Nepal College Of Information Technology

DBMS

Assignment-2 Solution

1. Consider the insurance database of Figure1 below, where the primary keys are underlined. Construct

the following SQL queries for this relational database.

*person* (*driver-id*, *name*, *address*)

*car* (*license*, *model*, *year*)

*accident* (*report-number*, *date*, *location*)

*owns* (*driver-id*, *license*)

*participated* (*driver-id*, *car*, *report-number*, *damage-amount*)

**fig1:** Insurance database

**a.** Find the total number of people who owned cars that were involved in accidents in 2015.

**b.** Find the number of accidents in which the cars belonging to “John Smith” were involved.

**c.** Delete the **Range Rover** belonging to “John Smith”.

**d.** Update the damage amount for the car with license number “AABB2000” in the accident with report

number “AR2197” to $3000.

Answers:

**a.** Find the total number of people who owned cars that were involved in accidents

in 2015.

**select count** (**distinct** *name*)

**from** *accident*, *participated*, *person*

**where** *accident.report-number* = *participated.report-number*

**and** *participated.driver-id* = *person.driver-id*

**and** *date* **between date** ’2015-01-01’ **and date** ’2015-12-31’

**b.** Find the number of accidents in which the cars belonging to “John Smith”

were involved.

**select count** (**distinct** \*)

**from** *accident*

**where exists**

(**select** \*

**from** *participated, person*

**where** *participated.driver-id* = *person.driver-id*

**and** *person.name* = ’John Smith’

**and** *accident.report-number* = *participated.report-number*)

**c.** Delete the “Ranje Rover” belonging to “John Smith”.

**delete** *car*

**where** *model* = ’Ranje Rover’ **and** *license* **in**

(**select** *license*

**from** *person p*, *owns o*

**where** *p.name* = ’John Smith’ **and** *p.driver-id* = *o.driver-id*)

**d.** Update the damage amount for the car with license number “AABB2000” in the accident with report number “AR2197” to $3000.

**update** *participated*

**set** *damage-amount* = 3000

**where** *report-number* = “AR2197” **and** *driver-id* **in**

(**select** *driver-id*

**from** *owns*

**where** *license* = “AABB2000”)

2. Consider the employee database of Figure 2, where the primary keys are underlined. Give an

expression in SQL for each of the following queries.

*employee* (*employee-name*, *street*, *city*)

*works* (*employee-name*, *company-name*, *salary*)

*company* (*company-name*, *city*)

*manages* (*employee-name*, *manager-name*)

**Figure 2**. Employee database.

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

**b.** Find the names and cities of residence of all employees who work for First Bank Corporation.

**c.** Find the names, street addresses, and cities of residence of all employees who work for First Bank

Corporation and earn more than $10,000.

**d.** Find all employees in the database who live in the same cities as the companies for which they work.

**e.** Find all employees in the database who live in the same cities and on the same streets as do their

managers.

**f.** Find all employees in the database who do not work for First Bank Corporation.

**g.** Find all employees in the database who earn more than each employee of Small Bank Corporation.

**h.** Find the company that has the smallest payroll.

**i.** Find those companies whose employees earn a higher salary, on average, than the average salary at

First Bank Corporation.

**j.** Modify the database so that Jones now lives in Newtown.

**k.** Give all employees of First Bank Corporation a 10 percent raise.

**l.** Give all managers of First Bank Corporation a 10 percent raise.

**m.** Delete all tuples in the *works* relation for employees of Small Bank Corporation.

Answers:

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

**select** *employee-name*

**from** *works*

**where** *company-name* = ’First Bank Corporation’

**b.** Find the names and cities of residence of all employees who work for First Bank Corporation.

**select** *e.employee-name*, *city*

**from** *employee e*, *works w*

**where** *w.company-name =* ’First Bank Corporation’ **and**

*w.employee-name = e.employee-name*

**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.

**select** \*

**from** *employee*

**where** *employee-name* **in**

(**select** *employee-name*

**from** *works*

**where** *company-name* = ’First Bank Corporation’ **and** *salary > 10000*)

**d.** Find all employees in the database who live in the same cities as the companies for which they work.

**select** *e.employee-name*

**from** *employee e*, *works w*, *company c*

**where** *e.employee-name = w.employee-name* **and** *e.city = c.city* **and**

*w.company -name = c.company -name*

**e.** Find all employees in the database who live in the same cities and on the same streets as do their managers.

**select** *P.employee-name*

**from** *employee P, employee R, manages M*

**where** *P.employee-name = M.employee-name* **and**

*M.manager-name = R.employee-name* **and**

*P.street = R.street* **and** *P.city = R.city*

**f.** Find all employees in the database who do not work for First Bank Corporation.

**select** *employee-name*

**from** *works*

**where** *company-name*   ’First Bank Corporation’

g. Find all employees in the database who earn more than every employee of Small Bank Corporation.

**select** *employee-name*

**from** *works*

**where** *salary >* **all**

(**select** *salary*

**from** *works*

**where** *company-name* = ’Small Bank Corporation’)

h. Find the company that has the smallest payroll.

**select** *company-name*

**from** *works*

**group by** *company-name*

**having sum** (*salary*) *<*= **all** (**select sum** (*salary*)

**from** *works*

**group by** *company-name*)

i. 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*

**where** *company-name* = ’First Bank Corporation’)

**j.** Modify the database so that Jones now lives in Newtown.

**update** *employee*

**set** *city* = ’Newton’

**where** *person-name* = ’Jones’

**k.** Give all employees of First Bank Corporation a 10-percent raise.

**update** *works*

**set** *salary = salary \* 1.1*

**where** *company-name* = ’First Bank Corporation’

**l.** Give all managers of First Bank Corporation a 10-percent raise.

**update** *works*

**set** *salary = salary \* 1.1*

**where** *employee-name* **in** (**select** *manager-name* **from** *manages*)

**and** *company-name* = ’First Bank Corporation’.

**m.** Delete all tuples in the *works* relation for employees of Small Bank Corporation.

**delete** *works*

**where** *company-name* = ’Small Bank Corporation’