BMEG3120: Exercise List 4

Assume that we have these tables:

- CUST: schema (cid, name), where cid and name are a customer’s id and name, respectively. The table has a candidate key {cid}.

- ACCOUNT: schema (aid, cid, bid, balance), where each tuple represents an account. Specifically, aid is the account id, cid is the customer id of the account’s owner, bid is the id of the branch where the account was opened, and the meaning of balance is obvious. The table has a candidate key {cid, bid}, and another candidate key {aid}.

Write SQL queries to solve the following problems.

**Problem 1.** For each customer, display her/his name and the total balance of all her/his accounts.

**Answer.**

```sql
select name, sum(balance) from CUST, ACCOUNT where CUST.cid = ACCOUNT.cid group by cid, name
```

**Problem 2.** Write a statement to check whether there are two accounts with the same balance. If such accounts do not exist, your query must return an empty table. Otherwise, your query should return a non-empty table (whose content is up to you).

**Answer.**

```sql
select count(*) from ACCOUNT group by balance having count(*) >= 2
```

**Problem 3.** In SQL, you can use `as` to rename columns as well. For example, the following query will return a table with a single column called “wealth”:

```sql
select sum(balance) as wealth from ACCOUNT group by cid
```

Define the wealth of a customer as the total balance of all her/his accounts. Report the maximum wealth of all the customers (hint: use column renaming).

**Answer.**

```sql
select max(wealth) from (select sum(balance) as wealth from ACCOUNT group by cid)
```

**Problem 4*.** Find the aids of the accounts with the 100 largest balances. Specifically, you should report the aid of an account if and only if its balance is smaller than or equal to the balances of at
most 99 other accounts.

Answer.

```sql
select T1.aid
from ACCOUNT as T1, ACCOUNT as T2
where T1.balance <= T2.balance
group by T1.aid
having count(*) <= 100
```