Laboratory work №1

Task - 1

 •Find the ID and name of each employee who works for "BigBank".

$\prod_{id,name}(\sigma_{person\_name}="Bigbank"(Works))$

•Find the ID, name, and city of residence of each employee who works for "BigBank".

$\prod_{id,name}(\sigma_{company\_name}="Bigbank"(Works))$

•Find the ID, name, street address, and city of residence of each employee who works for "BigBank" and earns more than $10000.

$\prod_{id,name,street\_address,sity}(\sigma_{person\_name}="Bigbank" \wedge salary>10000(works\bowtie(employee))$

•Find the ID and name of each employee in this database who lives in the same city as the company for which she or he works.

$\prod_{id,name}(\sigma_{city}=company(company))$ or $\prod_{person\_name} (employee\bowtie works\bowtie company)$

Task-2

Consider the employee database of figure above. Give an expression in the relational algebra to express each of the following queries:

•Find the ID and name of each employee who does not work for "BigBank".

$\prod_{person\_name}(\sigma_{company\_name}\neq"Bigbank"(Works))$ or $\prod_{id,name}(\sigma_{person\_name}\neq"Bigbank"(Works))$

•Find the ID and name of each employee who earns at least as much as every employee in the database.

$\prod_{person\_name}(works)- \prod_{works.person\_name}(works\bowtie (works.salary\leq works.company\_name="Bigbank")\rho_{works2}(works)))$

Task – 3

Consider the foreign-key constraint from the dept_name attribute of instructor to the department relation. Give examples of inserts and deletes to these relations that can cause a violation of the foreign-key constraint.

Examples:

Inserting a tuple:

(10111, Ostrom, Comp_science, 110000)

Deleting a tuple:

(Biology, Watson, 90000)

Task – 4

Consider the employee database of figure above. What are the appropriate primary keys?

person_name and *company_name*