## Creating and Using Level of Details (LOD) Calculations

For any visualization, dimensions determine the level at which measures are computed. As an example, consider the following view, in which the sum of profits is calculated based on **Country** and **Region**. These two dimensions form the details that are combined to determine the value of **SUM(Profit)**. Now, suppose you remove **Region** from the view. Then, **SUM(Profit)** would be re-computed, and would only consider **Country** in the view. Accordingly, the value of **SUM(Profit)** changes as the level of the computation changes, as can be seen from the following figure:

Level of Country and Region

| Country | Region | Sum(PROFIT) |
|---|---|---|
| United States | Central | $39,706 |
| | East | $91,523 |
| | South | $46,749 |
| | West | $108,418 |

Level of Country

| Country | Sum(PROFIT) |
|---|---|
| United States | $286,397 |

**Figure 1: Understanding LOD**

LOD calculations help you control the granularity of visualizations. You can choose to view calculation results at a detailed level, or an aggregated level, based on the LOD function you use, LOD calculations require measures to be aggregated.

### Exercise 01: Creating a LOD Calculation

You will now create an LOD calculation using the **Profit** measure in the **Sample - Superstore** dataset. The following steps will help you complete this exercise:

1. Load the **Sample – Superstore** dataset in your Tableau instance. Navigate to **Documents | My Tableau Repository | Data Sources**, then open the **Sample - Superstore.xls** file.
2. Once the data is loaded, in the data pane, right-click on **Profit** and select **Create | Calculated Field…**, as follows:

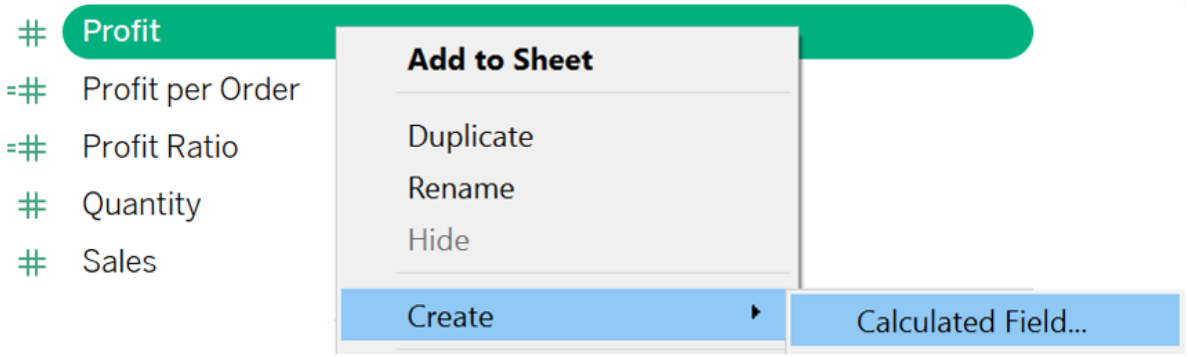


**Figure 2: Creating a calculated field**

3. In the calculation editor, select **Aggregate** from the dropdown to access the LOD calculations:

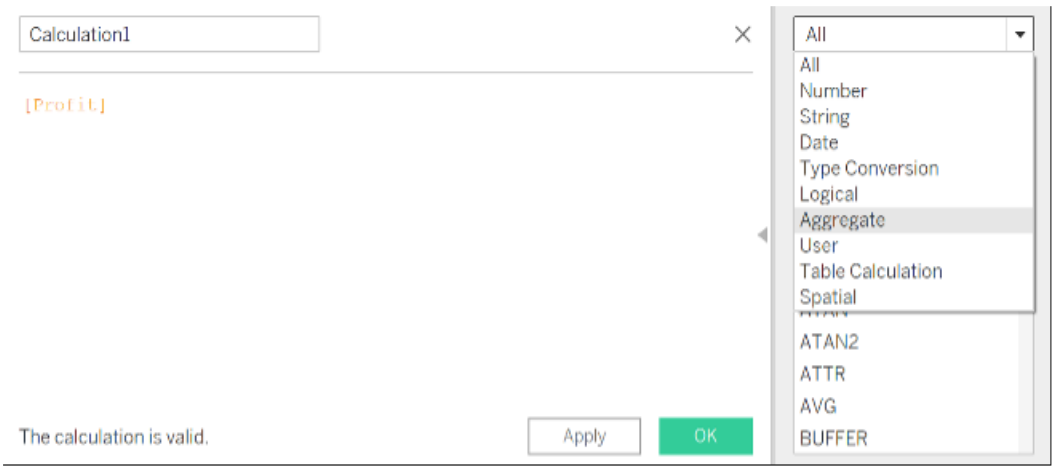


**Figure 3: Calculated field editor**

LOD calculations fall under the **Aggregate** set of functions. There are four LOD calculation types: **FIXED**, **INCLUDE**, **EXCLUDE**, and **Table-Scoped**. You will learn more about these as the chapter progresses. For now, hover over **FIXED**. Notice the calculation syntax, as can be seen in the following figure:

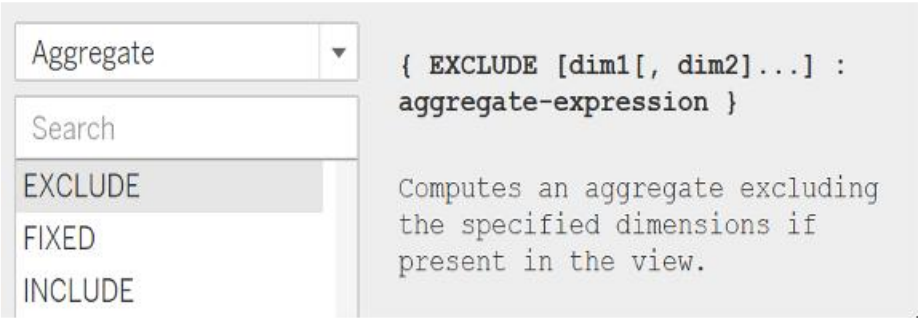


**Figure 4: Various LOD types in Tableau**

4. Click on **FIXED** and add it to the calculation editor. Add the **{FIXED : SUM([Profit])}** formula to the editor and click **OK**:

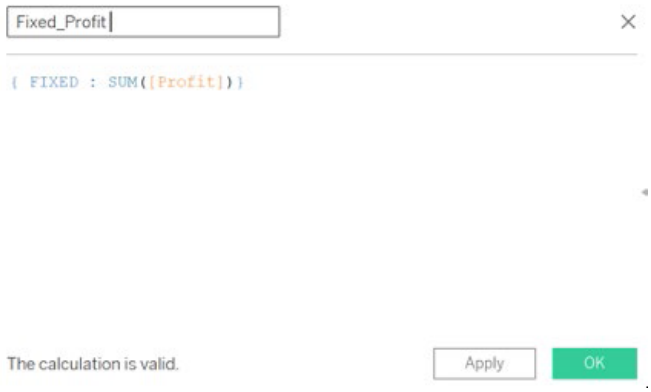


**Figure 5: Creating a LOD calculation**

LOD calculations require an aggregate measure. If you do not aggregate the measure, Tableau will show an error. Aggregation here means to use SUM, AVG, or similar types of calculation with a measure value, rather than using the measure directly, as with the SUM function previously.

5. For this calculation, compute **SUM(Profit)** at the highest level of granularity in the data, which is the **Country** level. Add this to the view, as follows:

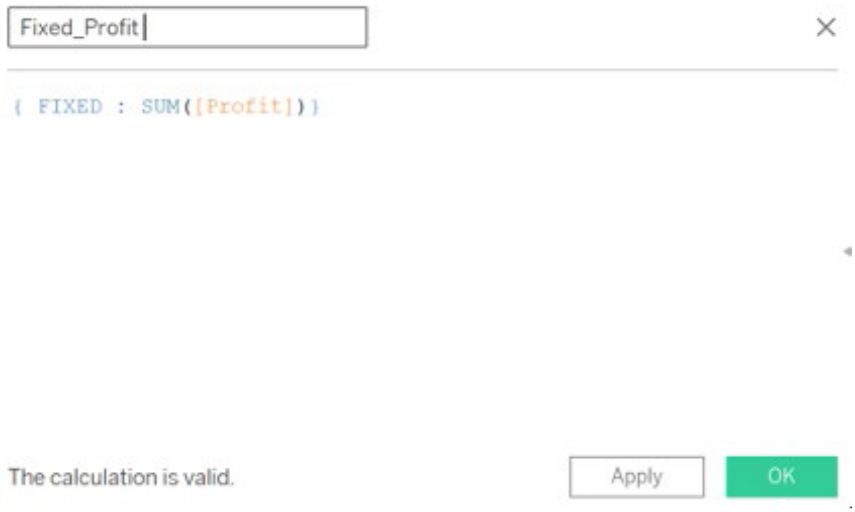


**Figure 6: Initial view with country**

Notice that the measure value does not change, irrespective of how many dimensions you add in the view:

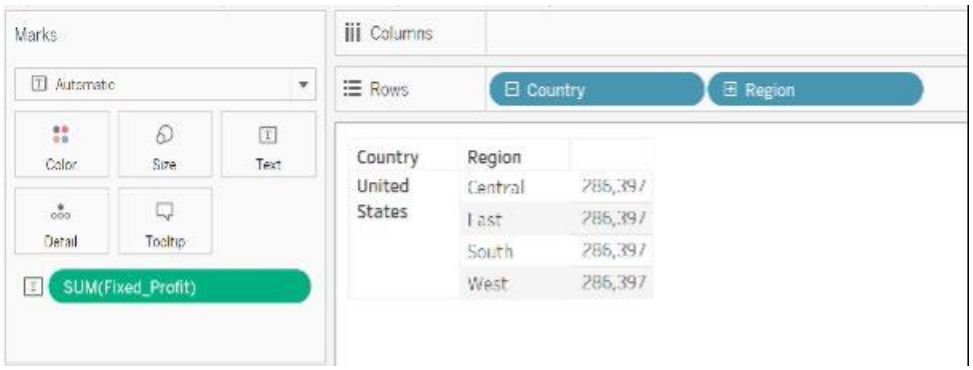


**Figure 7: Initial view with region**

In this exercise, you created an LOD calculation, by comparing how the **SUM(Fixed_ Profit)** aggregation behaves, based on various dimensions such as **Region**. You observed that the values of the output measure do not change, irrespective of the other dimension in the view, because you chose the **FIXED** LOD calculation.