COMP 3311: Database Management Systems

Tutorial 3 Relational Algebra (RA) and Structured Query Language (SQL)

Name: (1) MENG / Zeyuan **Student#:** (1) _____
Last/Family (PRINT) Given/First (PRINT)

Name: (2) LIU / Jianmeng **Student#:** (2) _____

Submission: Upload this exercise worksheet by 11.59pm Friday (4 Mar) (Only one student needs to upload)

Employee(empId, employeeName, street, city)
Works(empId, companyName, salary)
Company(companyName, city)
Manages(employeeEmpId, managerEmpId)

Exercise 1: Find the names of employees who earn more than $10,000 and live in Hong Kong.

RA:

SQL:
```
select Employee.employeeName
from Employee natural join Works
where salary>10000
and city='Hong Kong';
```

Exercise 2: Find the names of the employees who are not managers.

RA:

SQL:
```
select employeeName
from ((select empId, employeeName
from Employee)
minus
(select empId, employeeName
from Employee, Manages
where Employee.empId=Manages.managerEmpId));
```

Exercise 3: Find the names of all persons who work for First Bank Corporation and live in the city where the company is located.

RA:

SQL:
```
Select employeeName
From ((selec
```

Exercise 4: Construct only SQL queries to find all cities where employees live or where companies are located.

```
select city
from Employee
union
select city
from Company;
```

Exercise 5: Construct only SQL queries to find the names of all employees who work (in at least one company) and the city of the company in ascending order of employee names.

```
select employeeName, C.city
from Employee E, Works W, Company C
where C.companyName=W.companyName
and E.empId=W.empId
order by employeeName asc;
```

Exercise 6: Construct only SQL queries to find the names and cities of employees who work for exactly one company.

```
select employeeName, city
from Employee E
where unique (select *
from Works
where empId=E.empId);
```