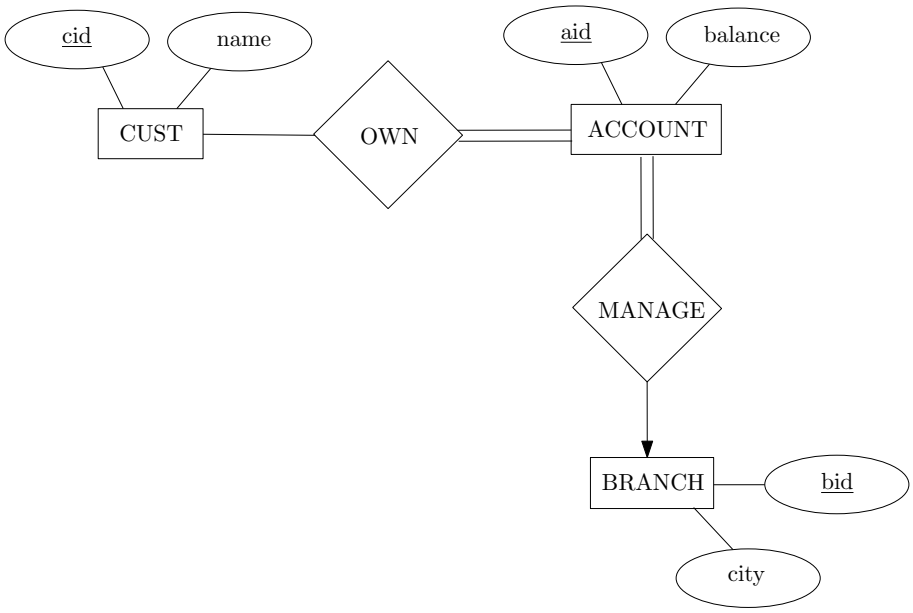
BMEG3120: Exercise List 6

Consider the following ER diagram:



Problem 1. Create tables CUST, ACCOUNT, BRANCH, OWN and MANAGE for the corresponding entity/relationship sets in the above diagram, respectively. For each table, specify its candidate key(s) and foreign key(s), if any. For each foreign key, specify also the table referenced. You need to capture all cardinality constraints. You do not need to capture participation constraints.

Answer.

- CUST(cid, name): candidate key cid.
- ACCOUNT(aid, balance): candidate key aid
- BRANCH(bid, city): candidate key bid
- OWN(cid, aid): candidate key (cid, aid), foreign key cid referencing CUST, and aid referencing ACCOUNT
- MANAGE(bid, aid): candidate key aid, foreign key bid referencing BRANCH, and aid referencing ACCOUNT

Problem 2. Write an SQL query to check (in your tables in Problem 1) the total participation constraint of ACCOUNT in OWN. Remember to explain how to judge whether the constraint is satisfied from the query result.

Answer.
(select aid from ACCOUNT)
minus
(select aid from OWN)

If the query returns a non-empty result, then the constraint is violated.

Problem 3. Alter the ER diagram to satisfy the following requirement: whenever a customer deposits money into an account s/he owns, we can record the amount and date of the deposit. A customer may deposit as many times as s/he wants, while it is possible that an account never receives any deposit. Furthermore, observe that the ER diagram allows an account to be co-owned by multiple customers.

Answer.