

IS475/675 HW#8

Using SQL with Multiple Tables in a SELECT statement

Each of the questions below requires you to create a SELECT statement to satisfy the request. There are 14 questions for this assignment. Creating an accurate result table is your primary goal for all of the questions. An accurate result table includes not only selecting the correct rows, but also conversion of fields to the appropriate data type (for example, converting a calculated or aggregated field to a MONEY data type when necessary) and sorting the result table. I recommend focusing first on getting the right rows in the result table and then selecting the correct columns.

Deliverable

Turn in a Word document containing the same output structure as that detailed on HW#7. Include the name of the database on the first page of the Word document that should be used to test your code, if necessary.

Here are the query questions:

1. Which products are **not** currently on order in the database? This is accomplished most easily through the use of a non-correlated sub-query that compares the ProductID in the Product table to a list of ProductID's in the PurchaseOrderLine table. I recommend using the NOT IN operator, as discussed in the video related to non-correlated sub-queries. Result table:

	ProductID	Description	QOH
1	A7879	Canvas, Non-Woven	1200.50
2	C8733	Nylon Cover	2245.56
3	L8501	Hiking Lounge Seating - Gray	0.00
4	M2356	Cot Mesh - Ultralite	1200.00

2. List all purchase orders in the PurchaseOrder table with a PODateNeeded (Date of Required Delivery in the result table below) in October or November of the current year. Make sure your query uses the current year from GETDATE, rather than hard coding the year "2020" in the WHERE clause. Sort the orders by PODateNeeded so that the orders needed in November are displayed first (descending order). The full result table is shown below.

	DateofRequiredDelivery	PONumber	DateofPurchaseOrder	VendorName	VendorPhoneNumber	BuyerID
1	Nov 15, 2020	661677	Sep 30, 2020	PolySort Manufacturing	(303) 555-8123	E10101
2	Nov 12, 2020	781900	Oct 03, 2020	Apex Mills	(775) 555-2894	E10055
3	Oct 25, 2020	112233	Sep 21, 2020	Albemarle Corporation	(775) 555-3451	E10026
4	Oct 18, 2020	902347	Sep 16, 2020	Apex Mills	(775) 555-2894	E10087
5	Oct 15, 2020	256887	Sep 19, 2020	Recycle Plastics Company	(313) 555-4266	NULL
6	Oct 09, 2020	581717	Sep 28, 2020	BestCo Food Equipment	(484) 555-6789	E10087
7	Oct 05, 2020	453313	Sep 19, 2020	Albemarle Corporation	(775) 555-3451	E10015

3. Modify the query written for question #2 to replace the Buyer ID in the result table with the name of the employee who was the buyer for the purchase order. If the buyer is null, display the message “No Buyer” in the column. Result table:

	DateofRequiredDelivery	PONumber	DateofPurchaseOrder	VendorName	VendorPhoneNumber	BuyerName
1	Nov 15, 2020	661677	Sep 30, 2020	PolySort Manufacturing	(303) 555-8123	Dilshad Dabiri
2	Nov 12, 2020	781900	Oct 03, 2020	Apex Mills	(775) 555-2894	Hai Jun Huang
3	Oct 25, 2020	112233	Sep 21, 2020	Albemarle Corporation	(775) 555-3451	Lieu Nguyen
4	Oct 18, 2020	902347	Sep 16, 2020	Apex Mills	(775) 555-2894	Aarav Agarwal
5	Oct 15, 2020	256887	Sep 19, 2020	Recycle Plastics Company	(313) 555-4266	No Buyer
6	Oct 09, 2020	581717	Sep 28, 2020	BestCo Food Equipment	(484) 555-6789	Aarav Agarwal
7	Oct 05, 2020	453313	Sep 19, 2020	Albemarle Corporation	(775) 555-3451	Sam Fetters

4. Enhance the query written for question #2 to include the name of the manager for the employee who was the buyer for the purchase order. If the employee does not have a manager, display the message “No Manager” in the column. Result table:

	DateofRequiredDelivery	PONumber	DateofPurchaseOrder	VendorName	VendorPhoneNumber	BuyerName	ManagerName
1	Nov 15, 2020	661677	Sep 30, 2020	PolySort Manufacturing	(303) 555-8123	Dilshad Dabiri	Lieu Nguyen
2	Nov 12, 2020	781900	Oct 03, 2020	Apex Mills	(775) 555-2894	Hai Jun Huang	**No Manager**
3	Oct 25, 2020	112233	Sep 21, 2020	Albemarle Corporation	(775) 555-3451	Lieu Nguyen	Sam Fetters
4	Oct 18, 2020	902347	Sep 16, 2020	Apex Mills	(775) 555-2894	Aarav Agarwal	Lieu Nguyen
5	Oct 15, 2020	256887	Sep 19, 2020	Recycle Plastics Company	(313) 555-4266	No Buyer	**No Manager**
6	Oct 09, 2020	581717	Sep 28, 2020	BestCo Food Equipment	(484) 555-6789	Aarav Agarwal	Lieu Nguyen
7	Oct 05, 2020	453313	Sep 19, 2020	Albemarle Corporation	(775) 555-3451	Sam Fetters	Mumtaz Shamsudeen

5. New query! List information about products in the Receiver table that have been received that were “damaged” (any product that was received where the description of the condition when received has the word “damage” anywhere in it; assume that you don’t know the different types of “damage” that could occur in the data). Data about the ProductID and the Purchase order number is in the PurchaseOrderLine table, so this query will require the Receiver table, the PurchaseOrderLine table and the Condition table. Sort the output in ascending order by ProductID, and datereceived. Be sure to use the description of the condition (the one word “damage”), rather than the condition ID, in the WHERE clause of the query. Result table:

	ProductID	DateReceived	PurchaseOrderNumber	QuantityReceived	ConditionReceived
1	C2399	2020-09-07 00:00:00.000	234607	13.00	Freight damage
2	C2399	2020-09-12 00:00:00.000	234607	40.00	Water damage
3	C2399	2020-09-14 00:00:00.000	045687	11.00	Freight damage
4	G0983	2020-09-07 00:00:00.000	234607	200.00	Water damage
5	G0983	2020-09-25 00:00:00.000	543791	50.00	Freight damage
6	G0983	2020-09-29 00:00:00.000	543791	20.00	Freight damage
7	G0983	2020-10-15 00:00:00.000	600124	10.00	Water damage
8	G1258	2020-10-06 00:00:00.000	581717	35.00	Water damage
9	J8006	2020-09-26 00:00:00.000	453313	125.50	Water damage
10	M3577	2020-08-17 00:00:00.000	025974	100.00	Water damage
11	M3577	2020-10-25 00:00:00.000	112233	340.50	Water damage
12	T0460	2020-10-09 00:00:00.000	543791	10.00	Water damage

6. Enhance the answer to question #5 to include the product description, product type description, name and phone number of the vendor for the related purchase order. This query requires that you join in quite a few more tables. I recommend that you do it incrementally adding in one table at a time so that you don't change the total number of rows generated in the result table. Result table:

	ProductID	ProductDescription	ProductType	DateReceived	PONumber	VendorName	VendorPhoneNumber	Quantity Received	ConditionReceived
1	C2399	Thermoplastic	Camping and Resting	2020-09-07 00:00:00.000	234607	Albemarle Corporation	(775) 555-3451	13.00	Freight damage
2	C2399	Thermoplastic	Camping and Resting	2020-09-12 00:00:00.000	234607	Albemarle Corporation	(775) 555-3451	40.00	Water damage
3	C2399	Thermoplastic	Camping and Resting	2020-09-14 00:00:00.000	045687	PolySort Manufacturing	(303) 555-8123	11.00	Freight damage
4	G0983	Alpine Small Pot	Hiking and Trails	2020-09-07 00:00:00.000	234607	Albemarle Corporation	(775) 555-3451	200.00	Water damage
5	G0983	Alpine Small Pot	Hiking and Trails	2020-09-25 00:00:00.000	543791	Celanette Design, LLC	(310) 555-5545	50.00	Freight damage
6	G0983	Alpine Small Pot	Hiking and Trails	2020-09-29 00:00:00.000	543791	Celanette Design, LLC	(310) 555-5545	20.00	Freight damage
7	G0983	Alpine Small Pot	Hiking and Trails	2020-10-15 00:00:00.000	600124	PolySort Manufacturing	(303) 555-8123	10.00	Water damage
8	G1258	Alpine Pot/Kettle Handle	Utility Materials	2020-10-06 00:00:00.000	581717	BestCo Food Equipment	(484) 555-6789	35.00	Water damage
9	J8006	Microfilter tubing	Miscellaneous	2020-09-26 00:00:00.000	453313	Albemarle Corporation	(775) 555-3451	125.50	Water damage
10	M3577	Cot Mesh - Sturdy	Miscellaneous	2020-08-17 00:00:00.000	025974	Alcan Plastic, Inc.	(907) 555-5268	100.00	Water damage
11	M3577	Cot Mesh - Sturdy	Miscellaneous	2020-10-25 00:00:00.000	112233	Albemarle Corporation	(775) 555-3451	340.50	Water damage
12	T0460	Alpine Water Bottle	Camping and Cooking	2020-10-09 00:00:00.000	543791	Celanette Design, LLC	(310) 555-5545	10.00	Water damage

7. New query (but similar to #6 so I recommend that you use the code from #6 as the base). Write a query that lists the name and phone number of those vendors from whom MountainDesign received damaged goods for the product Alpine Small Pot. Make sure you use the name of the product (Alpine Small Pot) rather than the productID in the WHERE clause. Result table:

	VendorName	VendorPhoneNumber
1	Albemarle Corporation	(775) 555-3451
2	Celanette Design, LLC	(310) 555-5545
3	PolySort Manufacturing	(303) 555-8123

8. Time for a totally new group function-related query. Create a summarized report listing information about each product in the product table. Include a count of how many purchase orders contain the product on order and the maximum, minimum, and average price that the product has on order within the PurchaseOrderLine table. Also include a total of the quantity on order for each product. If a product is not in the PurchaseOrderLine table, then the totals should be zero. Sort the result table by ProductID. Result table:

	productid	description	CountofPurchaseOrders	TotalQuantityOrdered	MaximumPricePaid	MinimumPricePaid	AveragePricePaid
1	A7879	Canvas, Non-Woven	0	0	0.00	0.00	0.00
2	B9812	Single Bumer Alcohol Fueled	2	55	10.99	8.99	9.99
3	C2399	Thermoplastic	3	135	2.99	1.75	2.41
4	C8733	Nylon Cover	0	0	0.00	0.00	0.00
5	C9100	Unbleached Muslin	1	800	3.45	3.45	3.45
6	G0983	Alpine Small Pot	5	755	2.25	1.50	2.04
7	G1258	Alpine Pot/Kettle Handle	1	20	4.55	4.55	4.55
8	G1366	Alpine Pot/Kettle Insert	3	380	4.89	1.89	3.88
9	G5698	Alpine Skillet Handle Set	3	342	2.38	1.22	1.86
10	J8006	Microfilter tubing	1	501	1.07	1.02	1.04
11	L8500	Hiking Lounge Seating - Blue	2	23	29.64	26.45	28.05
12	L8501	Hiking Lounge Seating - Gray	0	0	0.00	0.00	0.00
13	M2356	Cot Mesh - Ultralite	0	0	0.00	0.00	0.00
14	M3577	Cot Mesh - Sturdy	4	2550	5.89	4.63	5.34
15	O1957	Poly pro tubing, 1/2"	3	1050	0.46	0.29	0.39
16	P5678	Stuff Sacks - Pillow Size	1	48	22.50	22.50	22.50
17	P7844	Down Baffle Liner	1	500	1.50	1.50	1.50
18	R5660	Water Filtration Pump	2	175	1.99	1.59	1.79
19	T0460	Alpine Water Bottle	6	1130	3.10	1.39	2.28

9. List detailed information about all products on order for all the purchase orders in the purchase order table. There should be one row in your result table for each row in the PurchaseOrderLine table. Include the purchase order number, the date the purchase order was placed, the name of the vendor, the employee who placed that purchase order (the buyer) and each of the products on the order. For each product on an order, list the productID, product description, date needed, quantity ordered, the product price and the extended price (quantity * price). If there is no buyer for a given purchase order, include a message in the name field. Sort the result table by productID within POnumber. I provide the full result table below and on the top of the next page so that you can check your work, but you should snip only the last 10 rows of your result table to submit for grading.

	PONumber	PODatePlaced	VendorName	Buyer	ProductID	ProductDescription	ProductDateNeeded	Quantity Ordered	Unit Price	ExtendedPrice
1	025974	2020-08-15 00:00:00.000	Alcan Plastic, Inc.	Fetters, S.	M3577	Cot Mesh - Sturdy	2020-08-18 00:00:00.000	600.00	4.63	2778.00
2	025974	2020-08-15 00:00:00.000	Alcan Plastic, Inc.	Fetters, S.	O1957	Poly pro tubing, 1/2"	2020-08-18 00:00:00.000	300.00	0.46	138.00
3	045687	2020-08-21 00:00:00.000	PolySort Manufacturing	Huang, H.	C2399	Thermoplastic	2020-09-05 00:00:00.000	40.00	2.99	119.60
4	045687	2020-08-21 00:00:00.000	PolySort Manufacturing	Huang, H.	L8500	Hiking Lounge Seating - Blue	2020-09-10 00:00:00.000	15.00	29.64	444.60
5	045687	2020-08-21 00:00:00.000	PolySort Manufacturing	Huang, H.	O1957	Poly pro tubing, 1/2"	2020-09-12 00:00:00.000	450.00	0.29	130.50
6	056489	2020-08-04 00:00:00.000	Injectomatic Mold Corp.	Huang, H.	M3577	Cot Mesh - Sturdy	2020-08-15 00:00:00.000	600.00	5.29	3174.00
7	112233	2020-09-21 00:00:00.000	Albemarle Corporation	Nguyen, L.	M3577	Cot Mesh - Sturdy	2020-10-07 00:00:00.000	600.60	5.89	3537.534
8	112233	2020-09-21 00:00:00.000	Albemarle Corporation	Nguyen, L.	P7844	Down Baffle Liner	2020-09-24 00:00:00.000	500.25	1.50	750.375
9	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	C2399	Thermoplastic	2020-09-06 00:00:00.000	75.00	1.75	131.25
10	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	G0983	Alpine Small Pot	2020-09-08 00:00:00.000	200.00	1.50	300.00
11	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	G1366	Alpine Pot/Kettle Insert	2020-09-10 00:00:00.000	182.00	4.89	889.98
12	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	G5698	Alpine Skillet Handle Set	2020-09-19 00:00:00.000	182.00	1.22	222.04
13	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	R5660	Water Filtration Pump	2020-09-26 00:00:00.000	100.00	1.99	199.00
14	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	T0460	Alpine Water Bottle	2020-09-26 00:00:00.000	200.00	2.75	550.00
15	256887	2020-09-19 00:00:00.000	Recycle Plastics Company	No Buyer	C2399	Thermoplastic	2020-10-15 00:00:00.000	20.00	2.50	50.00
16	256887	2020-09-19 00:00:00.000	Recycle Plastics Company	No Buyer	P5678	Stuff Sacks - Pillow Size	2020-10-15 00:00:00.000	48.00	22.50	1080.00
17	329987	2020-10-10 00:00:00.000	Alcan Plastic, Inc.	Dabiri, D.	O1957	Poly pro tubing, 1/2"	2020-11-15 00:00:00.000	300.00	0.41	123.00
18	329987	2020-10-10 00:00:00.000	Alcan Plastic, Inc.	Dabiri, D.	T0460	Alpine Water Bottle	2021-01-12 00:00:00.000	50.00	3.10	155.00
19	351211	2020-09-09 00:00:00.000	BestCo Food Equipment	MacAndrews-Abemethy, E.	B9812	Single Bumer Alcohol Fueled	2020-11-12 00:00:00.000	15.00	8.99	134.85
20	351211	2020-09-09 00:00:00.000	BestCo Food Equipment	MacAndrews-Abemethy, E.	B9812	Single Bumer Alcohol Fueled	2021-01-12 00:00:00.000	5.00	9.99	49.95
21	351211	2020-09-09 00:00:00.000	BestCo Food Equipment	MacAndrews-Abemethy, E.	B9812	Single Bumer Alcohol Fueled	2021-03-08 00:00:00.000	5.00	9.99	49.95
22	365870	2020-09-14 00:00:00.000	Albemarle Corporation	Dabiri, D.	G0983	Alpine Small Pot	2020-12-14 00:00:00.000	120.00	1.85	222.00
23	365870	2020-09-14 00:00:00.000	Albemarle Corporation	Dabiri, D.	R5660	Water Filtration Pump	2020-11-10 00:00:00.000	75.00	1.59	119.25
24	365870	2020-09-14 00:00:00.000	Albemarle Corporation	Dabiri, D.	T0460	Alpine Water Bottle	2021-03-14 00:00:00.000	120.00	2.39	286.80
25	453313	2020-09-19 00:00:00.000	Albemarle Corporation	Fetters, S.	J8006	Microfilter tubing	2020-09-26 00:00:00.000	125.50	1.02	128.01

26	453313	2020-09-19 00:00:00.000	Albemarle Corporation	Fetters, S.	J8006	Microfilter tubing	2020-09-28 00:00:00.000	275.50	1.02	281.01
27	453313	2020-09-19 00:00:00.000	Albemarle Corporation	Fetters, S.	J8006	Microfilter tubing	2020-10-05 00:00:00.000	100.00	1.07	107.00
28	543791	2020-09-15 00:00:00.000	Celanette Design, LLC	Huang, H.	G0983	Alpine Small Pot	2020-09-17 00:00:00.000	100.00	1.89	189.00
29	543791	2020-09-15 00:00:00.000	Celanette Design, LLC	Huang, H.	G0983	Alpine Small Pot	2020-09-28 00:00:00.000	20.00	2.19	43.80
30	543791	2020-09-15 00:00:00.000	Celanette Design, LLC	Huang, H.	G0983	Alpine Small Pot	2020-10-02 00:00:00.000	20.00	2.25	45.00
31	543791	2020-09-15 00:00:00.000	Celanette Design, LLC	Huang, H.	G0983	Alpine Small Pot	2020-10-12 00:00:00.000	25.00	2.25	56.25
32	543791	2020-09-15 00:00:00.000	Celanette Design, LLC	Huang, H.	G0983	Alpine Small Pot	2020-11-15 00:00:00.000	45.00	2.15	96.75
33	543791	2020-09-15 00:00:00.000	Celanette Design, LLC	Huang, H.	G0983	Alpine Small Pot	2020-12-10 00:00:00.000	25.00	2.15	53.75
34	543791	2020-09-15 00:00:00.000	Celanette Design, LLC	Huang, H.	G1366	Alpine Pot/Kettle Insert	2021-01-10 00:00:00.000	48.00	1.89	90.72
35	543791	2020-09-15 00:00:00.000	Celanette Design, LLC	Huang, H.	G5698	Alpine Skillet Handle Set	2020-10-15 00:00:00.000	12.00	1.95	23.40
36	543791	2020-09-15 00:00:00.000	Celanette Design, LLC	Huang, H.	G5698	Alpine Skillet Handle Set	2021-01-10 00:00:00.000	48.00	2.38	114.24
37	543791	2020-09-15 00:00:00.000	Celanette Design, LLC	Huang, H.	T0460	Alpine Water Bottle	2020-12-15 00:00:00.000	50.00	2.49	124.50
38	543791	2020-09-15 00:00:00.000	Celanette Design, LLC	Huang, H.	T0460	Alpine Water Bottle	2020-10-12 00:00:00.000	120.00	1.89	226.80
39	581717	2020-09-28 00:00:00.000	BestCo Food Equipment	Agarwal, A.	B9812	Single Burner Alcohol Fueled	2020-10-08 00:00:00.000	30.00	10.99	329.70
40	581717	2020-09-28 00:00:00.000	BestCo Food Equipment	Agarwal, A.	G1258	Alpine Pot/Kettle Handle	2020-10-08 00:00:00.000	20.00	4.55	91.00
41	581717	2020-09-28 00:00:00.000	BestCo Food Equipment	Agarwal, A.	T0460	Alpine Water Bottle	2020-10-08 00:00:00.000	40.00	1.99	79.60
42	600124	2020-10-01 00:00:00.000	PolySort Manufacturing	Huang, H.	G0983	Alpine Small Pot	2020-10-18 00:00:00.000	100.00	1.96	196.00
43	600124	2020-10-01 00:00:00.000	PolySort Manufacturing	Huang, H.	G1366	Alpine Pot/Kettle Insert	2020-10-18 00:00:00.000	150.00	4.85	727.50
44	600124	2020-10-01 00:00:00.000	PolySort Manufacturing	Huang, H.	G5698	Alpine Skillet Handle Set	2020-10-18 00:00:00.000	100.00	1.87	187.00
45	661677	2020-09-30 00:00:00.000	PolySort Manufacturing	Dabin, D.	L8500	Hiking Lounge Seating - Blue	2020-11-15 00:00:00.000	8.00	26.45	211.60
46	781900	2020-10-03 00:00:00.000	Apex Mills	Huang, H.	C9100	Unbleached Muslin	2020-10-15 00:00:00.000	800.00	3.45	2760.00
47	781900	2020-10-03 00:00:00.000	Apex Mills	Huang, H.	M3577	Cot Mesh - Sturdy	2020-11-10 00:00:00.000	750.00	5.55	4162.50
48	902347	2020-09-16 00:00:00.000	Apex Mills	Agarwal, A.	G0983	Alpine Small Pot	2020-10-15 00:00:00.000	100.00	2.25	225.00
49	902347	2020-09-16 00:00:00.000	Apex Mills	Agarwal, A.	T0460	Alpine Water Bottle	2020-09-22 00:00:00.000	100.00	2.25	225.00
50	902347	2020-09-16 00:00:00.000	Apex Mills	Agarwal, A.	T0460	Alpine Water Bottle	2020-12-05 00:00:00.000	450.00	1.39	625.50

10. The purpose of this next question is to understand the content of the data in the database – it is kind of a preliminary step to move between query #9 and query #11.

Each row in the PurchaseOrderLine table represents a product purchased on a purchase order. For each row in the PurchaseOrderLine table, it is possible to have multiple rows in the Receiver table. In other words, it is possible to receive a partial shipment for a product on an order. Modify the query written for question #9 to include the qtyreceived and datereceived in the Receiver table for each product in the PurchaseOrderLine table. It is possible that no products have been received for a given row in the PurchaseOrderLine table, but those rows should still be included in the result table. To make the output fit on a page, remove the unit price and extended price from the result table created for question #9. Snip the **last 15 rows** of your result table to turn in with this problem for grading. The **first 25 rows of the result table** are included on the next page to help you check your work Hint: There should be a total of 75 rows in the result table.

	PONumber	PODatePlaced	VendorName	Buyer	ProductID	ProductDescription	ProductDateNeeded	Quantity Ordered	DateReceived	QtyReceived
1	025974	2020-08-15 00:00:00.000	Alcan Plastic, Inc.	Fetters, S.	M3577	Cot Mesh - Sturdy	2020-08-18 00:00:00.000	600.00	2020-08-15 00:00:00.000	400.00
2	025974	2020-08-15 00:00:00.000	Alcan Plastic, Inc.	Fetters, S.	M3577	Cot Mesh - Sturdy	2020-08-18 00:00:00.000	600.00	2020-08-16 00:00:00.000	100.00
3	025974	2020-08-15 00:00:00.000	Alcan Plastic, Inc.	Fetters, S.	M3577	Cot Mesh - Sturdy	2020-08-18 00:00:00.000	600.00	2020-08-17 00:00:00.000	100.00
4	025974	2020-08-15 00:00:00.000	Alcan Plastic, Inc.	Fetters, S.	O1957	Poly pro tubing, 1/2"	2020-08-18 00:00:00.000	300.00	2020-08-15 00:00:00.000	100.00
5	025974	2020-08-15 00:00:00.000	Alcan Plastic, Inc.	Fetters, S.	O1957	Poly pro tubing, 1/2"	2020-08-18 00:00:00.000	300.00	2020-08-17 00:00:00.000	210.00
6	045687	2020-08-21 00:00:00.000	PolySort Manufacturing	Huang, H.	C2399	Themoplastic	2020-09-05 00:00:00.000	40.00	2020-09-05 00:00:00.000	40.00
7	045687	2020-08-21 00:00:00.000	PolySort Manufacturing	Huang, H.	C2399	Themoplastic	2020-09-05 00:00:00.000	40.00	2020-09-14 00:00:00.000	11.00
8	045687	2020-08-21 00:00:00.000	PolySort Manufacturing	Huang, H.	L8500	Hiking Lounge Seating - Blue	2020-09-10 00:00:00.000	15.00	NULL	0.00
9	045687	2020-08-21 00:00:00.000	PolySort Manufacturing	Huang, H.	O1957	Poly pro tubing, 1/2"	2020-09-12 00:00:00.000	450.00	2020-09-05 00:00:00.000	400.00
10	045687	2020-08-21 00:00:00.000	PolySort Manufacturing	Huang, H.	O1957	Poly pro tubing, 1/2"	2020-09-12 00:00:00.000	450.00	2020-09-15 00:00:00.000	40.00
11	056489	2020-08-04 00:00:00.000	Injectomatic Mold Corp.	Huang, H.	M3577	Cot Mesh - Sturdy	2020-08-15 00:00:00.000	600.00	NULL	0.00
12	112233	2020-09-21 00:00:00.000	Albemarle Corporation	Nguyen, L.	M3577	Cot Mesh - Sturdy	2020-10-07 00:00:00.000	600.60	2020-09-28 00:00:00.000	300.45
13	112233	2020-09-21 00:00:00.000	Albemarle Corporation	Nguyen, L.	M3577	Cot Mesh - Sturdy	2020-10-07 00:00:00.000	600.60	2020-10-25 00:00:00.000	340.50
14	112233	2020-09-21 00:00:00.000	Albemarle Corporation	Nguyen, L.	P7844	Down Baffle Liner	2020-09-24 00:00:00.000	500.25	2020-09-23 00:00:00.000	475.25
15	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	C2399	Themoplastic	2020-09-06 00:00:00.000	75.00	2020-09-07 00:00:00.000	13.00
16	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	C2399	Themoplastic	2020-09-06 00:00:00.000	75.00	2020-09-08 00:00:00.000	22.00
17	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	C2399	Themoplastic	2020-09-06 00:00:00.000	75.00	2020-09-12 00:00:00.000	40.00
18	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	G0983	Alpine Small Pot	2020-09-08 00:00:00.000	200.00	2020-09-07 00:00:00.000	200.00
19	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	G1366	Alpine Pot/Kettle Insert	2020-09-10 00:00:00.000	182.00	2020-09-07 00:00:00.000	150.00
20	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	G1366	Alpine Pot/Kettle Insert	2020-09-10 00:00:00.000	182.00	2020-09-10 00:00:00.000	25.00
21	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	G1366	Alpine Pot/Kettle Insert	2020-09-10 00:00:00.000	182.00	2020-09-14 00:00:00.000	7.00
22	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	G5698	Alpine Skillet Handle Set	2020-09-19 00:00:00.000	182.00	2020-09-22 00:00:00.000	182.00
23	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	R5660	Water Filtration Pump	2020-09-26 00:00:00.000	100.00	2020-09-22 00:00:00.000	50.00
24	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	R5660	Water Filtration Pump	2020-09-26 00:00:00.000	100.00	2020-09-26 00:00:00.000	50.00
25	234607	2020-09-04 00:00:00.000	Albemarle Corporation	Huang, H.	T0460	Alpine Water Bottle	2020-09-26 00:00:00.000	200.00	2020-09-22 00:00:00.000	200.00

11. Look at the output from the query created to answer #10 on the previous page. Notice that sometimes it takes multiple shipments to receive the complete quantity ordered for a given product on a purchase order. For example, look at purchase order #025974 for productID M3577. MountainDesign ordered a quantity of 600 of that product on that purchase order, all due by August 18, 2020. They received three different shipments of that product – one on Aug. 15 for a quantity of 400, one on Aug. 16 for a quantity of 100, and one on Aug. 17 for a quantity of 100. MountainDesign received a total quantity of 600, but it is difficult to see that information on the query created to answer question #10. You are going to fix that difficult-to-read information with this query.

Summarize the receiving status of every row in the PurchaseOrderLine table. Sort the output by ponumber, productID, and dateneeded.

To simplify the output, remove some of the columns required in question #10 as shown in the sample output. Include only the PONumber, Vendor Name, ProductID, Product Description, Date Needed, and QtyOrdered on the output. In addition, calculate (sum) the total quantity received for a given product with a given date needed on a given purchase order, and the quantity left to receive (QtyOrdered – sum of quantity received). If a product has not yet been received, then put a zero in the total quantity received. Determine the shipping status for each line based on the difference between the quantity ordered and the total quantity received according to the following chart:

Difference	Receiving Status
qtyordered – sum of quantity received = 0	Complete
qtyordered – sum of quantity received < 0	Over Shipment
qtyordered – sum of quantity received > 0	Partial Shipment
sum of quantity received = 0	Not Received

Some hints: There should be one row in the result table for each row in the tblPurchaseOrderLine. The GROUP BY is the easiest way to solve this query. Build this query incrementally. Get the grouping (SUM) to work correctly before attempting to create the “receiving status” column. When an aggregate function, like a SUM, is used within a calculation in a column in the SELECT list, then the column is considered to be an aggregate and doesn’t have to be included in the GROUP BY statement. Use the CASE statement in the SELECT list to create the information in the “receiving status” column. Snip the last 25 rows of the result table to turn in with the code for this question for grading.

The complete result table is provided on the next two pages to help facilitate your understanding of the requirements. There should be a total of 50 rows in the result table.

	PONumber	VendorName	ProductID	ProductDescription	ProductDateNeeded	QuantityOrdered	TotalQuantityReceived	QuantityRemainingToBeReceived	Receiving Status
1	025974	Alcan Plastic, Inc.	M3577	Cot Mesh - Sturdy	2020-08-18 00:00:00.000	600.00	600.00	0.00	Complete
2	025974	Alcan Plastic, Inc.	O1957	Poly pro tubing, 1/2"	2020-08-18 00:00:00.000	300.00	310.00	-10.00	Over Shipment
3	045687	PolySort Manufacturing	C2399	Thermoplastic	2020-09-05 00:00:00.000	40.00	51.00	-11.00	Over Shipment
4	045687	PolySort Manufacturing	L8500	Hiking Lounge Seating - Blue	2020-09-10 00:00:00.000	15.00	0.00	15.00	Not Received
5	045687	PolySort Manufacturing	O1957	Poly pro tubing, 1/2"	2020-09-12 00:00:00.000	450.00	440.00	10.00	Partial Shipment
6	056489	Injectomatic Mold Corp.	M3577	Cot Mesh - Sturdy	2020-08-15 00:00:00.000	600.00	0.00	600.00	Not Received
7	112233	Albemarle Corporation	M3577	Cot Mesh - Sturdy	2020-10-07 00:00:00.000	600.60	640.95	-40.35	Over Shipment
8	112233	Albemarle Corporation	P7844	Down Baffle Liner	2020-09-24 00:00:00.000	500.25	475.25	25.00	Partial Shipment
9	234607	Albemarle Corporation	C2399	Thermoplastic	2020-09-06 00:00:00.000	75.00	75.00	0.00	Complete
10	234607	Albemarle Corporation	G0983	Alpine Small Pot	2020-09-08 00:00:00.000	200.00	200.00	0.00	Complete
11	234607	Albemarle Corporation	G1366	Alpine Pot/Kettle Insert	2020-09-10 00:00:00.000	182.00	182.00	0.00	Complete
12	234607	Albemarle Corporation	G5698	Alpine Skillet Handle Set	2020-09-19 00:00:00.000	182.00	182.00	0.00	Complete
13	234607	Albemarle Corporation	R5660	Water Filtration Pump	2020-09-26 00:00:00.000	100.00	100.00	0.00	Complete
14	234607	Albemarle Corporation	T0460	Alpine Water Bottle	2020-09-26 00:00:00.000	200.00	200.00	0.00	Complete
15	256887	Recycle Plastics Company	C2399	Thermoplastic	2020-10-15 00:00:00.000	20.00	20.00	0.00	Complete
16	256887	Recycle Plastics Company	P5678	Stuff Sacks - Pillow Size	2020-10-15 00:00:00.000	48.00	49.00	-1.00	Over Shipment
17	329987	Alcan Plastic, Inc.	O1957	Poly pro tubing, 1/2"	2020-11-15 00:00:00.000	300.00	0.00	300.00	Not Received
18	329987	Alcan Plastic, Inc.	T0460	Alpine Water Bottle	2021-01-12 00:00:00.000	50.00	0.00	50.00	Not Received
19	351211	BestCo Food Equipment	B9812	Single Bumer Alcohol Fueled	2020-11-12 00:00:00.000	15.00	10.00	5.00	Partial Shipment
20	351211	BestCo Food Equipment	B9812	Single Bumer Alcohol Fueled	2021-01-12 00:00:00.000	5.00	0.00	5.00	Not Received
21	351211	BestCo Food Equipment	B9812	Single Bumer Alcohol Fueled	2021-03-08 00:00:00.000	5.00	0.00	5.00	Not Received
22	365870	Albemarle Corporation	G0983	Alpine Small Pot	2020-12-14 00:00:00.000	120.00	0.00	120.00	Not Received
23	365870	Albemarle Corporation	R5660	Water Filtration Pump	2020-11-10 00:00:00.000	75.00	0.00	75.00	Not Received
24	365870	Albemarle Corporation	T0460	Alpine Water Bottle	2021-03-14 00:00:00.000	120.00	0.00	120.00	Not Received
25	453313	Albemarle Corporation	J8006	Microfilter tubing	2020-09-26 00:00:00.000	125.50	125.50	0.00	Complete
26	453313	Albemarle Corporation	J8006	Microfilter tubing	2020-09-28 00:00:00.000	275.50	275.50	0.00	Complete
27	453313	Albemarle Corporation	J8006	Microfilter tubing	2020-10-05 00:00:00.000	100.00	0.00	100.00	Not Received
28	543791	Celanette Design, LLC	G0983	Alpine Small Pot	2020-09-17 00:00:00.000	100.00	100.00	0.00	Complete
29	543791	Celanette Design, LLC	G0983	Alpine Small Pot	2020-09-28 00:00:00.000	20.00	20.00	0.00	Complete
30	543791	Celanette Design, LLC	G0983	Alpine Small Pot	2020-10-02 00:00:00.000	20.00	20.00	0.00	Complete
31	543791	Celanette Design, LLC	G0983	Alpine Small Pot	2020-10-12 00:00:00.000	25.00	25.00	0.00	Complete
32	543791	Celanette Design, LLC	G0983	Alpine Small Pot	2020-11-15 00:00:00.000	45.00	0.00	45.00	Not Received
33	543791	Celanette Design, LLC	G0983	Alpine Small Pot	2020-12-10 00:00:00.000	25.00	0.00	25.00	Not Received
34	543791	Celanette Design, LLC	G1366	Alpine Pot/Kettle Insert	2021-01-10 00:00:00.000	48.00	0.00	48.00	Not Received
35	543791	Celanette Design, LLC	G5698	Alpine Skillet Handle Set	2020-10-15 00:00:00.000	12.00	12.00	0.00	Complete
36	543791	Celanette Design, LLC	G5698	Alpine Skillet Handle Set	2021-01-10 00:00:00.000	48.00	0.00	48.00	Not Received
37	543791	Celanette Design, LLC	T0460	Alpine Water Bottle	2020-10-12 00:00:00.000	120.00	120.00	0.00	Complete
38	543791	Celanette Design, LLC	T0460	Alpine Water Bottle	2020-12-15 00:00:00.000	50.00	0.00	50.00	Not Received
39	581717	BestCo Food Equipment	B9812	Single Bumer Alcohol Fueled	2020-10-08 00:00:00.000	30.00	15.00	15.00	Partial Shipment
40	581717	BestCo Food Equipment	G1258	Alpine Pot/Kettle Handle	2020-10-08 00:00:00.000	20.00	45.00	-25.00	Over Shipment
41	581717	BestCo Food Equipment	T0460	Alpine Water Bottle	2020-10-08 00:00:00.000	40.00	30.00	10.00	Partial Shipment

	PONumber	VendorName	ProductID	ProductDescription	ProductDateNeeded	QuantityOrdered	TotalQuantityReceived	QuantityRemainingToBeReceived	Receiving Status
42	600124	PolySort Manufacturing	G0983	Alpine Small Pot	2020-10-18 00:00:00.000	100.00	110.00	-10.00	Over Shipment
43	600124	PolySort Manufacturing	G1366	Alpine Pot/Kettle Insert	2020-10-18 00:00:00.000	150.00	150.00	0.00	Complete
44	600124	PolySort Manufacturing	G5698	Alpine Skillet Handle Set	2020-10-18 00:00:00.000	100.00	100.00	0.00	Complete
45	661677	PolySort Manufacturing	L8500	Hiking Lounge Seating - Blue	2020-11-15 00:00:00.000	8.00	0.00	8.00	Not Received
46	781900	Apex Mills	C9100	Unbleached Muslin	2020-10-15 00:00:00.000	800.00	0.00	800.00	Not Received
47	781900	Apex Mills	M3577	Cot Mesh - Sturdy	2020-11-10 00:00:00.000	750.00	0.00	750.00	Not Received
48	902347	Apex Mills	G0983	Alpine Small Pot	2020-10-15 00:00:00.000	100.00	100.00	0.00	Complete
49	902347	Apex Mills	T0460	Alpine Water Bottle	2020-09-22 00:00:00.000	100.00	100.00	0.00	Complete
50	902347	Apex Mills	T0460	Alpine Water Bottle	2020-12-05 00:00:00.000	450.00	100.00	350.00	Partial Shipment

12. New Query – this one will be much shorter than the one written for question #11! Which purchase orders have not had any products received? In other words, which purchase orders do not have any rows in the receiver table? Hint: This query is most easily accomplished with a join between the PurchaseOrder and Vendor tables, and then a subquery in the WHERE statement to figure out if the PONumber is in the join between the PurchaseOrderLine and Receiver tables. Result table:

	PONumber	PODatePlaced	PODateNeeded	Terms	VendorID	VendorName
1	056489	2020-08-04 00:00:00.000	2020-08-15 00:00:00.000	NULL	36257	Injectomatic Mold Corp.
2	329987	2020-10-10 00:00:00.000	2021-01-12 00:00:00.000	Net 30	18567	Alcan Plastic, Inc.
3	365870	2020-09-14 00:00:00.000	2021-03-14 00:00:00.000	Net 30	17453	Albemarle Corporation
4	661677	2020-09-30 00:00:00.000	2020-11-15 00:00:00.000	Net 15	00216	PolySort Manufacturing
5	781900	2020-10-03 00:00:00.000	2020-11-12 00:00:00.000	NULL	09567	Apex Mills

13. New query! On which purchase order (or purchase orders) did MountainDesign (your company) pay the **lowest unit price** (price from the PurchaseOrderLine table) for the product “Alpine Water Bottle”? List the PONumber, VendorName, ProductID, description of the product (from the Product table), and Price (from the PurchaseOrderLine table). Be sure to use the description of the product (Alpine Water Bottle), rather than the productID, in the WHERE clause(s). **Do NOT** use the SELECT TOP 1 option. Result table:

	ponumber	VendorName	productid	description	price
1	902347	Apex Mills	T0460	Alpine Water Bottle	1.39

14. The purpose of this query is to find out about the most **recent** purchase of a product from the PurchaseHistory table. The data for this query should NOT come from the PurchaseOrder or PurchaseOrderLine tables – it should come from the PurchaseHistory table and Product table. Include the productID, Product Description, Product EOQ, the most recent date that a product was purchased (from the PurchaseHistory table), the quantity that was purchased and the purchase price. Sort the result table by productID. Hints: This query is fairly short if written using a correlated sub-query or a view. A few of the products are not in the PurchaseHistory table, but need to be in the result table because all products in the Product table must be in the result table.

	ProductID	ProductDescription	ProductEconomicOrderQuantity	MostRecentPurchaseDate	QuantityPurchased	PurchasePrice
1	A7879	Canvas, Non-Woven	2000.00	Apr 15, 2020	7500.00	0.12
2	B9812	Single Bumer Alcohol Fueled	15.00	Not in Purchase History	0.00	0.00
3	C2399	Themoplastic	10.00	Sep 12, 2020	350.00	1.89
4	C8733	Nylon Cover	2000.00	Not in Purchase History	0.00	0.00
5	C9100	Unbleached Muslin	8000.00	Not in Purchase History	0.00	0.00
6	G0983	Alpine Small Pot	100.00	Apr 12, 2020	75.00	2.15
7	G1258	Alpine Pot/Kettle Handle	50.00	Aug 21, 2020	25.00	4.29
8	G1366	Alpine Pot/Kettle Insert	48.00	Jul 20, 2020	25.00	4.81
9	G5698	Alpine Skillet Handle Set	48.00	Jul 20, 2020	25.00	2.21
10	J8006	Microfilter tubing	450.00	Sep 12, 2020	450.00	1.10
11	J8006	Microfilter tubing	450.00	Sep 12, 2020	450.00	0.99
12	L8500	Hiking Lounge Seating - Blue	15.00	Jan 12, 2020	10.00	26.22
13	L8501	Hiking Lounge Seating - Gray	10.00	Jan 12, 2020	15.00	29.94
14	M2356	Cot Mesh - Ultralite	1000.00	Not in Purchase History	0.00	0.00
15	M3577	Cot Mesh - Sturdy	300.00	Aug 12, 2020	150.00	6.35
16	O1957	Poly pro tubing, 1/2"	300.00	Aug 23, 2020	200.00	0.43
17	P5678	Stuff Sacks - Pillow Size	48.00	Jul 12, 2020	250.00	23.51
18	P7844	Down Baffle Liner	50.00	Aug 12, 2020	2570.00	0.67
19	R5660	Water Filtration Pump	30.00	Jul 18, 2020	4500.00	2.10
20	T0460	Alpine Water Bottle	100.00	Mar 19, 2020	1500.00	1.98