**Ch2-Review**

**Homework:** Chapter 2 Review Assignment (15 points) - Due \_\_\_ \_\_\_ \_\_ Before Class

Apply the normalization process to the following relations. Show the following steps for each relation:

1. Show the candidate keys from the original relation.
2. Show the functional dependencies from the original relation.
3. Is any determinant not a candidate key? If so, show the following:
   1. The new normalized relations.
   2. The primary key in each new relation.
   3. The foreign keys in the new relations.
   4. The referential integrity constraints for the foreign keys.

**Relation 1:**

This relation is about home appliances, such as refrigerators, stoves, ovens, washers, dryers, etc.

* APPLIANCE (ApplianceType, BrandName, ModelNumber, SerialNumber, OwnerName, OwnerAddress, OwnerPhone)
* Assumptions:
  + Each model number is unique to its brand and type. For example, a Kenmore washer could have a model number of KEN-WASH-990.
  + Serial numbers are just numbers, like 12345678, so could be duplicated.
  + Owner phone numbers are unique.
  + State any other assumptions you make.
    - Serial numbers don’t repeat for each brand name.

Step 1: The candidate keys are: (ModelNumber, OwnerPhone)

Step 2: The function dependencies are:

ModelNumber 🡪 (BrandName, ApplianceType)

OwnerPhone 🡪 (OwnerName, OwnerAddress)

Step 3: Are there any determinants that are not candidate keys? Yes.

ModelNumber and OwnerPhone are determinants, but not candidate keys.

Step 3a, b:

OWNER ( OwnerPhone, OwnerName, OwnerAddress )

PURCHASE ( ModelNumber, BrandName, ApplianceType)

Step 3c:

APPLIANCE ( SerialNumber, *OwnerPhone, ModelNumber* )

Step 3d:

ModelNumber in APPLIANCE must exist in ModellNumber in PURCHASE.

OwnerPhone in APPLIANCE must exist in OwnerPhone in OWNER.

**Relation 2:**

This relation is about playgroups for children. Each group has many children. Each child can belong to one or more groups. A parent could have one or more children in one or more groups.

* PLAYGROUP (ParentName, ParentEmail, ParentAddress, ChildName, PlayGroup, GroupLeader)
* Assumptions:
  + Each parent has a unique e-mail address.
  + Each playgroup has a unique name.
  + Each playgroup has only one leader.
  + State any other assumptions you make.

Step 1: The candidate keys are: ( ChildName, PlayGroup )

Step 2: The function dependencies are:

ParentEmail 🡪 ParentName, ParentAddress

ChildName 🡪 ParentEmail

PlayGroup 🡪 GroupLeader

Step 3: Are there any determinants that are not candidate keys? Yes.

ParentEmail, ChildName, GroupLeader are determinant, but not candidate keys.

Step 3a, b:

PARENT ( ParentEmail, ParentName, ParentAddress )

CHILD ( ChildName, ParentEmail )

GROUP ( GroupLeader, PlayGroup )

Step 3c:

PLAYGROUP ( *ChildName, ParentEmail, PlayGroup* )

Step 3d:

ChildName in PLAYGROUP must exist in ChildName in CHILD.

ParentEmail in PLAYGROUP must exist in ParetEmail in PARENT.

PlayGroup in PLAYGROUP must exist in PlayGroup in GROUP.

**Microsoft Access:**

1. Create a Microsoft Access database named PlayGroup.accdb.
2. Create the PARENT table in the PlayGroup database using the following column characteristics:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ColumnName** | **Type** | **Key** | **Required** | **Remarks** |
| ParentEmail | Text (25) | Primary Key | Yes |  |
| ParentName | Text (25) | No | Yes |  |
| ParentAddress | Text (35) | No | No |  |

1. Using Datasheet view, enter the following data in the PARENT table:

|  |  |  |
| --- | --- | --- |
| **ParentEmail** | **ParentName** | **ParentAddress** |
| Amy.Baldwin@swic.edu | Amy Baldwin | 123 Main Street |
| CharlesDong@yahoo.com | Charlie Dong | 4567 Belleville Ave. |
| EmilyFrank90@gmail.com | Emmy Frank | 8901 Carlyle Ave. |

1. Create a Form to enter data into the PARENT table.
2. Create a Report to display data from the PARENT table.
3. Export a PDF file of the report.