

How “Quirky” Is Your Update?

by Martin Schoombee

About Me

“I help people make sense
of their data”

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Agenda

- The Running Total Challenge
- Known Solutions
 - Cursors
 - While Loops
 - Triangular Joins
 - Recursive CTEs
 - Window Functions
- “Quirky” Update



Demo Time



Update Statement Syntax

```
[ WITH <common_table_expression> [...n] ]
UPDATE
  [ TOP ( expression ) [ PERCENT ] ]
  { { table_alias | <object> | rowset_function_limited
    [ WITH ( <Table_Hint_Limited> [ ...n ] ) ]
  }
  | @table_variable
}
SET
  { column_name = { expression | DEFAULT | NULL }
    | { udt_column_name.{ { property_name = expression
                          | field_name = expression }
                        | method_name ( argument [ ,...n ] )
                      }
    }
    | column_name { .WRITE ( expression , @Offset , @Length ) }
    | @variable = expression
    | @variable = column = expression
    | column_name { += | -= | *= | /= | %= | &= | ^= | |= } expression
    | @variable { += | -= | *= | /= | %= | &= | ^= | |= } expression
    | @variable = column { += | -= | *= | /= | %= | &= | ^= | |= } expression
  } [ ,...n ]
```

Update Statement Syntax

@ variable

Is a declared variable that is set to the value returned by *expression*.

SET *@variable* = *column* = *expression* sets the variable to the same value as the column. This differs from SET *@variable* = *column*, *column* = *expression*, which sets the variable to the pre-update value of the column.

Pseudo-Cursor

@Running_Total <null>

@Previous_Row_Calendar_Year <null>



CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	1	252	

Pseudo-Cursor

@Running_Total <null>

@Previous_Row_Calendar_Year <null>



CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	1	252	252

Pseudo-Cursor

@Running_Total **252**

@Previous_Row_Calendar_Year **2012**



CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	1	252	252

Pseudo-Cursor

@Running_Total 252

@Previous_Row_Calendar_Year 2012

CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	1	252	252
2012	2	260	

Pseudo-Cursor

@Running_Total 252


@Previous_Row_Calendar_Year 2012

CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	1	252	252
2012	2	260	512

Pseudo-Cursor

@Running_Total **512**

@Previous_Row_Calendar_Year **2012**



CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	1	252	252
2012	2	260	512

Pseudo-Cursor

@Running_Total **512**

@Previous_Row_Calendar_Year **2012**

CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	1	252	252
2012	2	260	512
2012	3	212	

Pseudo-Cursor

@Running_Total **512**

@Previous_Row_Calendar_Year **2012**

CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	1	252	252
2012	2	260	512
2012	3	212	724

Pseudo-Cursor

@Running_Total **724**

@Previous_Row_Calendar_Year **2012**


CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	1	252	252
2012	2	260	512
2012	3	212	724



Pseudo-Cursor

@Running_Total 2,590

@Previous_Row_Calendar_Year 2012




CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	

Pseudo-Cursor

@Running_Total 2,590

@Previous_Row_Calendar_Year 2012




CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914

Pseudo-Cursor

@Running_Total **2,914**

@Previous_Row_Calendar_Year **2012**




CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914

Pseudo-Cursor

@Running_Total **2,914**

@Previous_Row_Calendar_Year **2012**




CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914
2012	12	483	

Pseudo-Cursor

@Running_Total **2,914**

@Previous_Row_Calendar_Year **2012**




CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914
2012	12	483	3,397

Pseudo-Cursor

@Running_Total **3,397**

@Previous_Row_Calendar_Year **2012**



CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914
2012	12	483	3,397

Pseudo-Cursor

@Running_Total **3,397**

@Previous_Row_Calendar_Year **2012**

CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914
2012	12	483	3,397
2013	1	1,662	

Pseudo-Cursor

@Running_Total **3,397**

@Previous_Row_Calendar_Year **2012**

CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914
2012	12	483	3,397
2013	1	1,662	1,662

Pseudo-Cursor

@Running_Total **1,662**


@Previous_Row_Calendar_Year **2012**

CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914
2012	12	483	3,397
2013	1	1,662	1,662

Pseudo-Cursor

@Running_Total 1,662

@Previous_Row_Calendar_Year **2013**



CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914
2012	12	483	3,397
2013	1	1,662	1,662

Pseudo-Cursor

@Running_Total **1,662**

@Previous_Row_Calendar_Year **2013**

CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914
2012	12	483	3,397
2013	1	1,662	1,662
2013	2	3,453	



Pseudo-Cursor

@Running_Total **1,662**

@Previous_Row_Calendar_Year **2013**

CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914
2012	12	483	3,397
2013	1	1,662	1,662
2013	2	3,453	5,115



Pseudo-Cursor

@Running_Total **5,115**

@Previous_Row_Calendar_Year **2013**

CalendarYear	MonthNumberOfYear	OrderQuantity	RunningTotal
2012	11	324	2,914
2012	12	483	3,397
2013	1	1,662	1,662
2013	2	3,453	5,115





Does Size Matter?

\$1.00
7 oz.



\$6.00
34 oz.

Considerations

- Clustered Index Required
- No Joins
- Avoid Parallelism
- No Partitions
- Not Officially Supported

References

<https://www.sqlservercentral.com/articles/solving-the-running-total-and-ordinal-rank-problems-rewritten>

<https://www.sqlservercentral.com/forums/topic/quirky-update-query-works-on-server-fails-on-pc>

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