Lab 1: SQL Practice

Due date: Tuesday, April 1, end of lab period.

Lab Assignment

You will be given an Oracle account, access to the sql*plus tool, two `.sql` files defining a dataset and populating it and a description of the dataset.

Your assignment is to write and debug six SQL queries for this dataset.

Assignment Preparation

This is an individual lab. Each student has to complete all work required in the lab, and submit all required materials **exactly as specified** in this assignment.

Dataset

The assignment uses a dataset called `BAKERY`. This dataset consists of four relational tables describing an operation of a small bakery shop.

The bakery shop makes various pastry items (goods). The list of goods is stored in table `Goods`. Each pastry item/good has a unique id. In addition, it can be identified by Flavor and Food combination: e.g., a chocolate cake is stored as `Flavor='Chocolate'` and `Food='Cake'`.

The bakery shop has a list of frequent customers stored in the `Customers` table. The `Customers` table stores just the name of the customer and the unique id, which is used as a foreign key elsewhere in the database.

The BAKERY dataset has information about one month (October 2007) worth of purchases made by the frequent customers. This information is stored in two tables: `Receipts` and `Items`. Each purchase tracked in the `Receipts` table, which specifies the date of the purchase, the customer who made the purchase and the unique receipt id. Each purchase can include up to five different goods (items). These are stored in the `Items` table, which contains receipt number, item number on the receipt (first item purchased, second item purchased, etc...) and the type of the item bought (foreign key referencing `Goods` table).

Complete specification of the BAKERY dataset can be found in its README file, a copy of which is part of the lab handout. The on-line version of the README file is here:

http://www.csc.calpoly.edu/~dekhtyar/365-Fall2007/data/BAKERY/README.BAKERY.TXT

To speed up your setup, I am providing three .sql files:

- `BAKERY-create.sql` contains `CREATE TABLE` statements for the BAKERY dataset. A printout of the file is part of the lab handout — make sure you study attribute names carefully.
- `BAKERY-insert.sql` contains `INSERT` statements populating the database.
- `BAKERY-drop.sql` contains `DROP TABLE` statements removing the BAKERY database. This is provided for your convenience.

The files can be downloaded from the course web page:

http://www.csc.calpoly.edu/~dekhtyar/468-Spring2008/

Oracle and Oracle accounts

You will be issued individual Oracle accounts at the end of the first class, or at the beginning of the lab period. Please, use these accounts for all individual coursework.

This assignment is best completed using sql*plus, Oracle's command-line environment for communicating with the database back-end. Instructions on the use of sql*plus can be found here:

http://www.csc.calpoly.edu/~dekhtyar/365-Fall2007/lectures/lec05.365.pdf

Lab preparation

1. Download `BAKERY-setup.sql` and `BAKERY-insert.sql` into your work directory.
2. Start sql*plus. Make sure you can successfully log in using your account and password.
3. Run `start BAKERY-setup.sql` command in sql*plus.
4. Run `start BAKERY-insert.sql` command in sql*plus.
5. If both commands finished successfully, you are ready to work on the lab.

SQL queries

Your task is to write an SQL script `lab1.sql` containing SQL statements answering the following information requests. Please note, each information request has to be represented as a single SQL query.

1. Find all customers who made purchases both on October 7, 2007 and October 23, 2007. Report first and last name of the customers.
2. Find all people who purchased more than three Cheese Croissants from the bakery. Report the first and last name of the customers and the number of cheese croissants they bought.
3. For each day on which more than five cakes were sold, output the date, and the total amount of money the bakery received for the sold cakes. Order the output by date.
4. Find all cakes purchased by `KIP ARNN`. Output date of the sale, receipt number, full name of the cake (flavor+food) and the price.
5. Find the most expensive items on the menu. Return the full name of the pastry (flavor+food) and the price.
6. [**Extra Credit**] Find the day when the largest number of the most expensive items on the bakery's menu was purchased. Report the date and the number of purchases.

Submission Instructions

You must submit all your files in a single archive. Accepted formats are `gzipped tar` (`.tar.gz`) or `zip` (`.zip`). The file you are submitting must be named `lab1-ilastname.ext`, where *i* stands for the initial of your first name, and *lastname* is your last name. E.g., if I were submitting this file, the name would be `lab1-adekhtyar.zip` or `lab1-adekhtyar.tar.gz`.

The archive shall contain the following three files:

Each directory shall contain the following SQL scripts:

- Database creation script, `BAKERY-setup.sql`.
- Database cleanup script, `BAKERY-drop.sql`.
- Script with SQL queries, `lab1.sql`.

Email your archive to *dekhtyar@csc.calpoly.edu.*