



CSE3103: Database

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Practice Problem: 01

Consider the bank database in above. Give an expression in the relational algebra of the following queries.

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branch (<u>branch name</u>, branch city, assets)
customer (<u>customer id</u>, customer name, customer city)
loan (<u>loan number</u>, branch name, amount)
borrower (customer id, loan number)
account (<u>account number</u>, branch name, balance)
depositor (customer id, account number)
```

- 1. Find the names of all branches located in "Chicago".
- 2. Find the names of all borrowers who have a loan in branch "Downtown".

Practice Problem: 02

Consider the bank database in above. Give an expression in the relational algebra of the following queries.

Maker(<u>maker id</u>, maker_name, maker_city)
pc(<u>model id</u>, maker_id, speed, ram, hd, price)
laptop(<u>model id</u>, maker_id, speed, ram, hd, screen, price)

- 1. Find the model id and speed of all PC with more than 1 gigabyte of RAM.
- 2. Find the model id and price of all products (pc and laptop) made by the manufacturer named HP.
- 3. Find the manufacturer related information (id, name, city) who only make laptop but no PCs.

Practice Problem: 03

Consider the bank database in above. Give an expression in the relational algebra of the following queries.

employee (<u>person id</u>, person name, street, city) works (<u>person id</u>, company name, salary) company (<u>company id</u>, company name, city)

- 1. Find the names, street addresses, and cities of residence of all employees who work for "Brac Bank Limited" and earn more than 10,000.
- 2. Find the names of all employees who live in "Chittagong" and whose salary is greater than 100,000.
- 3. Find all employees in the database who do not work for "Brac Bank Limited".
- 4. Find all employees in the database who earn more than each employee of "Midland Bank Limited".
- Find those companies whose employees earn a higher salary, on average, than the average salary at "Brac Bank Limited".

