**201533661 이승수’s homework#2 date: 2016.09.21**

**2.1 Consider the relational database of Figure 2.14. What are the appropriate primary keys?**

For each table employee, works, company, the appropriate primary keys for each table is person\_name, person\_name, company\_name.

**2.6 Consider the following expressions, which use the result of a relational algebra operation as the input to another operation. For each expression, explain in words what the expression does.**

**a. 세타year≥2009(takes) ⋈ student**

find tuples from takes table whose year is bigger than 2009 and then natural join them with the student table.

**b. 세타year≥2009(takes ⋈ student)**

natural join the takes and student table and then find the tuples whose year is greater than 2009.

**c. 파이ID,name,course id(student ⋈ takes)**

natural join student and takes table. Then get only 3 attributes(ID,name,course\_id) and then delete duplicated.

**2.7 Consider the relational database of Figure 2.14. Give an expression in the relational algebra to express each of the following queries:**

**a. Find the names of all employees who live in city “Miami”.**

**b. Find the names of all employees whose salary is greater than $100,000.**

**c. Find the names of all employees who live in “Miami” and whose salary is greater than $100,000.**

**2.8 Consider the bank database of Figure 2.15. Give an expression in the relational algebra for each of the following queries.**

**a. Find the names of all branches located in “Chicago”.**

**b. Find the names of all borrowers who have a loan in branch “Downtown”.**

**2.9 Consider the bank database of Figure 2.15.**

**a. What are the appropriate primary keys?**

**b. Given your choice of primary keys, identify appropriate foreign nkeys.**

**2.12 Consider the relational database of Figure 2.14. Give an expression in the relational algebra to express each of the following queries:**

**a. Find the names of all employees who work for “First Bank Corporation”.**

**b. Find the name sand cities of residence of all employees who work for “First Bank Corporation”.**

**c. Find the names, street address, and cities of residence of all employees who work for “First Bank Corporation” and earn more than $10,000. 2.13 Consider the bank database of Figure**

**2.15. Give an expression in the relational algebra for each of the following queries:**

**a. Find all loan numbers with a loan value greater than $10,000.**

**b. Find the names of all depositors who have an account with a value greaterthan $6,000.**

**c. Find the names of all depositors who have an account with a value greaterthan $6,000 at the “Uptown” branch.**