## IDS 521 - Fall 2019

## **Assignment #2**

## To do this assignment, you may form a group of up to two students

Assigned date: September 10, 2019

Due date: post your answer file on Blackboard by 11:59pm on September 21, 2019

To answer these questions, you need to consult the relational schema on the last page of this document as well as the new Pine Value Furniture (NewPVF) database that contains some sample data.

1. (10%) State what the following query computes:

 $\pi_{Vendor\ Name}(\pi_{Vendor\ ID}(\sigma_{Material\ Description='Walnut'}Raw\_Materials\_t\bowtie\sigma_{Unit\ price<14}\ Supplies\_t)\bowtie Vendor\_t)$ 

- 2. (15%) Compose a relational algebra expression that would show each product id and product name that uses *all* of raw materials with material description = cherry [hint: use a Division operator].
- 3. (20%) Compose a SQL statement that is equivalent to Question 1 above. Note, you might want to try and execute this SQL statement against the NewPVF database in SQL Server to see if it works as intended.
- 4. (20%) Compose a SQL statement that is equivalent to Question 2 above. Note, you might want to try and execute this SQL statement against the NewPVF database in SQL Server to see if it works as intended [hint: use a correlated subguery].
- 5. (20%) Compose an SQL statement to generate a list of two least expensive vendors (suppliers) for each raw material. In the result table, show the following columns: material ID, material description, vendor ID, vendor name, and the supplier's unit price. Sort the result table by material ID and supplier's unit price in ascending order. Note: If a raw material has only one vendor (supplier), that supplier and its unit price for the raw material should also be in the result (output) table [hint: use a correlated subquery].
- 6. (15%) Compose a query that would find customer(s) with exactly one order in October 2011. In the result table, display Customer\_ID, Customer\_Name, Order\_ID, and Order\_Date.

## **Relationships for PVFCh7-Ch9-Queries** Salesperson\_t Sales\_territory\_t Does Business in t Customer\_t Salesperson\_ID Γerritory\_ID Territory\_ID Customer\_ID Salesperson\_name Customer\_ID Territory description Customer\_name Salesperson\_telephon Customer\_address Salesperson\_fax 00 Order\_line\_t Territory\_ID State Order\_ID Postal\_Code Product\_ID Order\_t Quantity Order ID Product\_Line\_t Product\_t Order\_Date Product\_Line\_ID Product ID Customer\_ID Product\_Line\_Name Product\_Name Product\_Finish Employee\_t Unit\_Price On hand Employee\_ID Vendor\_t Product Description Employee\_name Work\_Center\_t Works\_in\_t Vendor\_ID Product\_Line\_ID Employee\_Address Work\_Center\_ID Work\_Center\_ID Vendor\_name Work\_Center\_ID City Location Employee\_ID State Vendor\_address Postal Code City Supervisor\_ID State Postal\_Code Skills\_t Hired\_Date Uses\_t Raw\_Materials\_t Skill ID Product\_ID Material\_ID Material\_ID Skill Description Thickness Low pay/hour Footage Size High pay/hour Employee Skills\_ Grade Supplies\_t Skill\_id Material\_description /endor\_ID Employee\_id Footage\_on\_hand Material\_ID Unit\_price Unit\_price