



Getting Smart with MDX: 30 Most Popular MDX Formulas With Examples

Thursday, August 31st, 3pm EET

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Why use functions?

MDX functions are used to simplify and broaden the scope of MDX queries.

Function usage

- Functions take specific types
- Functions return specific types
- Can be written in two main ways:

<Takes>.function

function(<Takes>)

.PrevMember

Member_Expression.[.PrevMember](#)

returns previous member in the same hierarchy level

Increase

[Measures].[Item base amount] -
([Measures].[Item base amount],[Time].PrevMember)

.CurrentMember / DefaultMember

Hierarchy_Expression.[.CurrentMember](#)

returns the current member along a specified dimension or hierarchy during iteration

Hierarchy_Expression.[.DefaultMember](#)

returns all members in the hierarchy

Profit from total

```
([Measures].[Gross profit],[Customer].CurrentMember)/  
([Measures].[Gross profit],[Customer].DefaultMember)
```

Aggregate / .CurrentDateMember / .Lag

Aggregate(Set_Expression, Numeric_expression)

returns a calculated value using the appropriate aggregate function, based on the context of the query

Time_Level_Expression.**CurrentDateMember**

time dimension member which corresponds to the actual current date

Member_Expression.**Lag**(Index)

returns the member that is a specified number of positions before a specified member along the member's dimension

Average amount last 12 months

```
Aggregate(  
  {  
    [Time].[Month].CurrentDateMember.Lag(12):  
    [Time].[Month].CurrentDateMember  
  },  
  [Measures].[Item base amount]) / 12
```

Count / Filter / .Members

Count(Set_Expression)

returns the number of tuples in a set

Filter(Set_Expression, Logical)

returns the set resulting from filtering a set based on a search condition

Dimension_Level_Expression.**Members**

returns all dimension hierarchy level members without specifying the exact range of members

Large > 60000

```
Count(  
  Filter(  
    [Customer].[Customer].Members,  
    [Measures].[Item base amount] >= 60000  
  )  
)
```

Avg / Descendants

Avg(Set_Expression, Numeric_expression)

returns the average value of a numeric expression evaluated

Descendants(Member_Expression, Dimension_Level_Expression)

returns the set of descendants of a member at a specified level, optionally including or excluding descendants in other levels

Hierarchy_Expression.**CurrentMember**

returns the current member along a specified dimension or hierarchy during iteration

Average GP this year

```
Avg(  
  Descendants(  
    [Time].[Year].CurrentMember,  
    [Time].[Month]  
  ),  
  [Measures].[Gross profit base amount]  
)
```

DateDiffWorkdays / .StartDate / .NextStartDate

DateDiffWorkdays(DateTime, DateTime, String)

returns difference in workdays from first date to second date

Time_Member_Expression.**StartDate**

returns the start date of the time period

Time_Member_Expression.**NextStartDate**

returns the start date of the next time period

Time_Level_Expression.**CurrentDateMember**

time dimension member which corresponds to the actual current date

GP forecast current month

DateDiffWorkdays([Time].
[Month].CurrentDateMember.StartDate,
[Time].[Month].CurrentDateMember.NextStartDate,'67')

[Measures].[Gross profit base amount] /
[Measures].[Period working days until today]

[Measures].[GP AVG per day in Period] *
[Measures].[Period working days]

.Level / .Name

Member_Expression..Level

returns the level of a member

<Anything>.Name

returns the name of a dimension, hierarchy, level, or member

Hierarchy_Expression..CurrentMember

returns the current member along a specified dimension or hierarchy during iteration

.GetProperty / .Parent

Member_Expression.[.GetProperty](#)(property_name)

returns the member property value (or empty result if the property does not exist)

Member_Expression.**.Parent**

returns the parent of a member

[For all available properties](#)

Invoice due date

```
CASE [Invoice].CurrentMember.Level.Name
```

```
WHEN 'Invoice' THEN
```

```
    [Invoice].CurrentMember.getProperty('Due date')
```

```
WHEN 'Invoice Item' THEN
```

```
    [Invoice].CurrentMember.Parent.getProperty('Due date')
```

```
END
```

Sum / PreviousPeriods

Sum(Set_Expression, Numeric_expression)

returns the sum of a numeric expression evaluated over a set

PreviousPeriods(Member_Expression)

returns a set of previous time dimension members for calculation of cumulative sums

Hierarchy_Expression.**CurrentMember**

returns the current member along a specified dimension or hierarchy during iteration

CascadingChildrenSet / .Item

CascadingChildrenSet(Member_Expression)

returns cascading children set of aggregate
calculated member

Set_Expression.**.Item**(index)

returns a tuple from a set

Cost sum till current time member

```
Sum(PreviousPeriods(CascadingChildrenSet([Time]
    .CurrentMember).item(0)),
    [Measures].[Total cost In]-[Measures].[Total cost Out]
)
```

Order / NonEmptyCrossJoin

Order(Set_Expression, Numeric_Expression, "ASC" or "DESC")

arranges members of a set (optionally preserving or breaking the hierarchy)

Filter(Set_Expression, Logical)

returns the set resulting from filtering a set based on a search condition

Dimension_Level_Expression.Members

returns all dimension hierarchy level members without specifying the exact range of members

NonEmptyCrossJoin(Set_Expression, Set_Expression)

returns the cross product of two sets, excluding empty tuples and tuples without associated fact table data

DateCompare

DateCompare(DateTime, DateTime)

returns:

- 1 if first date is less than second date,
- 1 if first date is greater than second date,
- 0 if dates are equal.

Hierarchy_Expression.**CurrentMember**

returns the current member along a specified dimension or hierarchy during iteration

Member_Expression.**GetProperty**(property_name)

returns the member property value (or empty result if the property does not exist)

Set_Expression.**Item**(index)

returns a tuple from a set

Oldest unpaid Invoice

```
Order(  
  Filter(  
    NonEmptyCrossJoin(  
      [Invoice].[Invoice].members,  
      [Customer].CurrentMember  
    ),  
    [Measures].[Invoice base balance] > 0  
    AND DateCompare(  
      "today",  
      [Invoice].CurrentMember.getProperty('Due date')  
    ) = 1  
  ),  
  [Invoice].CurrentMember.get('Invoice date'),  
  ASC  
) .Item(0).Item(0).get('Invoice date')
```

Questions?

