**Assignment-2 Pawanjeet Kaur**

**Question\_1:** State what the following query computes:

*𝜋𝐶𝑢𝑠𝑡𝑜𝑚𝑒𝑟 𝑁𝑎𝑚𝑒(𝜋𝐶𝑢𝑠𝑡𝑜𝑚𝑒𝑟 𝐼𝐷(𝜋𝑂𝑟𝑑𝑒𝑟 𝐼𝐷(𝑂𝑟𝑑𝑒𝑟\_𝐿𝑖𝑛𝑒\_𝑡 ⨝ 𝜎𝑃𝑟𝑜𝑑𝑢𝑐 𝑁𝑎𝑚𝑒=′𝐶𝑜𝑚𝑝𝑢𝑡𝑒𝑟 𝐷𝑒𝑠𝑘′𝑃𝑟𝑜𝑑𝑢𝑐𝑡\_𝑡) ⨝ Order\_t) ⨝ Customer\_t)*

**Solution:**Above query print the customer names of the customers with orders of product ‘computer desk’***.***

**Question 2:** The purchasing manager of the Pine Value Furniture (PVF) Company would like to know every vendor who supplies *all* raw materials with material description = 'Red Oak'. Using a division operation concept, compose a relational algebra expression that would find these vendors.

**Solution:**

*ρ* (*temp1, πMaterial\_ID* (*σMaterial\_description = ‘Red Oak’ Raw\_Materials\_t* ))

*ρ* (*temp2, πVendor\_ID, Material\_ID* (*Supplies\_t* ))

*πVendor\_Name* (*temp2/temp1* ⨝ *Vendor\_t*)

**Question 3:** 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 2014 to see if it works as intended.

**Solution:**

*select C.Customer\_name from Customer\_t as C*

*where C.Customer\_ID*

*IN (*

*select ot.Customer\_ID*

*from Order\_t as ot*

*join*

*(select o.Order\_ID*

*from Product\_t as p inner join Order\_line\_t as o*

*ON p.Product\_ID = o.Product\_ID) as result*

*ON result.Order\_ID = ot.Order\_ID)*

**Question 4:** 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 2014 to see if it works as intended

**Solution:**

*select V.Vendor\_name*

*from Vendor\_t as V*

*where V.Vendor\_ID*

*IN*

*(select S.Vendor\_ID*

*from Supplies\_t as S inner join*

*Raw\_Materials\_t as R*

*ON S.Material\_ID = R.Material\_ID and R.Material\_description = 'Red Oak')*

**Question 5:** Compose a query that would find the customer who had the highest total dollars amount of purchases in year 2011. Show customer name and total dollars amount of the purchases in the result table.

**Solution:**

*select top 1 \* from*

*(select AA.Customer\_ID,BB.Customer\_name,AA.Price*

*from*

*(select O1.Customer\_ID, SUM(Result.Final\_Price) as 'Price'*

*from Order\_t as O1*

*inner join*

*(select P.Unit\_Price\*O2.Quantity as Final\_price , O2.Order\_ID*

*from Product\_t as P*

*join Order\_line\_t as O2 on P.Product\_ID = O2.Product\_ID) as Result*

*on O1.Order\_ID = Result.Order\_ID*

*where year(O1.Order\_Date)=2011*

*group by O1.Customer\_ID) tota\_cid*

*join Customer\_t tota\_cid\_cname*

*on tota\_cid.Customer\_ID= tota\_cid\_cname..Customer\_ID) as final\_op*

**Question 6:** 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]*.

**Solution:**

*select R.Material\_ID, Material\_description, V.Vendor\_ID, Vendor\_name, S.Unit\_price*

*from ((Raw\_Materials\_t as R inner join Supplies\_t as S*

*on R.Material\_ID = S.Material\_ID)*

*inner join Vendor\_t as V on V.Vendor\_ID = S.Vendor\_ID)*

*where S.Unit\_price in*

*(select TOP 2 S1.Unit\_price*

*from Supplies\_t as S1*

*Where S1.Material\_ID = R.Material\_ID*

*Order by S1.Unit\_price ASC)*

*Order By R.Material\_ID, S.Unit\_price;*

**Question 7: Query to retrieve output from HCC Code Database**

**Solution:**

*select ID, Name, HccCode from (*

*select \* from patient p2*

*join*

*PatientHcc p1*

*on p2.ID=p1.PatientID) as X*

*except*

*select result.ID, result.Name, biz.HccCode*

*from (select \* from patient p2*

*join*

*PatientHcc p3*

*on p2.ID=p3.PatientID) as result*

*join*

*BizRule biz*

*on result.HccCode=biz.MainHccCode*