Customising Your Data

Tableau includes predefined calculations and provides a mechanism for you to define your own calculations. These can be created directly on **Columns**, **Rows**, or the **Marks** card (known as *ad-hoc calculations*) or using the Calculated Field editor. They can also be used within the **Data Source** view to generate new measures and dimensions.

Calculated Fields: These are custom calculations created using the Calculated Field editor.

Table Calculations / Quick Table Calculations: Calculations that are applied after data is returned, i.e. they are calculated locally in Tableau. Some predefined Table Calculations are available as Quick Table Calculations but you can also specify the components of the formula for Table Calculations yourself.

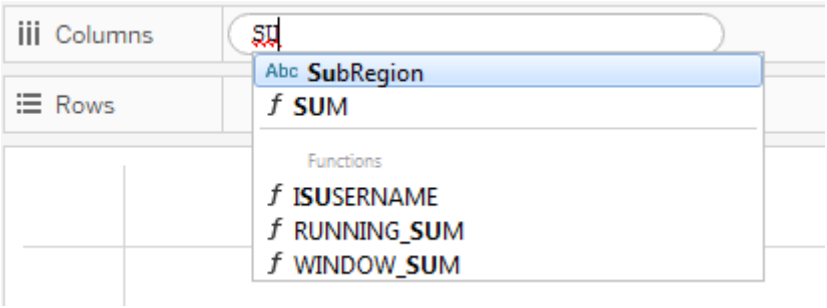
Row and Column Totals: Predefined calculation available on the Analysis menu, including subtotals and grand totals.

Ad-Hoc Calculations

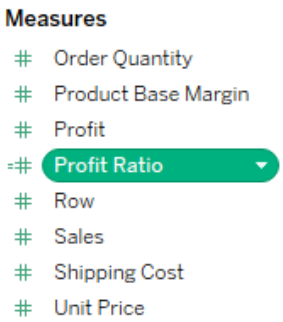
Ad-hoc calculations are used when you need a quick and simple formula for analysis, such as Profit Ratio.

Create an ad-hoc calculation

1. Right-click on either Columns or Rows in the shelf and select **New Calculation**. This will allow you to type directly into the shelf.
2. Type in your calculation. As you type in the components of the calculation Tableau will suggest functions or fields to complete your formula.



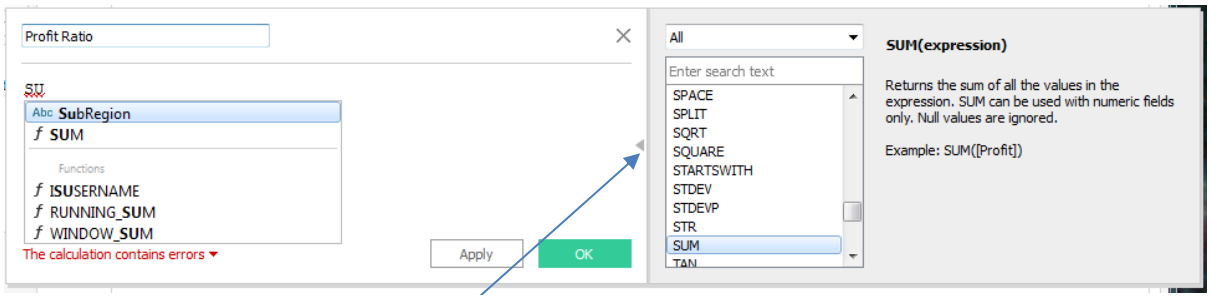
3. Press **ENTER** to apply your calculation to the view. Tableau will check for syntax errors and turn the dimension/measure red if there is a problem, or green if the calculation is well formed.
4. To save the calculation to the data source, drag the calculation to the data window and name it when prompted. The generated measure will have an =# symbol next to it, showing that it is the product of a calculation.



The Calculated Field Editor

You can also create calculated fields in the Calculated Field editor.

1. Click the **Analysis** menu and choose **Create Calculated Field** *OR* right-click in the **Data** pane and choose **Create Calculated Field**. You can drag and drop fields from the **Data** pane into the editor.
2. Give the calculated field a name, and click on the small grey triangle on the right of the editor to open the function library. The library will provide syntax help on all of the available functions.



Small triangle used to access the function library

3. Type the formula in the **Formula** window, and click **Apply** to save the calculation and keep the editor open, or click **OK** to save the calculation and close the editor.

The editor can be used to create many different types of calculated field, more than can be covered here. The most common are:

- Mathematical operations such as addition or subtraction
- Logic statements such as IF/ELSE or CASE
- Aggregating data, e.g. average or maximum
- Manipulating strings
- Data formulas.

Remember to check whether the fields you are including in your calculations include NULL values, as Tableau does not allow you to do maths with these. The ZN function allows you to replace NULL values with zero (0), which lets you perform any required maths.

Tasks

1. Open the packaged workbook **Workshop 9 – Profit Ratio Starter.twbx**
2. Create a crosstab showing the profit by year and department
3. Create a calculated field named **Profit Ratio** using the formula: [Profit]/[Sales]
4. Colour the crosstab as a heat map based upon Profit Ratio
5. Test the calculation: does the **Profit Ratio** field return the correct results?
6. Edit the calculation to be SUM([Profit])/SUM([Sales]) and retest.
7. Save the calculation in the **Data** window as **Profit Ratio**.

	Order Date			
Department	2010	2011	2012	2013
Furniture	$1,225,579	$1,168,831	$1,599,543	$1,876,244
Office Supplies	$584,012	$676,915	$719,998	$1,235,985
Technology	$1,094,433	$1,226,539	$1,389,262	$2,020,950