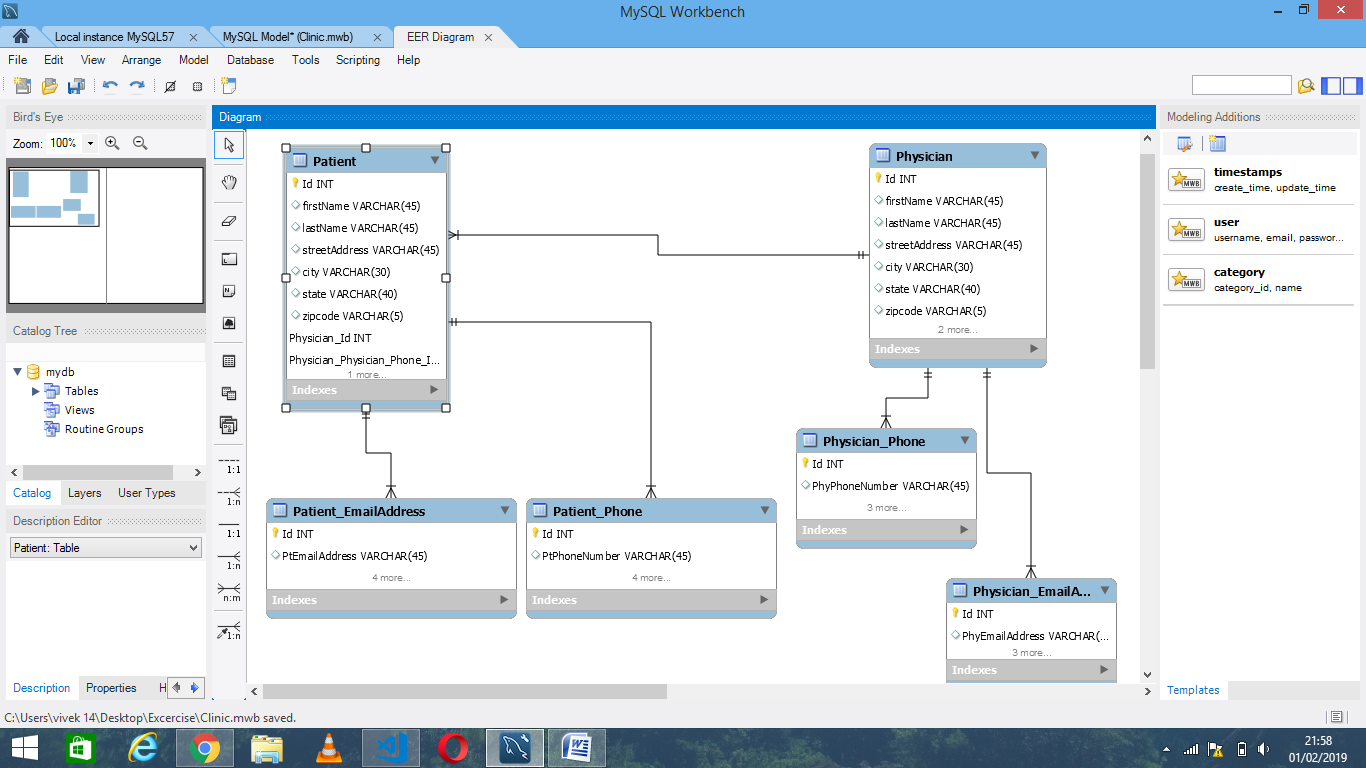
Physician(Id,firstName,lastName,streetAddress,city,state,zipcode)

Physician\_EmailAddress(*Id*, PhyEmailAddress)

Physician\_EmailAddress(Id) mei Physician(Id)

Physician\_Phone(*Id*, PhyPhoneNumber)

Physician\_Phone(Id) mei Physician(Id)

****