SQL Exercise

Sakila

Use the Sakila database

1. What is the average replacement cost of a film?

```
SELECT avg(replacement_cost) FROM film;
```

2. Design a query to list the titles of each film and its language_id.

```
SELECT title, language_id FROM film;
```

3. List the staff at each store (First name, last name, store number)

```
SELECT first_name, last_name, store_id
FROM staff;
```

4. Design a query to show the number of films in each language.

```
SELECT language_id, count(*)
from film
GROUP BY language_id;
```

5. What is wrong with this statement?
   - Perform the query … does it look ok? What does it mean?

```
SELECT count(*), city
FROM city
GROUP BY country_id;
```

It doesn't make any sense to have "city" there. The count is of the country_id

SQLite

Set up a sqlite database

These instructions will take you through the process to create and use a sqlite database from a supplied .sql file. The short-cut instructions are:

a) Get a copy of the SQLite shell
b) Extract it into a directory that you're going to work from or one that's in your shell
c) Get a copy of the sql script file for the database
d) Start SQLite, creating the database file
e) Load the .sql file into the database

1. Create a folder on your H: drive h:\sqlite

2. Download a copy of SQLite either from the I: drive or sqlite.org and extract it into h:\sqlite. The executable should be sqlite3.exe

3. Download the pizza database from the I: drive into h:\sqlite

4. Open a command prompt and issue these commands. The final command should show both sqlite3.exe and pizza.sql in the directory
    - `H:`
    - `cd h:\sqlite`
    - `dir`

We will work with a database called “pizza” which has the following schema

Person (name, age, gender)	name is a key
Frequents (name, pizzeria)	(name, pizzeria) is a joint key
Eats (name, pizza)	(name, pizza) is a joint key
Serves (pizzeria, pizza, price)	(pizzeria, pizza) is a joint key

5. Now create the sqlite database file with:
    - `sqlite3 pizza.sqlite`

6. SQLite, like all DBMS’s, has a number of DBMS specific commands to manage and manipulate databases. Most SQLite specific commands start with a dot.

    Load and confirm the database
    a) Create the database from the script
    b) Check that the tables exist
    c) Check the schema of the tables: person, frequents, eats and serves
    d) Confirm that data is in the tables

    - `.read pizza.sql`
    - `.tables`
    - `.schema Person`
    - `.schema Frequents`
    - `.schema Eats`
    - `.schema Serves`
    - `Select * from Person;`
    - `Select * from Frequents;`
    - `Select * from Eats;`
    - `Select * from Serves;`
    - `.quit`
    - `dir`

    This last command should show that you now have a new file pizza.sqlite. This is the sqlite database file. To access it you issue the command
    - `sqlite3 pizza.sqlite`

Single Table Exercises using Pizza

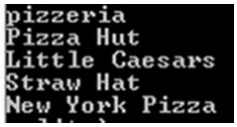
Working with this database. Note down the query in the space provided. The schema is:

Person (name, age, gender)	name is a key
Frequents (name, pizzeria)	(name, pizzeria) is a joint key
Eats (name, pizza)	(name, pizza) is a joint key
Serves (pizzeria, pizza, price)	(pizzeria, pizza) is a joint key

I recommend you turn the display of headers on using sqlite command:

- **.header on**

1. Find all the places that serve pepperoni




```
select pizzeria from serves where pizza = 'pepperoni';
```

2. Display all people sorted by age:


```
SELECT *
FROM person
ORDER BY age;
```

3. Display a list of who eats which pizza by listing the pizza first then the person's name. Sort this list by the pizza names then the person's name

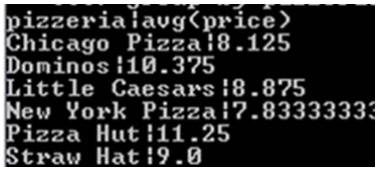

```
SELECT pizza, name
FROM eats
ORDER BY pizza, name;
```

4. Display the prices at the various pizza's by listing the pizzeria, the pizza and the price. Sort by Pizzeria, Price then Pizza

```
pizzeria|pizza|price
Chicago Pizza|cheese|7.75
Chicago Pizza|supreme|8.5
Dominos|cheese|9.75
Dominos|mushroom|11
Little Caesars|cheese|7
Little Caesars|mushroom|9.25
Little Caesars|sausage|9.5
Little Caesars|pepperoni|9.75
New York Pizza|cheese|7
New York Pizza|pepperoni|8
```

```
SELECT pizzeria, pizza, price
FROM serves
ORDER BY Pizzeria, price, pizza;
```

5. What is the average price of a pizza for each pizzeria?



```
pizzeria|avg(price)
Chicago Pizza|8.125
Dominos|10.375
Little Caesars|8.875
New York Pizza|7.8333333
Pizza Hut|11.25
Straw Hat|9.0
```

```
SELECT pizzeria, avg(price)
FROM serves
GROUP by pizzeria;
```

6. How many people eat cheese pizzas?

```
Number of Cheese Eaters
5
```

```
SELECT count(*) as 'Cheese Eaters'
FROM eats
where pizza = 'cheese';
```

7. List all of the pizzeria's with "Pizza" in their name.

```
pizzeria
Chicago Pizza
New York Pizza
Pizza Hut
```

- Tip: To remove duplicate records use the keyword "distinct" after select.
- e.g.: `select distinct name from eats;`

```
SELECT distinct pizzeria
FROM serves
WHERE pizzeria like '%pizza%';
```

8. Find all of the females under 20

```
name|age
Amy|16
```

```
select name, age
from person
where age < 20
AND gender =
'female' ;
```

9. Find all male customers in their 20's showing their name and age, sorted by name.


```
SELECT name, age
FROM person
WHERE gender='male' and age between 20 and 29;
```

10. Get the maximum, minimum and average price of pizza's in each pizzeria, sort by pizzeria – note the labels in this output


```
SELECT pizzeria, max(price) as MAX, min(price) as MIN,
avg(price) as AVG
FROM serves
GROUP BY pizzeria;
```