Review Session

Monday, Oct 8

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Announcements

- New Gradiance assignment deadline Wednesday, Oct 10
- Please read FAQs for assignments

Select-From-Where Statements

SELECT desired attributes

FROM one or more tables

WHERE condition about tuples of the tables

Exercise

- Consider database

  Product(name, price, category)

- Output
  - each product name with its price in cents
  - Also mark the products with price >10$ and category=‘beverage’ as ‘expensive’ and others as ‘reasonable’

Solution

- SELECT name, price*100, ‘expensive’
  FROM Product
  WHERE price >10 AND category = ‘beverage’
- UNION
- SELECT name, price*100, ‘reasonable’
  FROM Product
  WHERE price <=10 OR category <>‘beverage’

Multirelation queries

- Consider database schema

  employee(employee-name, street, city)
  works(employee-name, company-name, salary)

  company(company-name, city)

  manages(employee-name, manager-name)

Exercise 1 (3-way join)

- Find all employees who live in the same cities as the companies for which they work

```
SELECT employee-name
FROM employee, works
WHERE employee.employee-name =
works.employee-name AND works.company-
name = company.company-name AND
employee.city = company.city
```

Exercise 2

- Find all employees in the database who live on the same city and streets as their manager.

- SELECT e1.employee-name
- FROM employee e1,employee e2, manages
- WHERE

  e1.employee-name = manages.employee-name AND

  e2. employee-name = manages.manager-name AND

  e1.street = e2.street AND e1.city = e2.city

Exercise 3

- Find all employees who earn more than average salary of all employees of their company

```
SELECT employee-name
FROM works w1,
        (SELECT AVG(salary) AS avg-salary, company-name
        FROM works
        GROUP BY company-name)w2
WHERE w1.company-name = w2.company-name AND
   w1.salary>w2.avg-salary
```

Exercise 4

- Find those companies whose employees earn a higher salary, on average than the average salary at First Bank Corporation.

```
SELECT company-name
FROM works
GROUP BY company-name
HAVING AVG(salary)>
        (SELECT AVG(salary)
         FROM works
         GROUP BY company-name
         HAVING company-name = 'First Bank Corporation')
```

Exercise 5

- Assume that the companies may be located in several cities. Find all the companies located in every city in which Small Bank corporation is located.

```
SELECT company-name
FROM(
        SELECT c1.company-name,c1.city
        FROM company c1, company c2
        WHERE c1.city=c2.city AND c2.company-name = 'Small Bank
  Corporation'
        ) R
GROUP BY company-name
HAVING COUNT(DISTINCT city) = (SELECT COUNT(DISTINCT city)
                              FROM company
                              GROUP BY company.company-name
                              HAVING company-name = 'Small Bank
                              Corporation')
```

Exercise 6

- Find all employees who earn more than each employee of ‘Small Bank Corporation’

```
Select employee-name
From employee
Where employee-name NOT IN (
        SELECT employee-name
        FROM works w1,works w2
        WHERE w1.salary < w2.salary AND w2.company-
         name = ‘Small Bank Corporation’
 )
```

Exercise 6 (contd..)

- Find all employees who earn more than each employee of ‘Small Bank Corporation’

```
Select employee-name
From employee
Where name NOT IN (
      SELECT employee-name
       FROM works w1, (SELECT salary
                       FROM works
                       WHERE company-name=‘Small Bank
        Corporation’) w2
       WHERE w1.salary < w2.salary
     )
```

Exercise 6

- Find all employees who earn more than each employee of ‘Small Bank Corporation’

```
Select employee-name
From works
Where salary > (
        SELECT MAX(salary)
        FROM works
        GROUP BY company-name
        HAVING company-name = ‘Small Bank Corporation’
    )
```

Questions?