Homework #4
Due: February 19, 2019

1. Consider the following relational schema:

   Salerep(sales_rep_ID, name, address, commission, rate)
   Customer(Customer_number, name, address, balance, credit_limit, sales_rep_ID)
   Part(part_number, part_description, on_hand, class, warehouse, price)
   Orders(order_number, order_date, customer_number)
   Orderline(order_number, part_number, number_order)

Write SQL statements for the following queries:

   a) (10 pts.) Produce a list showing part_number, part_description, on_hand, and price sorted by part_description.
   b) (15 pts.) List customer’s name followed by order_number, part_description, and number_order.
   c) (15 pts.) List names of customers who have ordered the most expensive item
   d) (15 pts.) List the names of the sale_reps who have sold the most number of part “123”.

2. Consider the following relational schema:

   Employee(eid: integer, ename: string, age: integer, salary: real)
   Department(did: integer, dname: string, budget: real, mgrid: integer)
   Works(eid: integer, did: integer, pct_time: integer)

An employee can work in more than one department; the pct_time field of the Works relation shows the percentage of time that a given employee works in a given department.

   a) (15 pts.) Write an SQL query to find the IDs of managers who control the largest amounts. (Hint: Create a table in the WHERE clause to compute the total budget for each manager)
   b) (15 pts.) Write an SQL trigger to express the following constraint:
      “Whenever an employee is given a raise, the manager’s salary must be
increased to be at least as much.” (increasing a manager’s salary to be equal to the employee who received the raise, if the manager’s salary is less than the employee’s new salary)

3. (15 pts.) Consider the following relational schema:

   Faculty(fid: integer, fname: string, deptid: integer)

   Student(snum: integer, sname: string, major: string, level: string, age: integer)

   Class(name: string, meets_at: time, room: string, fid: integer)

   Enrolled(snum: integer, cname: string)

Enrolled has one record per student-class pair such that the student is enrolled in the class. Write an SQL assertion for the following integrity constraint: “Every faculty member must teach at least two courses.”