1. Show the US states and Canadian provinces for Adventureworks employees (we don't need employee info), ordered by country and then state/province. Use column CountryRegionCode for 'US' or 'CA'; use column Name to display the state or province name. Do the query once as a JOIN and once as a SUBQUERY without any JOINS. Explain both queries. Which do you feel is more efficient?

2. Adventure Works also hires engineers, who will have the word 'Engineer' in their job title. Create the report below **using subqueries** to retrieve the minimum, average, and maximum pay rates for all engineers. (Rather than using variables)

FirstName	LastName	Title	Employee Rate	Minimum Engineer Rate	Average Engineer Rate	Maximum Engineer Rate
Gail	Erickson	Design Engineer	32.6923	32.6923	40.3245125	63.4615
Jossef	Goldberg	Design Engineer	32.6923	32.6923	40.3245125	63.4615
Sharon	Salavaria	Design Engineer	32.6923	32.6923	40.3245125	63.4615
Roberto	Tamburello	Engineering Manager	43.2692	32.6923	40.3245125	63.4615
Diane	Margheim	Research and Development Engineer	40.8654	32.6923	40.3245125	63.4615
Gigi	Matthew	Research and Development Engineer	40.8654	32.6923	40.3245125	63.4615
Michael	Sullivan	Senior Design Engineer	36.0577	32.6923	40.3245125	63.4615
Terri	Duffy	Vice President of Engineering	63.4615	32.6923	40.3245125	63.4615

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3. Display all sales persons (ID is okay), their year-to-date sales and their territory ID, as well as the min, max and average YTD sales for each sales territory.

4. Modify query 3 to show those sales persons whose YTD sales are greater than the average for their territory.

SalesPersonID	SalesYTD	TerritoryID	Minimum for Territory	Average for Territory	Maximum for Territory
276	$5,200,475.23	4	$3,018,725.49	$4,109,600.36	$5,200,475.23
282	$3,189,356.25	6	$1,764,938.99	$2,477,147.62	$3,189,356.25
283	$3,587,378.43	1	$0.00	$1,839,666.20	$3,587,378.43
287	$1,931,620.18	1	$0.00	$1,839,666.20	$3,587,378.43

5. But wait, some sales persons do not have a territory, so let's modify query 4 to display those individuals who have YTD sales but no territory to compare to.

SalesPersonID	SalesYTD	TerritoryID	Minimum for Territory	Average for Territory	Maximum for Territory
268	$677,558.47	NULL	NULL	NULL	NULL
276	$5,200,475.23	4	$3,018,725.49	$4,109,600.36	$5,200,475.23
282	$3,189,356.25	6	$1,764,938.99	$2,477,147.62	$3,189,356.25
283	$3,587,378.43	1	$0.00	$1,839,666.20	$3,587,378.43
284	$636,440.25	NULL	NULL	NULL	NULL
287	$1,931,620.18	1	$0.00	$1,839,666.20	$3,587,378.43
288	$219,088.88	NULL	NULL	NULL	NULL

6. Let's do something different. Let's treat every sales person without a territory as belonging to Territory 0. Then we can compare these employees against the average of their "virtual" territory.

SalesPersonID	SalesYTD	TerritoryID	Minimum for Territory	Average for Territory	Maximum for Territory
268	$677,558.47	0	$219,088.88	$511,029.20	$677,558.47
276	$5,200,475.23	4	$3,018,725.49	$4,109,600.36	$5,200,475.23
282	$3,189,356.25	6	$1,764,938.99	$2,477,147.62	$3,189,356.25
283	$3,587,378.43	1	$0.00	$1,839,666.20	$3,587,378.43
284	$636,440.25	0	$219,088.88	$511,029.20	$677,558.47
287	$1,931,620.18	1	$0.00	$1,839,666.20	$3,587,378.43

7. Three are 89,253 rows in transactionhistory and 113,443 rows in transactionhistoryarchive. Find the product ids in transactionhistory that are not in transactionhistoryarchive.

a. Display the number of distinct products in the transactionhistory table and the transactionhistoryarchive table in a single query. Create two variations, such that your report s look like the ones below:

Count ▲	Description
441	# Products in History
497	# Products in Archive

# Products in Archive ▲	# Products in History
497	441

b. Does this mean that there are 56 products in the archive that are not in the history? Explain.

c. Here are the 56 products in the archive that are not in the history.

	ProductId	Name		ProductId6	
1	744	HL Mountain Frame - Black, 44	29	777	Mountain-100 Black, 44
2	745	HL Mountain Frame - Black, 48	30	778	Mountain-100 Black, 48
3	740	HL Mountain Frame - Silver, 44	31	771	Mountain-100 Silver, 38
4	741	HL Mountain Frame - Silver, 48	32	772	Mountain-100 Silver, 42
5	817	HL Mountain Front Wheel	33	773	Mountain-100 Silver, 44
6	825	HL Mountain Rear Wheel	34	774	Mountain-100 Silver, 48
7	720	HL Road Frame - Red, 52	35	785	Mountain-300 Black, 38
8	721	HL Road Frame - Red, 56	36	786	Mountain-300 Black, 40
9	724	LL Road Frame - Black, 62	37	787	Mountain-300 Black, 44
10	727	LL Road Frame - Red, 52	38	788	Mountain-300 Black, 48
11	728	LL Road Frame - Red, 58	39	750	Road-150 Red, 44
12	857	Men's Bib-Shorts, L	40	751	Road-150 Red, 48
13	850	Men's Sports Shorts, L	41	752	Road-150 Red, 52
14	841	Men's Sports Shorts, S	42	753	Road-150 Red, 56
15	844	Minipump	43	749	Road-150 Red, 62
16	814	ML Mountain Frame - Black, 38	44	789	Road-250 Red, 44
17	830	ML Mountain Frame - Black, 40	45	791	Road-250 Red, 52
18	831	ML Mountain Frame - Black, 44	46	756	Road-450 Red, 44
19	515	ML Mountain Seat Assembly	47	757	Road-450 Red, 48
20	731	ML Road Frame - Red, 44	48	758	Road-450 Red, 52
21	732	ML Road Frame - Red, 48	49	754	Road-450 Red, 58
22	733	ML Road Frame - Red, 52	50	755	Road-450 Red, 60
23	734	ML Road Frame - Red, 58	51	768	Road-650 Black, 44
24	735	ML Road Frame - Red, 60	52	766	Road-650 Black, 60
25	710	Mountain Bike Socks, L	53	767	Road-650 Black, 62
26	709	Mountain Bike Socks, M	54	764	Road-650 Red, 52
27	775	Mountain-100 Black, 38	55	759	Road-650 Red, 58
28	776	Mountain-100 Black, 42	56	853	Women's Tights, M

Write a query to retrieve a list of ProductIDs and Names, sorted by product name.

d. Similar to part c above, write a query to show the products in the history that are not in the archive.