Homework 1. SQL Lab

Due date: Oct. 27 (Sun) 23:59:59

Overview

In this project, your task is to construct a set of SQL queries for analyzing a database that will be provided to you. For this, we use the MySQL sample database (i.e., *classicmodels*) which is already shown in the chapter 5. This project opens up opportunities 1) learn basic and advanced SQL features, and 2) get familiar with using commercial open-source DBMS engine, MySQL which is useful for your career.

Instructions

This project contains 7 problems in total and graded out of 100 points. You should construct SQL query that fetches desired data as state in each problem. Your answer for each problem **must contain only one statement**.

For this, we use the MySQL using the docker (Please use the MySQL 8.0.33 version) and follow the below instructions.

1. Setup Project file

```
# Accept the invitation link
https://classroom.github.com/a/k6DLbm6W

# Clone the hw1 repository. The repository name depends on your Github account. Below command is an example (Do not clone this repository)
.
git clone https://github.com/KU-COSE371-01-2024-Fall/assignment-1-JonghyeokPark.git
```

2. Construct SQL for each query file and run SQL files

```
# This will be conducted in a MySQL docker
# -s option is silent mode. This mode does not print unnecessary string.

mysql -uroot -p -s classicmodels < q1.sql
```

3. Commit & Push

```
# You can commit and push as you can before the deadline
# For final commit message for final submission, please set the commit
```

```
message as submission-student-id (e.g., submission-123123)

git add.
git commit -m “submission-student-id”
git push
```

Problems

Q1. Find the total number of products [0 pt]

Requirements. The goal of this query is to ensure that your output format aligns exactly the same with

the formatting used by our auto-grading scripts.

Solution. This is the correct SQL query and the output

```
SELECT count(*) FROM products;
```

```
mysql> SELECT count(*) FROM products;
count(*)
110
```

Q2. Find all customers who have placed at least one order [10 pt]

Requirements. List **customer number and name** (i.e., CustomerNumber and CustomerName) of all customers who have placed at least one order.

Hints. Your output (first row) should look like this

```
customerNumber  customerName
103     Atelier graphique
```

Q3. Find all customers who have placed at most one order [10 pt]Requirements.

Requirements. List **customer number and name** (i.e., CustomerNumber and CustomerName) of all customers who have placed at most one order.

Hints.

- Warning. the attribute OrderNumber of orders table is not the number of orders
- Your output (column header) should look like this

```
customerNumber  customerName
125     Havel & Zbyszek Co
```

Q4. Find the top 5 products by quantity in stock [15 pt]

Requirements. List the code, name, and quantity of the products in your output (see the hints)

Hints.

- To limit the number of rows retrieved, the keyword `LIMIT` is used.

```
select * from orders limit 5;
```

- Your output (first row) should look like this

```
productCode     productName     quantityInStock
S12_2823        2002 Suzuki XREO        9997
```

Q5. Find the customer with the highest total payment amount [15 pt]

Requirements. List the name and highest payment amount of for customer who mad the highest payment. Use the HighestPayment as the column name for the result.

Hints.

- You may use the LIMIT keyword as shown in the Q4.
- Your output (column header) should look like this.

```
customerName    HighestPayment
```

Q6. Find all products that have never been ordered. [20 pt]

Requirements. List the product code and product name. Note that it is possible that no such product exists, or there may be only one."

Hints. Your output (column headers) should look like this

```
productCode     productName
```

Q7. Find the customer who placed an order containing a product in the “Classic Cars ” product line [30 pt]

Requirements.

- List customer names, order number, product name, and order date
- Include only orders that are in the **"Shipped"** status.
- Sort the results by **order date** in ascending order.

Hints. Your output (column headers + first row) should look like this

```
customerName    orderNumber     productName     orderDate
Baane Mini Imports      10103   1952 Alpine Renault 1300        2003-01-29
```

Submission

- Due date: 2024.10.27 (Sun) 23:59
- Do not commit or make any changes after the assignment deadline.

Late submission policy

- 75%: 1 day late
- 50%: 2 days late
- 25%: 3 days late
- 0%: 4 days and more

Warning

- Do not use ChatGPT
- Do not copy other student's answer
- Do not collaborate other students. This is an individual project (No groups)
- Do not modify the database file (i.e., Do not insert/delete/update in the database arbitrarily)
- For your query, the order of output columns (attribute) is very important. Please follow the instruction of the problem carefully.
- We will evaluate the answer by comparing the output files. Please make sure to always verify your SQL query works properly. (No partial points)