



## INCLUDE

**INCLUDE** LOD calculations are used to calculate values based on the dimensions specified, along with those used in the view. This is useful when wanting to know results at a detailed level, but also want the view to be at a higher level. An example would be computing the average literacy rate at district level, but viewing it at state level. Here, instead of averaging it directly at state level, you would average it at district level, and then re-aggregate the results at state level. The next exercise covers this concept in detail.

### Exercise 03: Creating an INCLUDE LOD Calculation

In this exercise, you will calculate **AVG(Profit)** using the **Customer** and **Region** dimensions. You will learn how to compute the average profit at a customer level, and then group it again by the **Region** dimension in the view. Perform the following steps to complete this exercise:

1. Load the **Sample – Superstore** dataset in your Tableau instance.
2. Create a view that shows **Region** along with **AVG(Profit)**, as follows:



Figure 1: Initial view

3. Currently, the view shows **AVG(Profit)** at the **Region** level. Create an **INCLUDE** LOD calculation, and write the formula as given in the following figure:

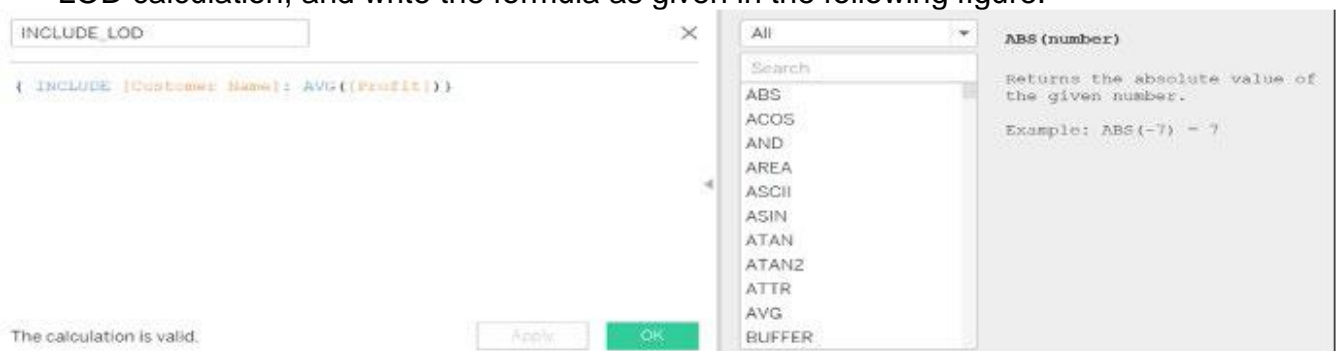


Figure 2: INCLUDE LOD calculation expression



4. Use the average profit generated by a customer in that region to compute the overall average. Duplicate the preceding view, and add this calculation instead of **AVG(Profit)** to get the following:



Figure 3: Adding the LOD calculation to the initial view

5. Check that the aggregation is set to average by clicking on the calculation dropdown and selecting the **Measure (Average)** option as **Average** on both the **Text** and **Columns** shelves:

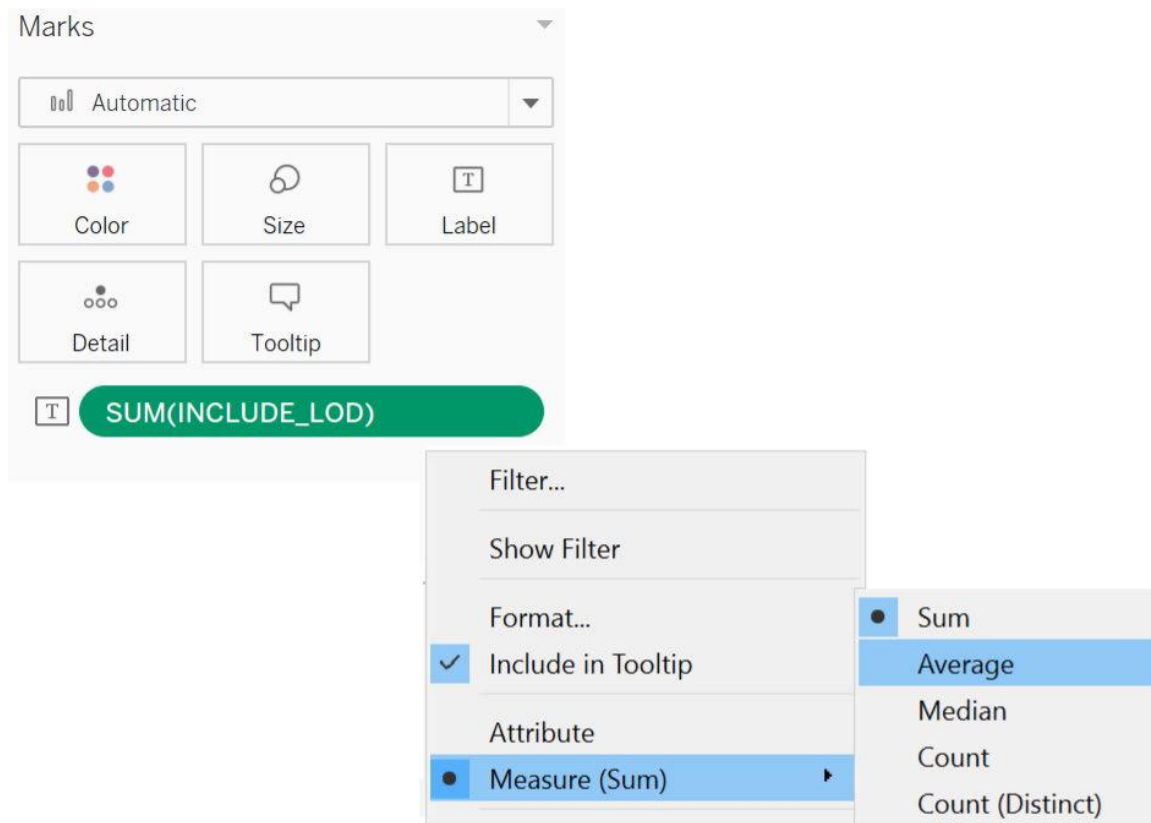


Figure 4: Changing a calculation aggregation format

Notice that the numbers are different in both views, despite the dimension being the same. You will now see how the computation is happening within Tableau.



6. At the **Region** level, to compute the average profit, add the profit across the region, and divide the sum by the total number of records , as follows:

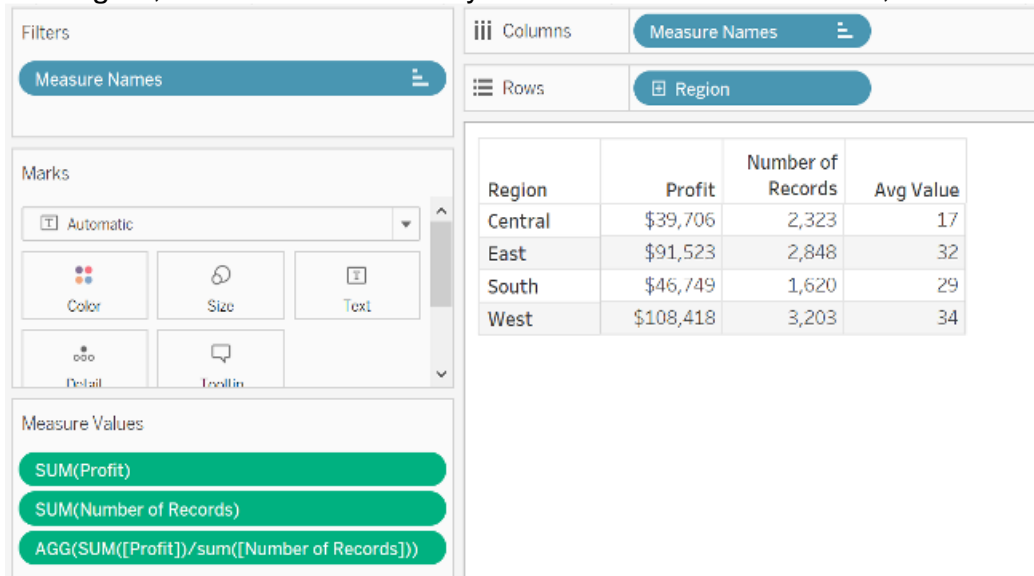


Figure 5: Calculation logic explanation

7. Now it is time to see how the customer-level computation works. Plot the average profit generated by each customer in **Central Region**. Once you have the average, sum all averages (\$8,442), and divide the result by **Count (630)** to get the value of \$13.42 per customer in that region. These values can be referred to in the **Summary** card, as follows:



Figure 9.17: Customer-level computations

This kind of calculation is useful when you want to see the aggregations at different levels without using them in the view.