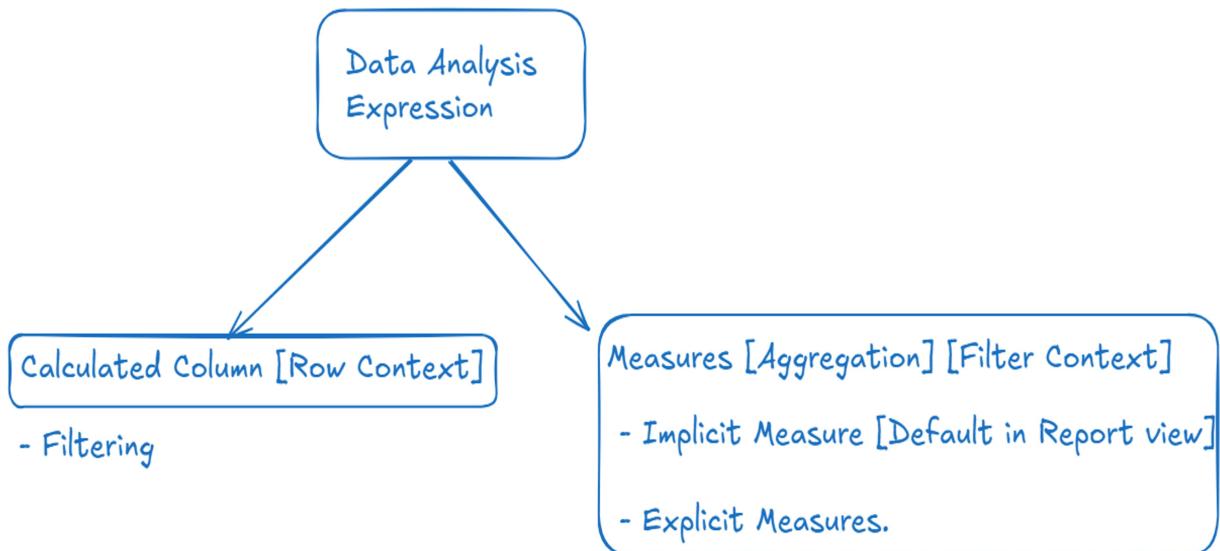


## All About DAX

---

→ DAX is a calculated language which generates some KPI's or metrics which help us to know more about business. And this formula are being generated from the raw dataset. And the new column / Measures are not present before that we are deriving.



Applying Aggregation on Calculated column is not a good choice.

OrderDate	StockDate	OrderNumber	ProductKey	CustomerKey	TerritoryKey	OrderLineItem	OrderQuantity	Total Order Quantity
05-07-2020	03-06-2020	SO46718	360	12570	9	1	1	84174
07-07-2020	22-04-2020	SO46736	360	12341	9	1	1	84174
12-07-2020	05-05-2020	SO46776	360	12356	9	1	1	84174
16-07-2020	22-06-2020	SO46808	360	12347	9	1	1	84174
18-07-2020	11-05-2020	SO46826	360	12575	9	1	1	84174
01-08-2020	21-04-2020	SO47075	360	12685	9	1	1	84174
04-08-2020	01-05-2020	SO47098	360	12667	9	1	1	84174
10-08-2020	21-04-2020	SO47149	360	12669	9	1	1	84174
17-08-2020	04-06-2020	SO47212	360	12580	9	1	1	84174

Retail Cost =

```

    RELATED(
        'Product Lookup' [ProductCost]
    )

```

StockDate	OrderNumber	ProductKey	CustomerKey	TerritoryKey	OrderLineItem	OrderQuantity	Retail Cost
03-06-2020	SO46718	360	12570	9	1	1	\$1,105.81
22-04-2020	SO46736	360	12341	9	1	1	\$1,105.81
05-05-2020	SO46776	360	12356	9	1	1	\$1,105.81
22-06-2020	SO46808	360	12347	9	1	1	\$1,105.81
11-05-2020	SO46826	360	12575	9	1	1	\$1,105.81
21-04-2020	SO47075	360	12685	9	1	1	\$1,105.81
01-05-2020	SO47098	360	12667	9	1	1	\$1,105.81
21-04-2020	SO47149	360	12669	9	1	1	\$1,105.81
04-06-2020	SO47212	360	12580	9	1	1	\$1,105.81
29-06-2020	SO47302	360	12670	9	1	1	\$1,105.81
12-08-2020	SO47328	360	12681	9	1	1	\$1,105.81
13-08-2020	SO47346	360	12585	9	1	1	\$1,105.81

1 Retail Price =

```

2     RELATED(
3         'Product Lookup' [ProductPrice])

```

ProductKey	CustomerKey	TerritoryKey	OrderLineItem	OrderQuantity	Retail Cost	Retail Price
360	12570	9	1	1	\$1,105.81	\$2,049.10
360	12341	9	1	1	\$1,105.81	\$2,049.10
360	12356	9	1	1	\$1,105.81	\$2,049.10
360	12347	9	1	1	\$1,105.81	\$2,049.10
360	12575	9	1	1	\$1,105.81	\$2,049.10
360	12685	9	1	1	\$1,105.81	\$2,049.10
360	12667	9	1	1	\$1,105.81	\$2,049.10
360	12669	9	1	1	\$1,105.81	\$2,049.10
360	12580	9	1	1	\$1,105.81	\$2,049.10
360	12670	9	1	1	\$1,105.81	\$2,049.10
360	12681	9	1	1	\$1,105.81	\$2,049.10
360	12585	9	1	1	\$1,105.81	\$2,049.10
360	12989	9	1	1	\$1,105.81	\$2,049.10
360	12998	9	1	1	\$1,105.81	\$2,049.10

1 Expenses = 'Sales Record [2020-22]'[OrderQuantity] \* 'Sales Record [2020-22]'[Retail Cost]

StockDate	OrderNumber	ProductKey	CustomerKey	TerritoryKey	OrderLineItem	OrderQuantity	Retail Cost	Retail Price	Expenses
03-06-2020	SO46718	360	12570	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
22-04-2020	SO46736	360	12341	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
05-05-2020	SO46776	360	12356	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
22-06-2020	SO46808	360	12347	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
11-05-2020	SO46826	360	12575	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
21-04-2020	SO47075	360	12685	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
01-05-2020	SO47098	360	12667	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
21-04-2020	SO47149	360	12669	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
04-06-2020	SO47212	360	12580	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
29-06-2020	SO47302	360	12670	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
12-08-2020	SO47328	360	12681	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
13-08-2020	SO47346	360	12585	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81
12-06-2020	SO47744	360	12989	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81

Sales = 'Sales Record [2020-22]'[OrderQuantity] * 'Sales Record [2020-22]'[Retail Price]												
StockDate	OrderNumber	ProductKey	CustomerKey	TerritoryKey	OrderLineItem	OrderQuantity	Retail Cost	Retail Price	Expenses	Sales		
03-06-2020	SO46718	360	12570	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
22-04-2020	SO46736	360	12341	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
05-05-2020	SO46776	360	12356	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
22-06-2020	SO46808	360	12347	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
11-05-2020	SO46826	360	12575	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
21-04-2020	SO47075	360	12685	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
01-05-2020	SO47098	360	12667	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
21-04-2020	SO47149	360	12669	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
04-06-2020	SO47212	360	12580	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
29-06-2020	SO47302	360	12670	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
12-08-2020	SO47328	360	12681	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
13-08-2020	SO47346	360	12585	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
12-06-2020	SO47744	360	12989	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		
28-07-2020	SO47745	360	12998	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982		

Profit = Sales - Expenses.

1 Profit = 'Sales Record [2020-22]'[Sales] - 'Sales Record [2020-22]'[Expenses]												
StockDate	OrderNumber	ProductKey	CustomerKey	TerritoryKey	OrderLineItem	OrderQuantity	Retail Cost	Retail Price	Expenses	Sales		Profit
03-06-2020	SO46718	360	12570	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	
22-04-2020	SO46736	360	12341	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	
05-05-2020	SO46776	360	12356	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	
22-06-2020	SO46808	360	12347	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	
11-05-2020	SO46826	360	12575	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	
21-04-2020	SO47075	360	12685	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	
01-05-2020	SO47098	360	12667	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	
21-04-2020	SO47149	360	12669	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	
04-06-2020	SO47212	360	12580	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	
29-06-2020	SO47302	360	12670	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	
12-08-2020	SO47328	360	12681	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	
13-08-2020	SO47346	360	12585	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	

Total Revenue = Sum(Sales).

Total Profit = Sum(Profit).

1 Total Revenue =												
2	SUM(											
3	'Sales Record [2020-22]'[Sales]											
4	)											
OrderNumber	ProductKey	CustomerKey	TerritoryKey	OrderLineItem	OrderQuantity	Retail Cost	Retail Price	Expenses	Sales	Profit	Total Revenue	
SO46718	360	12570	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	
SO46736	360	12341	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	
SO46776	360	12356	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	
SO46808	360	12347	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	
SO46826	360	12575	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	
SO47075	360	12685	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	
SO47098	360	12667	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	
SO47149	360	12669	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	
SO47212	360	12580	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	
SO47302	360	12670	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	
SO47328	360	12681	9		1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	

```

1 Total Profit =
2     SUM(
3         'Sales Record [2020-22]'[Profit]
4     )

```

ProductKey	CustomerKey	TerritoryKey	OrderLineItem	OrderQuantity	Retail Cost	Retail Price	Expenses	Sales	Profit	Total Revenue	Total Profit
360	12570	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	\$1,04,57,715.4342
360	12341	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	\$1,04,57,715.4342
360	12356	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	\$1,04,57,715.4342
360	12347	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	\$1,04,57,715.4342
360	12575	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	\$1,04,57,715.4342
360	12685	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	\$1,04,57,715.4342
360	12667	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	\$1,04,57,715.4342
360	12669	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	\$1,04,57,715.4342
360	12580	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	\$1,04,57,715.4342
360	12670	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	\$1,04,57,715.4342
360	12681	9	1	1	\$1,105.81	\$2,049.10	\$1,105.81	\$2,049.0982	\$943.2882	\$2,49,14,586.8193	\$1,04,57,715.4342

Measures

Remember, all the above columns are created are not necessary as they increase the file size which impacts high computational power and less efficient.

For storing Measured, we need to create what?  
- Measure Table.

The screenshot shows the 'Table tools' ribbon tab selected. Under the 'Structure' section, there is a 'Measure Table (DAX)' button. In the 'Calculations' section, there is a 'New measure' button. The status bar at the bottom shows '1 Measure Table (DAX) = {""}'.



```

Expenses =
SUMX(
    'Sales Record [2020-22]',
    'Sales Record [2020-22]'[OrderQuantity] *
    RELATED('Product Lookup'[ProductCost]))

```

\$14.46M

Expenses

```

Revenue =
SUMX(
    'Sales Record [2020-22]',
    'Sales Record [2020-22]'[OrderQuantity] *
    RELATED(
        'Product Lookup'[ProductPrice])
)

```

\$24.91M

Revenue

Profit = [Revenue] - [Expenses]

\$10.46M

Profit

## Total Orders Vs Quantity Sold

OrderNumber
SO46718
SO46736
SO46776
SO46808
SO46826
SO47075
SO47098
SO47149
SO47212
SO47302
SO47328
SO47345

Total number of invoices generated.

[Distinct Count of Order Number  
is equal to Total Orders]

OrderQuantity
1
1
1
1
1
1
1
1
1
1
1

Sum of all quantity sold.

Sum of order quantity.

Table: Sales Record [2020-22] (56,046 rows) Column: OrderNumber (25,164 distinct values)

```
Total Orders =
DISTINCTCOUNT(
    'Sales Record [2020-22]'[OrderNumber])
```

25164

Total Orders

```
Quantity Sold =
SUM(
    'Sales Record [2020-22]'[OrderQuantity])
```

84174

Quantity Sold

```
Red Product Qty Sold =
CALCULATE(
    [Quantity Sold],
    'Product Lookup'[ProductColor] = "Red")
```

4011

Red Product Qty Sold

Calculate( Expression Filter)

Priority of this filter inside the calculate function is way higher than any other filters.

## Weekend Orders Vs Weekday Orders.

1 Day Name = `FORMAT('Calendar Lookup'[Date] , "DDDD")`

Date	Quarter	Month Name	Year	Month	Day	Day Name
01-07-2020	3	July	2020	7	1	Wednesday
02-07-2020	3	July	2020	7	2	Thursday
03-07-2020	3	July	2020	7	3	Friday
04-07-2020	3	July	2020	7	4	Saturday
05-07-2020	3	July	2020	7	5	Sunday
06-07-2020	3	July	2020	7	6	Monday

`IsWeekend? =`

```
IF('Calendar Lookup'[Day Name] IN {"Saturday", "Sunday"}, "Weekend", "Weekday")
```

Quarter	Month Name	Year	Month	Day	Day Name	IsWeekend?
3	July	2020	7	1	Wednesday	Weekday
3	July	2020	7	2	Thursday	Weekday
3	July	2020	7	3	Friday	Weekday
3	July	2020	7	4	Saturday	Weekend

`IsWeekend? =`

```
IF('Calendar Lookup'[Day Name] = "Saturday" || 'Calendar Lookup'[Day Name] = "Sunday",
    "Weekend", "Weekday")
```

OR vs `||`

`OR(Logical1, Logical2)`

Returns TRUE if any of the arguments are TRUE, and returns FALSE if all arguments are FALSE.

Weekend?	<code>OR('Calendar Lookup'[Day Name] = "Saturday", 'Calendar Lookup'[Day Name] = "Sunday")</code>	Sort by column ▾	Sort	Data groups ▾	Groups	Manage relationships	New column
ext	Returns TRUE if any of the arguments are TRUE, and returns FALSE if all arguments are FALSE.						
ecture							

`1 IsWeekend? =`

```
IF(OR('Calendar Lookup'[Day Name] = "Saturday", 'Calendar Lookup'[Day Name] = "Sunday"),
    "Weekend", "Weekday")
```

`IsWeekend? =`

```
IF(
    'Calendar Lookup'[Day Name] = "Monday" ||
    'Calendar Lookup'[Day Name] = "Tuesday" ||
    'Calendar Lookup'[Day Name] = "Wednesday" ||
    'Calendar Lookup'[Day Name] = "Thursday" ||
    'Calendar Lookup'[Day Name] = "Friday",
    "Weekday",
    "Weekend")
```

```

IsWeekend? =
IF(
    'Calendar Lookup'[Day Name] IN {"Monday", "Tuesday", "Wednesday", "Thursday", "Friday"},  

    "Weekday",  

    "Weekend")

```

```

Weekend =
SWITCH(
    'Calendar Lookup'[Day Name],  

    "Monday", "Weekday",  

    "Tuesday", "Weekday",  

    "Wednesday", "Weekday",  

    "Thursday", "Weekday",  

    "Friday", "Weekday",  

    "Saturday", "Weekend",  

    "Sunday", "Weekend")

```

```

Weekend Orders =
CALCULATE(
    [Total Orders],
    'Calendar Lookup'[IsWeekend?] = "Weekend")

```

```

Weekday Orders =
CALCULATE(
    [Total Orders],
    'Calendar Lookup'[IsWeekend?] = "Weekday")

```



## Bulk Order Vs Normal Orders.

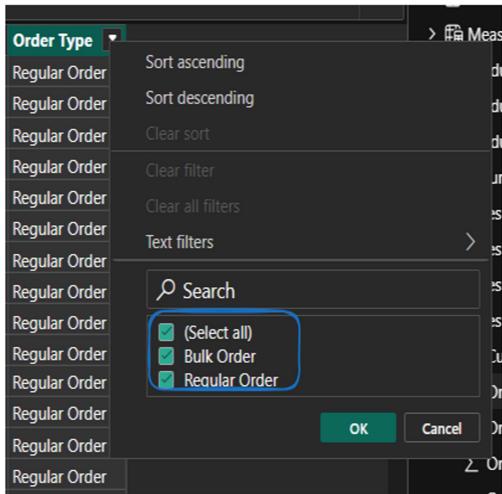
Create order type on Sales Record.

```

Order Type =
IF(
    'Sales Record [2020-22]'[OrderQuantity] > 1 , "Bulk Order",
    "Regular Order")

```

StockDate	OrderNumber	ProductKey	CustomerKey	TerritoryKey	OrderLineItem	OrderQuantity	SubcategoryKey	Order Type
03-06-2020	SO46718	360	12570	9	1	1	1	Regular Order
22-04-2020	SO46736	360	12341	9	1	1	1	Regular Order
05-05-2020	SO46776	360	12356	9	1	1	1	Regular Order
22-05-2020	SO46808	360	12347	9	1	1	1	Regular Order



Total Bulk Orders =

```
CALCULATE(
    [Total Orders],
    'Sales Record [2020-22]'[Order Type] = "Bulk Order")
```

14937

Total Bulk Orders

Total Regular Orders =

```
CALCULATE(
    [Total Orders] ,
    'Sales Record [2020-22]'[Order Type] = "Regular Order")
```

21339

Total Regular Orders

Table: Sales Record [2020-22] (56,046 rows, 24,625 filtered rows) Column: OrderNumber (25,164 distinct values, 14,937 filtered distinct values)

122433 - BIKE - 1  
122433 - Clothing - 2  
122433 - Helmet - 3

OrderDate	StockDate	OrderNumber	ProductKey	CustomerKey	TerritoryKey	OrderLineItem	OrderQuantity	SubcategoryKey	Order Type
03-07-2021	20-03-2021	SO51207	214	11338	8	4	1	31	Regular Order
03-07-2021	14-03-2021	SO51207	477	11338	8	3	2	23	Bulk Order
03-07-2021	07-04-2021	SO51207	478	11338	8	2	2	23	Bulk Order
03-07-2021	29-05-2021	SO51207	356	11338	8	1	1	1	Regular Order

Total Returns, Quantity Sold , Return Rate  
 Bikes Returns,  
 Bikes sold,  
 Bikes Return Rate.

```
Quantity Sold =
SUM(
    'Sales Record'[2020-22][OrderQuantity])
```

84174

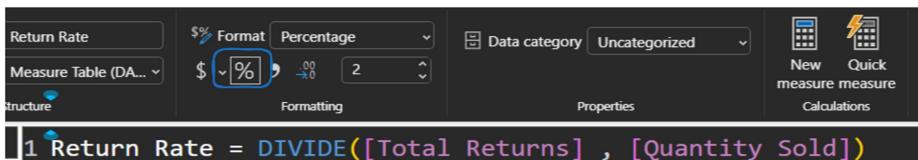
Quantity Sold

```
Total Returns =
SUM(
    'Returns Data'[ReturnQuantity]
)
```

1828

Total Returns

Return Rate = DIVIDE(Total Returns, Quantity Sold)



Return Rate  
 Measure Table (DA...)  
 Structure  
 Format Percentage \$ %  
 Data category Uncategorized  
 Properties Calculations

1 Return Rate = DIVIDE([Total Returns], [Quantity Sold])

CategoryName	Quantity Sold	Total Returns	Return Rate
Accessories	57809	1130	1.95%
Bikes	13929	429	3.08%
Clothing	12436	269	2.16%
<b>Total</b>	<b>84174</b>	<b>1828</b>	<b>2.17%</b>

2.17%

Return Rate

CategoryName	Return Rate
Accessories	1.95%
Bike Racks	2.65%
Bike Stands	3.42%
Bottles and Cages	1.91%
Cleaners	1.47%
Fenders	1.36%
Helmets	3.12%
Hydration Packs	3.60%
Tires and Tubes	1.79%
<b>Bikes</b>	<b>3.08%</b>
Mountain Bikes	2.89%
Road Bikes	3.14%
Touring Bikes	3.30%
<b>Clothing</b>	<b>2.16%</b>
<b>Total</b>	<b>2.17%</b>

14K

Bikes Sold

429

Bikes Return

3.08%

Bikes Return %

```
Bikes Sold =
CALCULATE(
    [Quantity Sold],
    'Product Categories Lookup'[CategoryName] = "Bikes")
```

```
Bikes Return =
CALCULATE(
    [Total Returns] ,
    'Product Categories Lookup'[CategoryName] = "Bikes")
```

```
Bikes Return % =
CALCULATE(
    [Return Rate],
    'Product Categories Lookup'[CategoryName] = "Bikes")
```

```
Bikes Return % =
DIVIDE(
    [Bikes Return],
    [Bikes Sold])
```