Understanding Framing

Kathi Kellenberger

@auntkathi | auntkathisql.com

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What Is Framing?

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The OVER Clause

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PARTITION BY

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ORDER BY

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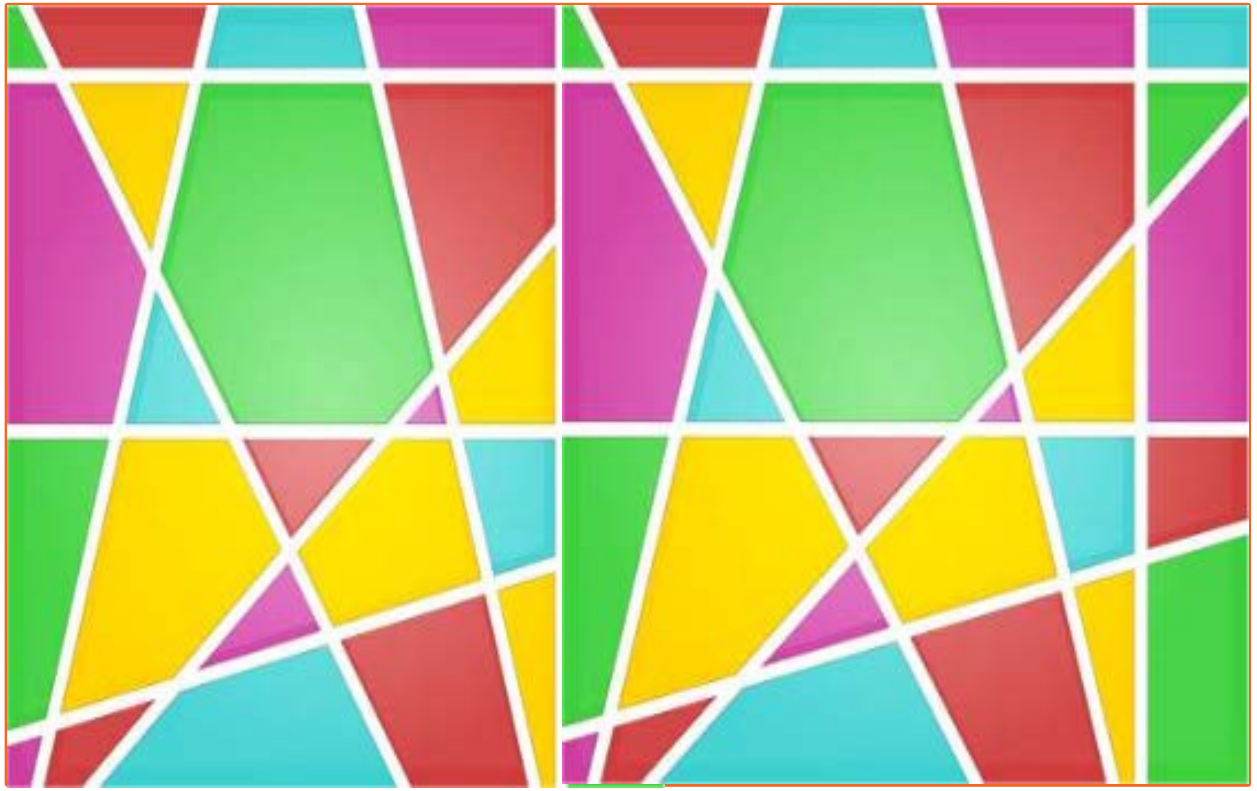
Framing



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Example Data

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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Example Data

	CustomerID	OrderID	Amount	
1	1100	103	26	26
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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Example Data

	CustomerID	OrderID	Amount	
1	1100	103	26	26
2	1100	104	33	59
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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Example Data

	CustomerID	OrderID	Amount	
1	1100	103	26	26
2	1100	104	33	59
3	1100	105	17	76
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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Example Data

	CustomerID	OrderID	Amount	
1	1100	103	26	26
2	1100	104	33	59
3	1100	105	17	76
4	1100	108	12	88
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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Example Data

	CustomerID	OrderID	Amount	
1	1100	103	26	26
2	1100	104	33	59
3	1100	105	17	76
4	1100	108	12	88
5	1100	112	40	128
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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Example Data

	CustomerID	OrderID	Amount	
1	1100	103	26	26
2	1100	104	33	59
3	1100	105	17	76
4	1100	108	12	88
5	1100	112	40	128
6	1100	130	35	163
7	1100	133	18	
8	1100	140	60	

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Example Data

	CustomerID	OrderID	Amount	
1	1100	103	26	26
2	1100	104	33	59
3	1100	105	17	76
4	1100	108	12	88
5	1100	112	40	128
6	1100	130	35	163
7	1100	133	18	181
8	1100	140	60	

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Example Data

	CustomerID	OrderID	Amount	
1	1100	103	26	26
2	1100	104	33	59
3	1100	105	17	76
4	1100	108	12	88
5	1100	112	40	128
6	1100	130	35	163
7	1100	133	18	181
8	1100	140	60	241

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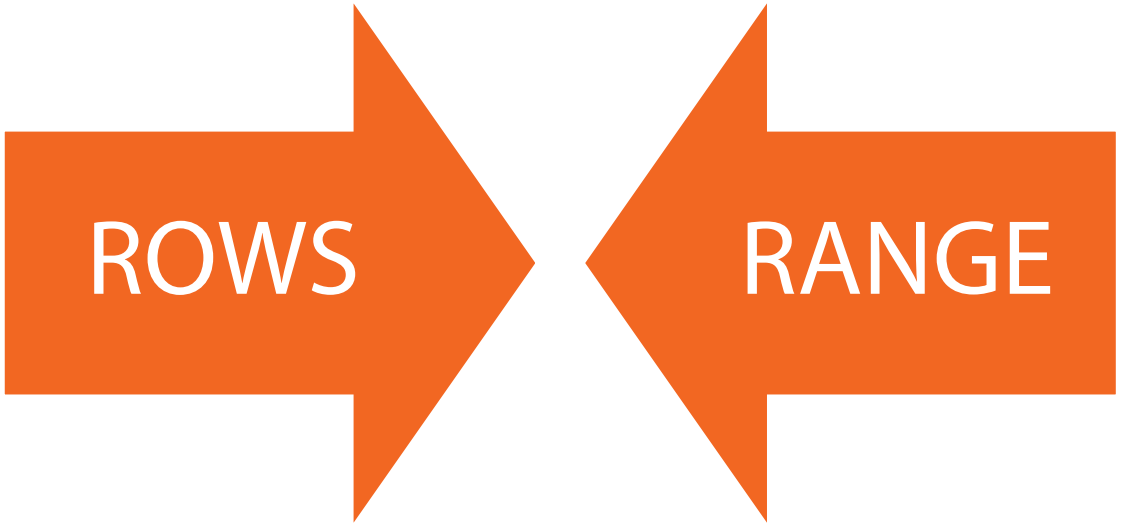
Framing Syntax



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Framing Terms

Current Row

Unbounded Preceding

Unbounded Following

Between

N Preceding

N Following

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Current Row

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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Current Row

	CustomerID	OrderID	Amount	
1	1100	103	26	26
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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Current Row

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	59
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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Current Row

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	76
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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Unbounded Preceding

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	88
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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ROWS UNBOUNDED PRECEDING

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	88
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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Unbounded Following

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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ROWS BETWEEN CURRENT ROW AND UNBOUNDED FOLLOWING

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	165
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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ROWS BETWEEN CURRENT ROW AND UNBOUNDED FOLLOWING

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	153
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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N Preceding

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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ROWS BETWEEN 2 PRECEDING AND CURRENT ROW

	CustomerID	OrderID	Amount	
1	1100	103	26	26
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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ROWS BETWEEN 2 PRECEDING AND CURRENT ROW

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	62
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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ROWS BETWEEN 2 PRECEDING AND CURRENT ROW

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	93
8	1100	140	60	

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N Following

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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ROWS BETWEEN CURRENT ROW AND 3 FOLLOWING

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	105
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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ROWS BETWEEN 2 PRECEDING AND 3 FOLLOWING

	CustomerID	OrderID	Amount	
1	1100	103	26	
2	1100	104	33	
3	1100	105	17	
4	1100	108	12	155
5	1100	112	40	
6	1100	130	35	
7	1100	133	18	
8	1100	140	60	

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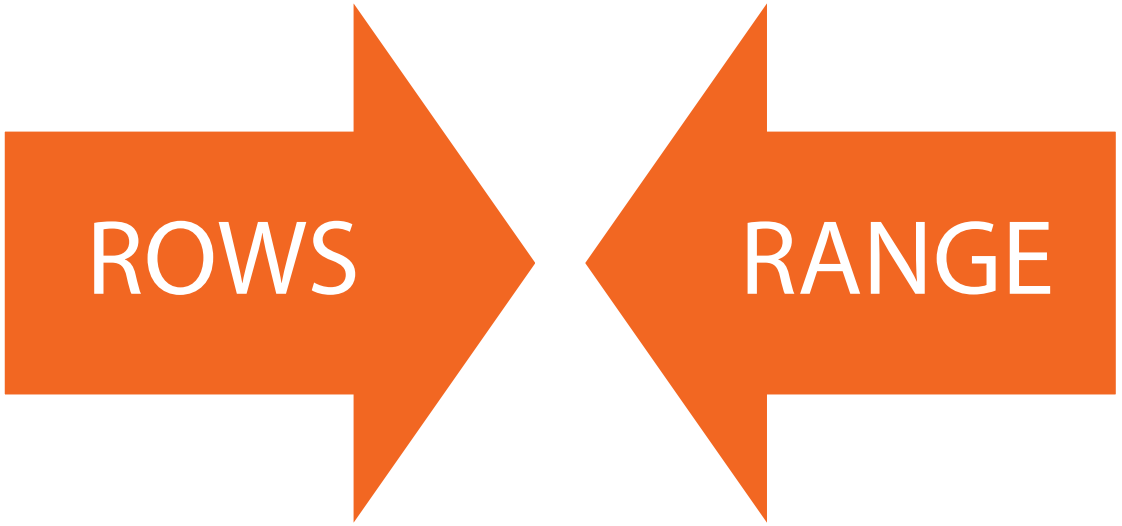
Framing Syntax



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Position vs. Logic

	OrderDate	OrderID	Amount	RowNum	Rank
1	2015/01/10	103	26	1	1
2	2015/01/10	104	33	2	1
3	2015/02/15	105	17	3	3
4	2015/03/01	108	12	4	4
5	2015/03/26	112	40	5	5
6	2015/09/07	130	35	6	6
7	2015/10/28	133	18	7	7
8	2015/10/28	140	60	8	7

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Position vs. Logic

	OrderDate	OrderID	Amount	ROWS	RANGE
1	2015/01/10	103	26	26	
2	2015/01/10	104	33	59	
3	2015/02/15	105	17	76	
4	2015/03/01	108	12	88	
5	2015/03/26	112	40	128	
6	2015/09/07	130	35	163	
7	2015/10/28	133	18	181	
8	2015/10/28	140	60	241	

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Position vs. Logic

	OrderDate	OrderID	Amount	ROWS	RANGE
1	2015/01/10	103	26	26	59
2	2015/01/10	104	33		
3	2015/02/15	105	17		
4	2015/03/01	108	12		
5	2015/03/26	112	40		
6	2015/09/07	130	35		
7	2015/10/28	133	18		
8	2015/10/28	140	60		

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Position vs. Logic

	OrderDate	OrderID	Amount	ROWS	RANGE
1	2015/01/10	103	26	26	59
2	2015/01/10	104	33	59	59
3	2015/02/15	105	17	76	76
4	2015/03/01	108	12	88	88
5	2015/03/26	112	40	128	128
6	2015/09/07	130	35	163	163
7	2015/10/28	133	18	181	241
8	2015/10/28	140	60	241	241

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Performance

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Don’t Use Range

RANGE BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW

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Quick Review

	CustomerID	OrderID	Amount
1	1100	103	26
2	1100	104	33
3	1100	105	17
4	1100	108	12
5	1100	112	40
6	1100	130	35
7	1100	133	18
8	1100	140	60

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Current Row

	CustomerID	OrderID	Amount
1	1100	103	26
2	1100	104	33
3	1100	105	17
4	1100	108	12
5	1100	112	40
6	1100	130	35
7	1100	133	18
8	1100	140	60

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UNBOUNDED PRECEDING

	CustomerID	OrderID	Amount
1	1100	103	26
2	1100	104	33
3	1100	105	17
4	1100	108	12
5	1100	112	40
6	1100	130	35
7	1100	133	18
8	1100	140	60

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ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW

	CustomerID	OrderID	Amount
1	1100	103	26
2	1100	104	33
3	1100	105	17
4	1100	108	12
5	1100	112	40
6	1100	130	35
7	1100	133	18
8	1100	140	60

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UNBOUNDED FOLLOWING

	CustomerID	OrderID	Amount
1	1100	103	26
2	1100	104	33
3	1100	105	17
4	1100	108	12
5	1100	112	40
6	1100	130	35
7	1100	133	18
8	1100	140	60

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ROWS BETWEEN CURRENT ROW AND UNBOUNDED FOLLOWING

	CustomerID	OrderID	Amount
1	1100	103	26
2	1100	104	33
3	1100	105	17
4	1100	108	12
5	1100	112	40
6	1100	130	35
7	1100	133	18
8	1100	140	60

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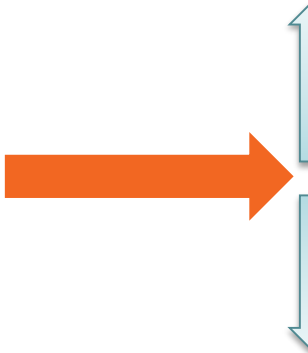
N PRECEDING N FOLLOWING



	CustomerID	OrderID	Amount
1	1100	103	26
2	1100	104	33
3	1100	105	17
4	1100	108	12
5	1100	112	40
6	1100	130	35
7	1100	133	18
8	1100	140	60

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ROWS BETWEEN CURRENT ROW AND 3 FOLLOWING

	CustomerID	OrderID	Amount
1	1100	103	26
2	1100	104	33
3	1100	105	17
4	1100	108	12
5	1100	112	40
6	1100	130	35
7	1100	133	18
8	1100	140	60

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Course Overview

- Functions added in 2005 and 2012
- Real world examples
- Performance tuning
- Coming up next: Accumulating Aggregates

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