Subject Name: Database Management System	Subject Code	NCS-502
Date of Assignment:	Date of Submission:	

ASSIGNMENT 2

Objective:

1. Construct simple and moderately advanced database queries using Structured Query Language (SQL) and Relational Algebra.
2. Analysis of schema and apply query language for executing requirement.

Outcome:

1. An ability to find out result as according to requirement of any information in domain.

Q1. Consider the relational database where the primary keys are underlined. Give an expression in the **relational algebra** to express each of the following queries:

employee (person-name, street, city) **works (person-name, company-name, salary)**
company (company-name, city) **manages (person-name, manager-name)**

a. Find the names of all employees who work for SBI.
b. Find the names and cities of residence of all employees who work for SBI.
c. Find the names, street address, and cities of residence of all employees who work for SBI and earn more than $10,000 per annum.
d. Find the names of all employees in this database who live in the same city as the company for which they work.
e. Assume the companies may be located in several cities. Find all companies located in every city in which Small Bank Corporation is located.

Q2. Consider the following schema. Give an expression in the **relational algebra** to express each of the following queries:

Suppliers(*sid*, *sname*, *address*) **Parts(*pid*, *pname*, *color*)** **Catalog(*sid*, *pid*, *cost*)**

1. Find the names of suppliers who supply some red part.
2. Find the sids of suppliers who supply some red or green part.
3. Find the sids of suppliers who supply some red part or are at 221 Packer Street.
4. Find the sids of suppliers who supply some red part and some green part.
5. Find the sids of suppliers who supply every part.
6. Find the sids of suppliers who supply every red part.
7. Find the sids of suppliers who supply every red or green part.
8. Find the sids of suppliers who supply every red part or supply every green part.
9. Find pairs of sids such that the supplier with the first sid charges more for some part than the supplier with the second sid.
10. Find the pids of parts supplied by at least two different suppliers.
11. Find the pids of the most expensive parts supplied by suppliers named Yosemite Sham.
12. Find the pids of parts supplied by every supplier at less than $200. (If any supplier either does not supply the part or charges more than $200 for it, the part is not selected.)

Q3. Consider the employee database , where the primary keys are underlined.

employee (*employee-name*, *street*, *city*)
works (*employee-name*, *company-name*, *salary*)
company (*company-name*, *city*)
manages (*employee-name*, *manager-name*)

Give an expression in SQL for each of the following queries.
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. Assume that the companies may be located in several cities. Find all companies located in every city in which Small Bank Corporation is located.
i. Find all employees who earn more than the average salary of all employees of their company. j. Find the company that has the most employees.
k. Find the company that has the smallest payroll.