**Ch3-Prac-SQL**

**In-Class:** Chapter 3 Practice with SQL - In-Class \_\_\_ \_\_\_ \_\_

* Download and use the Zoo Starter.accdb database to create, run, and save queries using Microsoft Access SQL. (The same database will be used for the review and test. There are no QBE queries on the review assignment or test.)

The following relations and relationships have already been created in Zoo Starter.accdb:

* ANIMAL (AnimalID, NickName, Species, Sex, Age, *Exhibit*, *Keeper*)
* EXHIBIT (ExhibitName, Environment)
* KEEPER (KeeperID, LastName, FirstName)
* Exhibit in ANIMAL must exist in ExhibitName in EXHIBIT.
* Keeper in ANIMAL must exist in KeeperID in KEEPER.

The following data has already been inserted in Zoo Starter.accdb:

**ANIMAL**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| AnimalID | NickName | Species | Sex | Age | Exhibit | Keeper |
| 1 | Biggo | Elephant | Male | 37 | Africa | 1 |
| 2 | Biggette | Elephant | Female | 27 | Africa | 1 |
| 3 | Josie | Camel | Female | 17 | Africa | 1 |
| 4 | Flipper | Porpoise | Male | 7 | Ocean | 2 |
| 5 | Patty | Porpoise | Female | 5 | Ocean | 2 |
| 6 | Sally | Seal | Female | 8 | Ocean | 3 |
| 7 | Tusky | Walrus | Male | 12 | Ocean | 3 |

**EXHIBIT**

|  |  |
| --- | --- |
| ExhibitName | Environment |
| Africa | Grassland |
| Ocean | Saltwater |

**KEEPER**

|  |  |  |
| --- | --- | --- |
| KeeperID | LastName | FirstName |
| 1 | Abrams | Beth |
| 2 | Cooley | Doug |
| 3 | Evertt | Fran |

**SQL Queries:** Using Microsoft Access SQL, create and run queries to answer the questions that follow. Save each query using the query name format SQLQuery-Prac-#, where the # sign is replaced by the letter of the question.

Hint: If the same column name is contained in two different tables, Microsoft Access requires the table name to be specified with the column name, for example: EMPLOYEE.EmployeeNumber

Make sure your queries run with no error messages or input prompts from Microsoft Access.

1. Create a SQL query to display the nickname, species, sex, and age of all animals taken care of by Beth Abrams. Create, run, and save this SQL query as SQLQuery-Prac-A.
2. Create a SQL query to display the nickname and species of all animals that live in saltwater. Create, run, and save this SQL query as SQLQuery-Prac-B.
3. Create a SQL query to display the nickname, keeper’s first and last names, and exhibit of all animals that live on grassland. Create, run, and save this query as SQLQuery-Prac-C.

Exit from Microsoft Access and then submit your database file in the assignment.

**Normalization:** Type your answer in Microsoft Word or WordPad, and submit your file in the same assignment.

Apply the normalization process to the following relation. 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.

FIELD (FarmerName, FarmerEmail, County, Acres, CropPlanted, PlantingSeason, HarvestSeason, SeedSupplier, SupplierEmail)

* Assume planting and harvest seasons are spring, summer, fall, and winter.
* Farmer has one field and one crop.

Step 1: Candidate Keys: FarmerName, FarmerEmail

Step 2: Functional Dependencies:

CropPlanted 🡪 PlantingSeason, HarvestSeason

FarmerEmail 🡪 County, Acres, FarmerName, SeedSupplier, etc. (Everything)

SeedSupplier 🡪 SupplierEmail

Step 3:

SeedSupplier and CropPlanted are not candidate keys.

Step 3 a,b:

CROP ( CropPlanted, PlantingSeason, HarvestSeason )

SUPPLIER ( SeedSupplier, SupplierEmail )

Step 3 c:

FIELD ( FarmerName, FarmerEmail, County, Acres, *CropPlanted*, *SeedSupplier* )

Step 3 d:

CropPlanted in FIELD must exist in CropPlanted in CROP.

SeedSupplier in FIELD must exist in SeedSupplier in SUPPLIER.