Data Analytics SQL Assignment 1

August 4, 2015

Data

The toy-store database has the following schema:

Product(pid: integer, name:varchar(20), min_age: integer)
Manufacturer(mid: integer, name: varchar(20), address: varchar(50))
Supplier(sid: integer, name: varchar(20), address: varchar(50))
Inventory(pid:integer, stock: integer)
Manufactures(mid:integer, pid: integer)
Supplies(sid: integer, pid: integer)

The Product relation contains information about all the toys sold by the store. The Product.pid column is the primary key for the relation. Product.name is the name of each toy, and Product.min_age indicates the minimum age recommended to play with the toy.

Manufacturer and Supplier list the names and addresses of all toy manufacturers and suppliers respectively. Manufacturer.mid and Supplier.sid are the primary keys for these relations.

Inventory indicates the number of toys in stock. Inventory.pid is a foreign key referring to Product.pid. Inventory.stock indicates the number of toys of the given type available in stock.

Manufactures and Supplies associate products with their manufacturers and suppliers. Note that there can be only one manufacturer for a product, but there can be many suppliers.

The content of the database is currently stored in six files corresponding to the six relations above.

1 Installation

Install MySQL in your system.

2 Creating database

In order to store data in a database, you first need to create a database. The name of your database should be *your roll number*.

3 Creating tables

Create the six tables in the inventory database. At this point, do not worry about specifying what attributes are the primary keys or the foreign keys. You will do this in problem 5. Create the tables without any constraints on their content other than the types of the different attributes.

4 Loading data

Import the 6 files as tables in your database.

5 SQL Queries

Write SQL queries for the following:

1. List the ids and names of all products whose inventory is below 5.
2. List the ids and names of all suppliers for products manufactured by "manufacturer_2". The id and name of each supplier should appear only once.
3. List the ids, names, and quantities of all products in inventory. Order the list by decreasing quantity in stock.
4. List the ids and names of all products for whom there is only one supplier.
5. Find the ids and names of the products with the lowest inventory. Do NOT assume these are always products with an inventory of zero.
6. List the id and name of each supplier along with the total number of products it supplies.
7. Find the id and name of the manufacturer who produces toys on average for the youngest children.
8. **Write your own query that retrieves some interesting information from the database**.

6 Integrity Constraint

We have designated some columns to be the primary key of a relation and other columns to be a foreign key referencing another relation.

1. Modify the schemas of relations Product, Manufacturer, and Supplier to specify that pid, mid, and sid are the respective primary keys for these relations.
2. Modify the schemas of relations Inventory, Manufactures, and Supplies to specify the foreign key constraints.
3. Try to insert a product into the Product table with an identifier that already exists in the table. Try to insert an entry in the Inventory table for a product that does not exist in the Product table. What happens when you try to execute these operations? What would happen if the tables did not have the key constraints specified on them?

7 Submission

Write your SQL queries and answers in a file. The name of the file must be your roll number. Upload it in moodle.