Nepal College Of Information Technology
DBMS
Assignment-2

1. Consider the relational database of Figure below, 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 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 address, and cities of residence of all employees who work for First Bank Corporation 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. Modify the database so that Jones now lives in Newtown.
   f. Give all employees of First Bank Corporation a 10 percent salary raise.
   g. Delete all tuples in the *works* relation for employees of Small Bank Corporation.
   i. Find the names of all employees in this database who do not work for First Bank Corporation.
   j. Find the company with the most employees.

2. Consider the following relations:

   Doctor(SSN, FirstName, LastName, Specialty, YearsOfExperience, PhoneNum)
   Patient(SSN, FirstName, LastName, Address, DOB, PrimaryDoctor_SSN)
   Medicine(TradeName, UnitPrice, GenericFlag)
   Prescription(Id, Date, Doctor_SSN, Patient_SSN)
   Prescription_Medicine(Prescription Id, TradeName, NumOfUnits)

Write the relational algebra expressions for the following queries.
a. List the trade name of generic medicine with unit price less than $50.
b. List the first and last name of patients whose primary doctor named 'John Smith'.
c. List the first and last name of doctors who are not primary doctors to any patient.
d. For medicines written in more than 20 prescriptions, report the trade name and the total number of units prescribed.
e. List the SNN of distinct patients who have 'Aspirin' prescribed to them by doctor named 'John Smith'.
f. List the first and last name of patients who have no prescriptions written by doctors other than their primary doctors.