

## BMEG3120: Exercise List 3

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  $\{cid\}$ .
- BRANCH: schema ( $bid$ ,  $city$ ), where each tuple represents a branch of HSBC. Specifically,  $bid$  is the branch's id, and  $city$  is the city where the branch is located. The table has a candidate key  $\{bid\}$ .
- ACCOUNT: schema ( $cid$ ,  $bid$ ,  $balance$ ), where each tuple represents an account. Specifically,  $cid$  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  $\{cid, bid\}$ .

Write SQL queries to solve the following problems.

**Problem 1.** Find the balances of all the accounts owned by the customer(s) named John.

**Problem 2.** Find the cids of the customers that have accounts only in HK.

**Problem 3.** Find the cids of the customers that have accounts in both NY and HK, but not in any other city.

**Problem 4\*.** Find the cids of the customers that have accounts in all the cities where HSBC has a branch.