

Create the Mini Zoo Database

Mini Zoo keeps data about the care of their animals in a relational database with the following schema:

```
zooAnimal(ID {pk}, Name, Species, Age, Gender, Weight, F_ID, M_ID)
zooKeeper(Staff_ID {pk}, Keeper_Name, Specialisation)
zooCare_Role(ID {pk}, Staff_ID {pk}, Role)
```

Primary key attributes are indicated with {pk}.

Notes – All attributes are VARCHAR, except for Age & Weight that are SMALLINT. Gender is either 'M' or 'F'. F-ID is the ID of the animal's father and M-ID is the ID of the animal's mother.

The SQL statements to create an initial database and insert some data can be found in the file 'minizoo_init.sql' on Moodle.

I would suggest to use this sql file and always copy it to PHPMyAdmin fully or run it from mysql.

Installed MySQL

For MySQL installed. In order for the file to work, you need to use database. So, for it to work, you should add to the preamble:

```
DROP DATABASE IF EXISTS minizoo_database;
CREATE DATABASE minizoo_database;
USE minizoo_database;
```

Its meaning should be clear. Drop the database if it exists, then create a database with the name minizoo_database and then use this database.

To run, you could simply call again as in the installation guide: `mysql -u test_user -p -e 'fullpath/minizoo_init.sql'`. As you can remember 'test_user' has password '12345'. Also, do not forget to turn on mysql process before if it does not run: `mysqld start` for Windows/Unix and `sudo /usr/local/mysql/support-files/mysql.server start` for MacOS.

Questions

To answer some of the questions you will have to use a WHERE clause so that the SQL operation is only performed on specific rows, for example in the slides there is `UPDATE journey SET ticket='p' WHERE id=1;`. Ticket is the column we want to change to value 'p', but only for row(s) where id=1. Look at the data in the tables to identify appropriate WHERE conditions. (Hint – primary key column values identify a single row). Don't forget that character values are enclosed in quotes, but numeric values are not.

To see the results of your operations use 'DESC table_name' to see the table structure and 'SELECT * from table_name' to see the data.

Done = 1, 2, 3, 4, 5, 6, 8,

1. The database currently does not have any PRIMARY KEY or FOREIGN KEY integrity checks. Add primary key constraints either by
 - a. Dropping the tables from the database, adding the constraints to the create table statements and recreating the database.
 - b. Using commands in the form
`ALTER TABLE table-name ADD PRIMARY KEY (col-1, col-2.....);`

```
ALTER TABLE table-name ADD FOREIGN KEY (col-1,...) REFERENCES table-name (col-1...);
```

If you make a mistake you can drop a key by using:

```
ALTER TABLE table_name DROP PRIMARY KEY;
```

```
ALTER TABLE table-name DROP FOREIGN
```

```
KEY (col-1,...);
```

2. Add constraint on Gender to be one of two types either 'M' or 'F'.
You will see a problem – fix it. Hint: ID='38'.
3. Amit currently doesn't have any care roles. Insert rows into the zooCare_Role table so that they are 'feeding' all the Lions.
4. Update the minizooAnimal table so that marmoset 12, giraffe 33, and elephant 62 have new names of your choosing.
5. Update the minizooCare_Role table replacing the value 'feeding' with 'nutrition'. Use a single command to change all the relevant rows.
6. Create the specialization column for each zookeeper and set it so that **Roger and Sidra have the specialisation 'Marmoset'**, and **Amit and Lucia the specialism 'Elephant'**.
7. Remove Elephant Jane 68 and all lions from the list of animals. You will see an issue: you need to update the specification of FOREIGN KEY for minizooCare_Role.
8. Create a new table minizooSpecies with the following attributes: Species and HomeRegion. Choose an appropriate PRIMARY KEY.
9. Insert the following data into the new table
 - 'Marmoset', 'South America'
 - 'Lion', 'Africa'
 - 'Giraffe', 'Africa'
 - 'Elephant', 'Africa'
10. Look back at the other 3 tables and create appropriate relationships with the new minizooSpecies table by implementing foreign key constraints.
>This would be the foreign key into minizooAnimal
11. The hard(er) question. M_ID and F_ID indicate the parents of an animal. Use foreign key constraints to support these recursive relationships.

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