Course: ITM6280

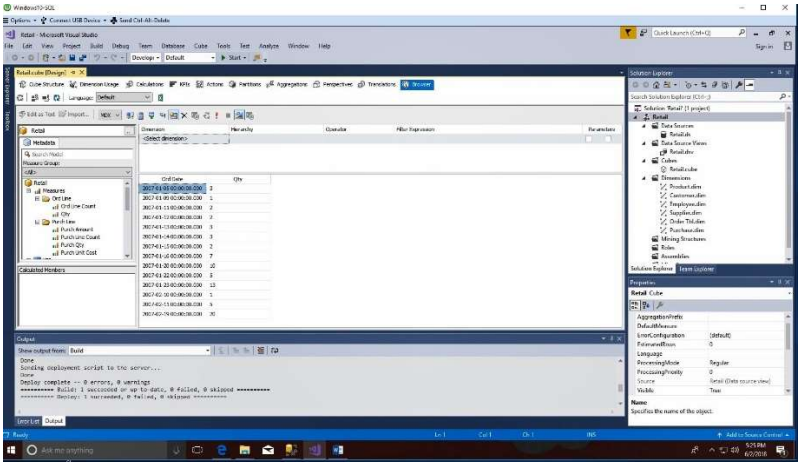
Homework Assignment: Homework 2

Questions:

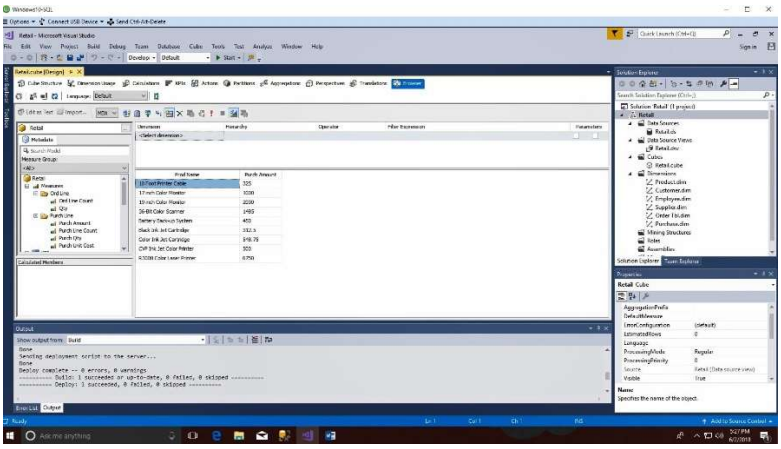
1. What is the datatype of Product_PK in the Retail table? Why did you select that datatype?
   The datatype of Product_PK is nvarchar(8). Because Product_PK is the primary key in the new created Product table, and it should match the datatype of ProdNo from the both the Order and Purchase databases.

2. Which table is the conformed dimension table in the Retail database? Why all dimensions are not showing in the Bus Matrix?
   Product table is the conformed dimension table in the Retail. It is the main dimension table, which is directly linked the fact table. These dimensions (Order, purchase, and product) are showing in the Bus Matrix because they directly link the two fact tables, PurchLine and OrderLine. Customer, Employee, and Supplier dimension are not showing in Bus Matrix because they don't directly connect the fact tables.
3. Use OLAP Operations on the Cube to answer following questions. You need to execute the query by right clicking.

a. On which date the most quantity of products were ordered?
   On 2007-02-19, the most quantity of products (20 units) were order.

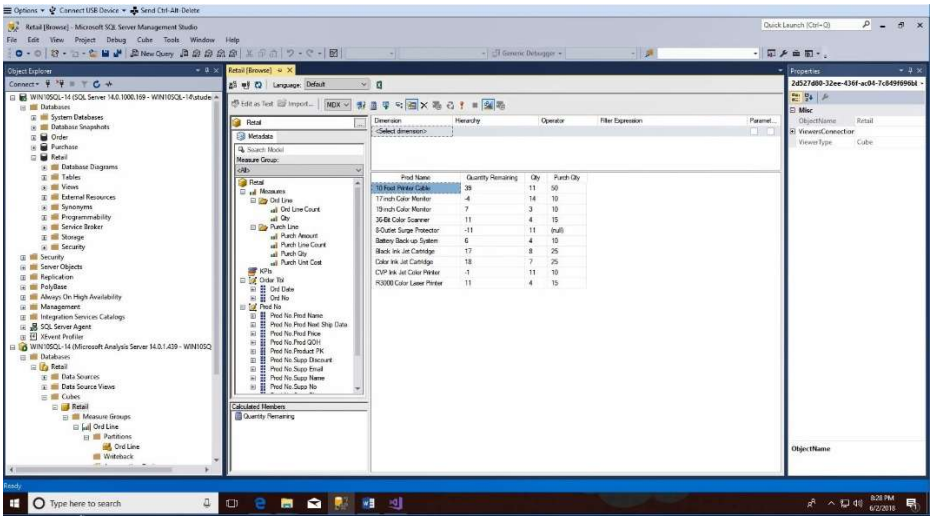


b. Which product has the greatest purchase amount?
   ProdNo P1114590 (R3000 Color Laser Printer) has the greatest purchase amount 6750.



c. Click on the Cube tab on the top ribbon in SSMS and select New Calculated Member. Name the member as Quantity Remaining. Using drag and drop in Expression, calculate the difference between quantity purchased and quantity ordered. Click OK. You will find a calculated member being created in SSMS. For how many products the quantity ordered is more than the quantity purchased?

If the Quantity Remaining is negative value, this indicates the quantity ordered is more than the quantity purchased. Based on the following operation of OLAP, there are 3 products the quantity ordered are more than their quantity purchased.



d. Which of the above three OLAP operation is using drill across fact tables? Can you perform this operation without the conformed dimension?

C operation is using drill across fact tables. Because C operation involved 2 fact tables. I dragged ordered quantity from OrderLine table and purchased quantity from PurchLine table. We need the conformed dimension to do this operation because we also dragged the ProdName from conformed dimension table, Product table. Without using the conformed dimension, I cannot do this operation to display each product name.

4. A Map bridge table is created from the Employee table to show the reporting structure between employees (EmpNo) and their supervisors (SupEmpNo). How many rows does this Map bridge table have? (See the structure of a map bridge table in Chapter 7, page 218)

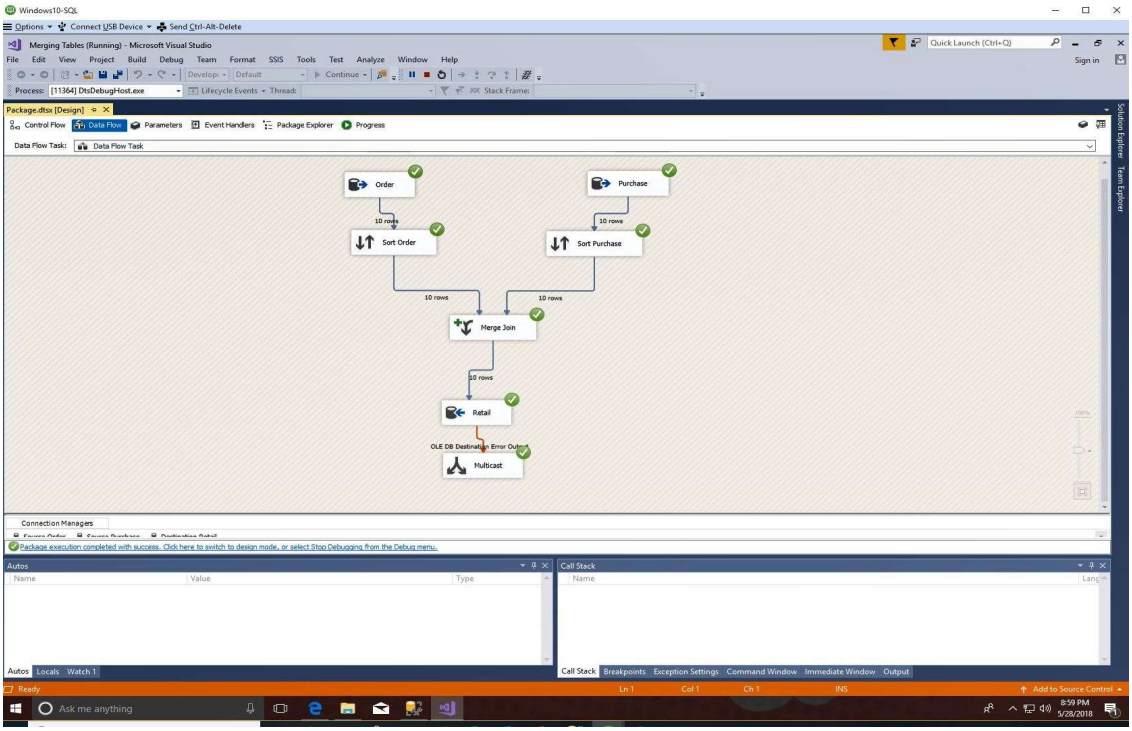
Results | Messages

	EmpNo	EmpFirstName	EmpLastName	EmpPhone	SupEmpNo	EmpCommRate
1	E1329594	Landi	Santos	(303) 789-1234	E8843211	0.022
2	E8544399	Joe	Jenkins	(303) 221-9875	E8843211	0.025
3	E8843211	Amy	Tang	(303) 556-4321	E9884325	0.04
4	E9345771	Colin	White	(303) 221-4453	E9884325	0.034
5	E9884325	Thomas	Johnson	(303) 556-9987	NULL	0.05
6	E9954302	Mary	Hill	(303) 556-9871	E8843211	0.02
7	E9973110	Theresa	Beck	(720) 320-2234	E9884325	NULL

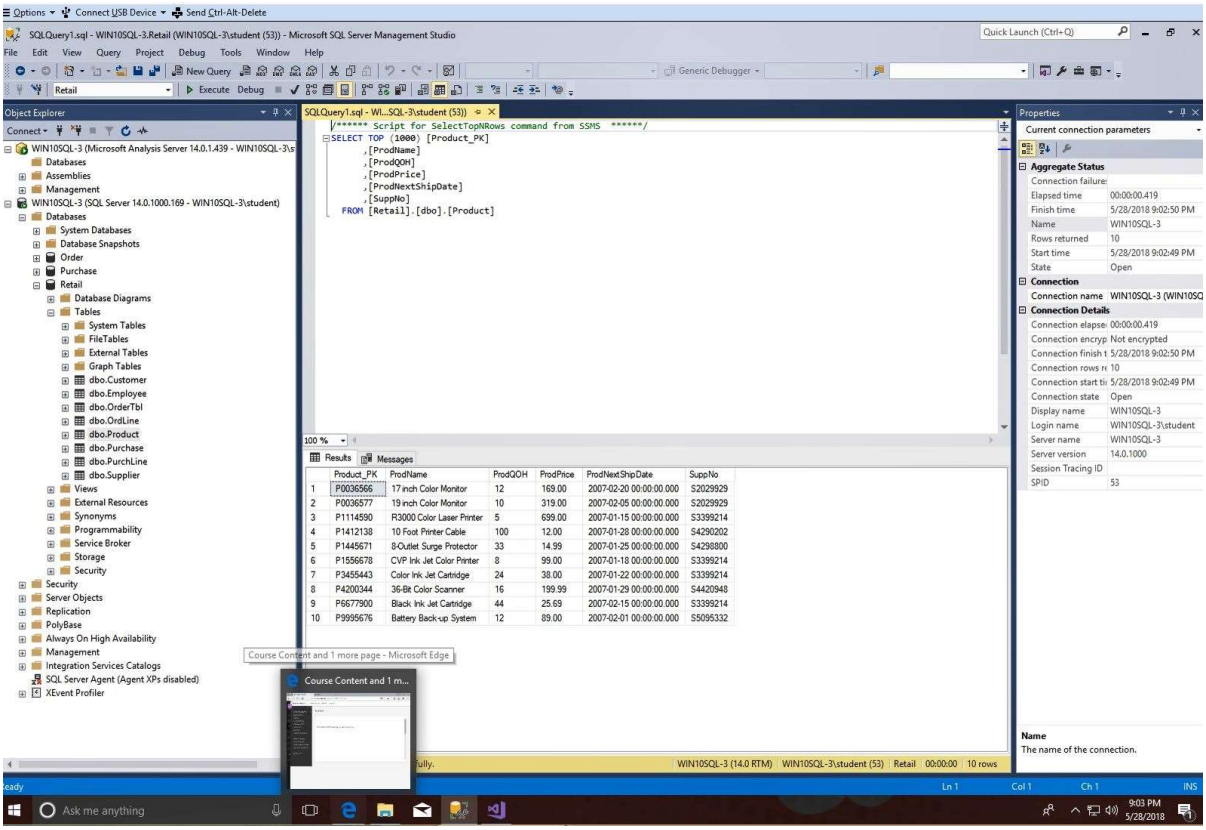
Based on the Employee table, we can create the map bridge to contain all information about EmpNo and SupEmpNo. For example, E9884325 (Thomas) should be the highest-level node in the rollup structure("tree") and have 7 paths. This parent/child "tree" structure results in 16 rows in created map bridge table.

7(E9884325) +
4(E8843211) +1(E9345771)+1(E9973110)+
1(E1329594)+1(E8544399)+1(9954302)=16rows

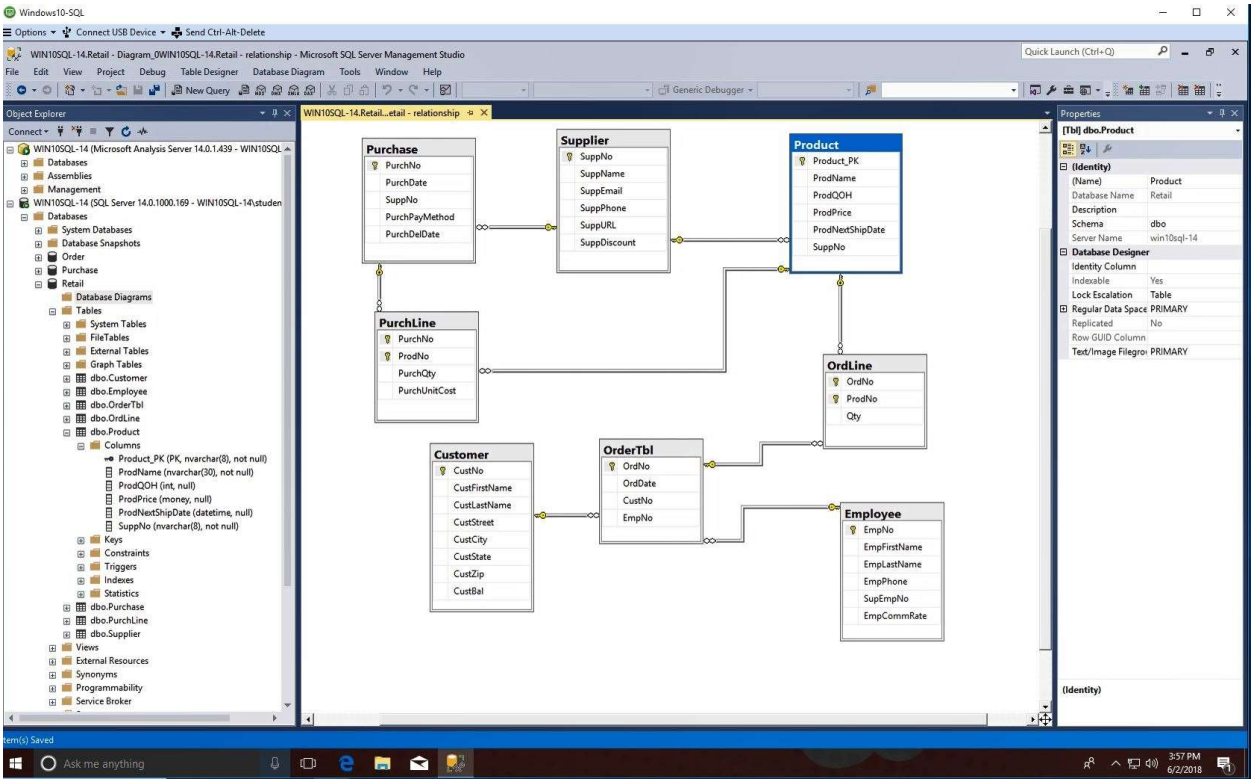
The screenshot of the Merging Tables project:



The screenshot of the Product data:



The screenshot of the relationship schema:



The screenshot of the bus matrix: