CSE 111 – DATABASE SYSTEMS
Lab 3

In this lab session you have to write 15 SQL queries for the TPCH database created and populated in the previous labs. The queries are the following (1 point per query):

1. What is the account balance, phone number, and address of `Customer#000000020`?

2. What are the smallest and largest account balances of a supplier?

3. Find all the line items with the return flag set to `R` on the receipt date of `September 9, 1993`. Print `l_receiptdate`, `l_returnflag`, `l_extendedprice`, and `l_tax` for every line item.

4. Find the number of line items that have `l_shipdate` equal to `l_commitdate`.

5. What is the total account balance among the customers in every market segment?

6. What are the nations of the customers that made orders between `September 9-11, 1994`? Print every nation only once and sort them in alphabetical order.

7. How many line items did `Customer#000000020` order? Print the number of ordered line items corresponding to every (year, month) pair.

8. Find the name of the suppliers from `EUROPE` who have more than `$7000` on account balance. Print the supplier name and their account balance.

9. Find the minimum account balance of the suppliers from nations with more than 5 suppliers. Print the nation name, the number of suppliers from that nation, and the maximum account balance.

10. Find the total price `o_totalprice` of orders made by customers from `ASIA` in 1997.

11. Find the number of customers that received a discount of at least `7%` for one of the line items on their orders. Count every customer exactly once even if they have multiple discounted line items.

12. Find the number of orders having status `P`. Group these orders based on the region of the customer who posted the order. Print the region name and the number of status `P` orders.

13. Find the total account balance of all the customers from `ASIA` in the `MACHINERY` market segment.

14. Find how many `1-URGENT` priority orders have been posted by customers from `PERU` between 1995 and 1997, combined.

15. Find the total number of line items on orders with priority `3-MEDIUM` supplied by suppliers from `GERMANY` and `FRANCE`. Group these line items based on the year of the order from `o_orderdate`. Print the year and the count. Check the `substr` function in `SQLite`.

In order to complete the lab you have to perform the following tasks:

1. Write the `SQL` statement corresponding to every query in the file `test/x.sql`, where `x` is the number of the query above. Every query goes into its separate file. These are the only files you have to modify and submit in this assignment.

2. You can check the correctness of your queries by executing the command `./test.sh` in the terminal. You have to be in the main lab folder. The expected output is available in `results/x.res`, where `x` is the number of the query. The output produced by your code is available in `output/x.out`. They have to match for every query, e.g., `1.res` has to match with `1.out`.

3. In case there are any errors, repeat the process from step 1 for the incorrect queries.

4. The submission consists of a compressed `zip` file that contains the files in the `test` folder. The name of the file has to be `lab-3.zip`. When you create the file, include the folder `test` into the compression, not every file `test/x.sql` separately.