Filtering in SAP Lumira Discovery

Version 1.0

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Purpose

This document covers the concept of “Filtering in SAP Lumira Discovery”. This is high level document assumes resource has basic knowledge of SAP Lumira Discovery concepts.

What are Filters?

Filters are the type of “restrictions” imposed to limit the data displayed and show only the data which is desirable.

What is the use of Filters?

Filters help us to trim down the report until it displays the data that we want to show in that report by selecting values or range of values from a dimension or measure to include or exclude. These are quite useful in clarifying large number of data and only shows the restricted amount of data which is required by the viewer.

In SAP Lumira Discovery, we can filter data in a complete dataset or in a single visualization. Filters applied to entire dataset affect every component that uses the data. On the other hand, filters applied to a visualization affect only that component and not the complete dataset. We can also filter data in individual visualizations of a page or of the whole story. A ***page filter*** applies to all the visualizations existing at page level. A ***visualization filter*** applies to a specific visualization on a page and a ***story filter*** applies to all pages present in a story.

Types of Filters

SAP Lumira Discovery offers us different types of filters as listed below, to filter the data and these can be imposed to different layers.

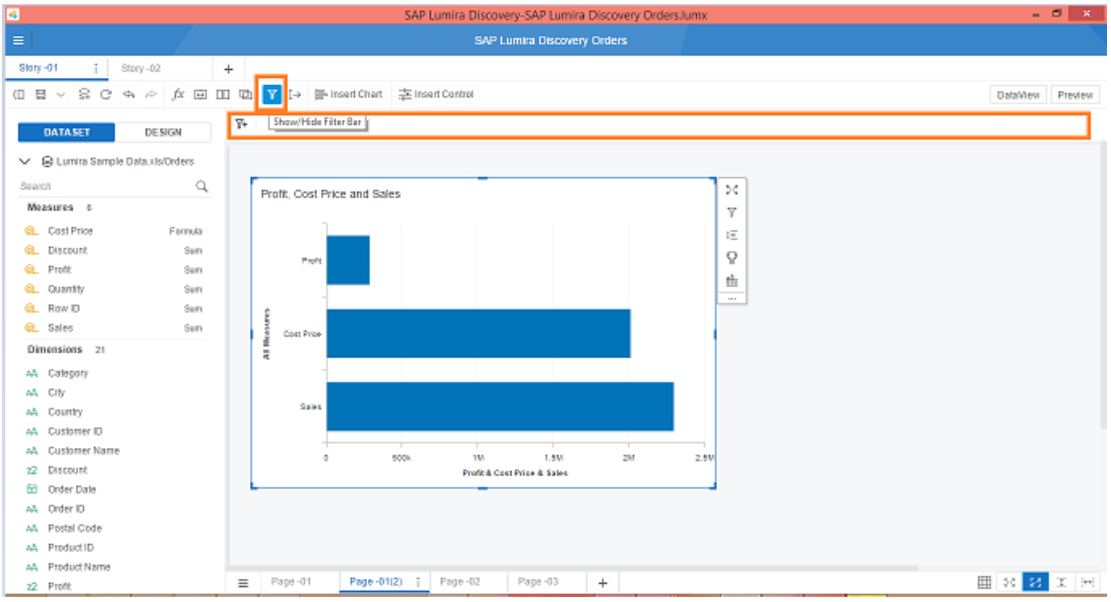
- ***Dimension Filter***
- ***Measure Filter***
- ***Hierarchy Filter***
- ***Controls***

Let's begin with their detailed description:

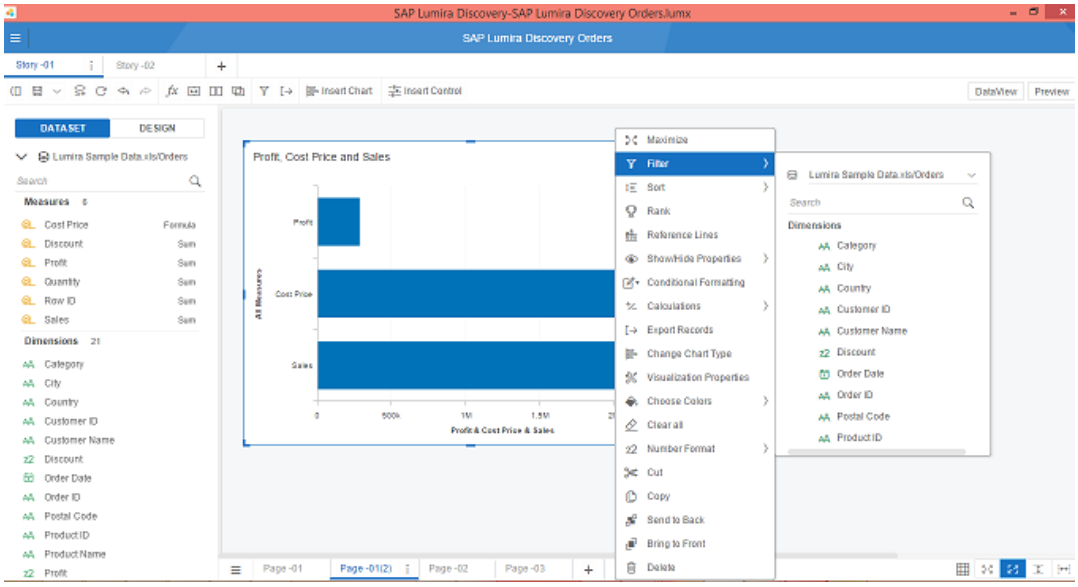
1. Dimension Filter

It is a type of ***dataset filters*** which allows us to easily filter a data list while working with large quantity of data. After retrieving data from an external data source, we can add a filter to a dataset to restrict the data in a report. When we add a filter to a dataset, all report components or data regions use only data that matches the filter conditions. We can use the filter dialog to define a filter on the dataset and all the visualizations based on it. We need to add a calculated measure or dimension to create a more complex filter as filter dialog does not support SAP Lumira Discovery formula language or regular expressions (regex).

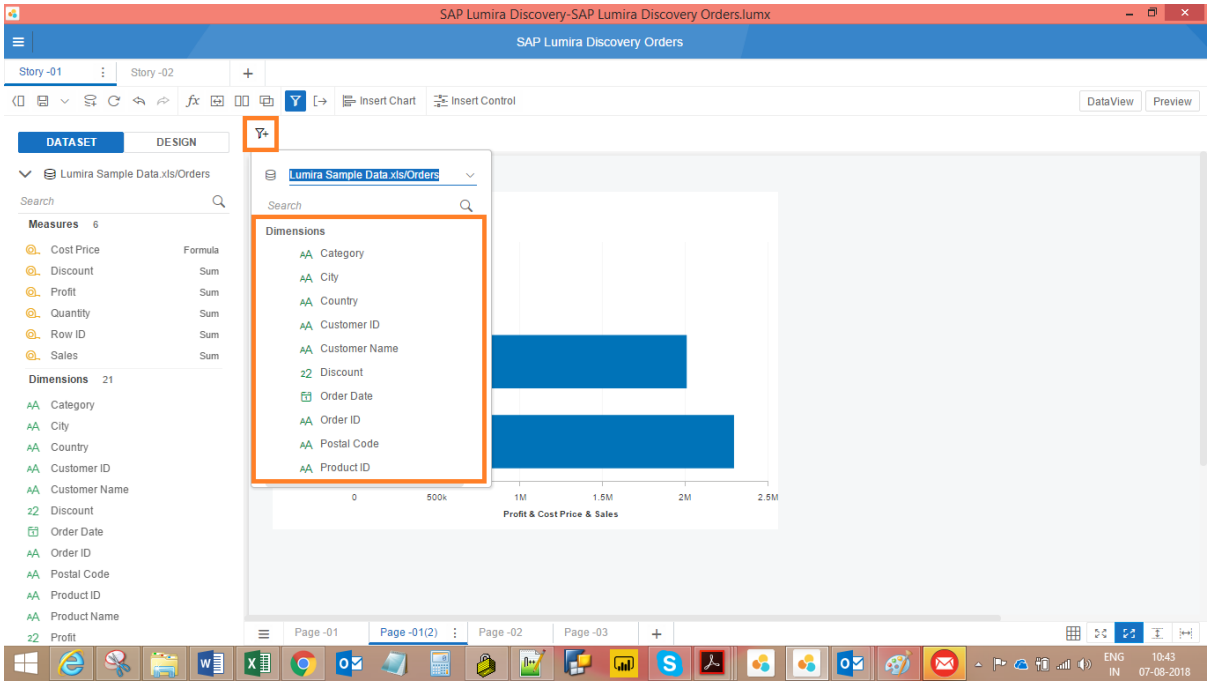
- Select visualization and click on "**Filter**" icon and a filter bar will be opened as highlighted below.



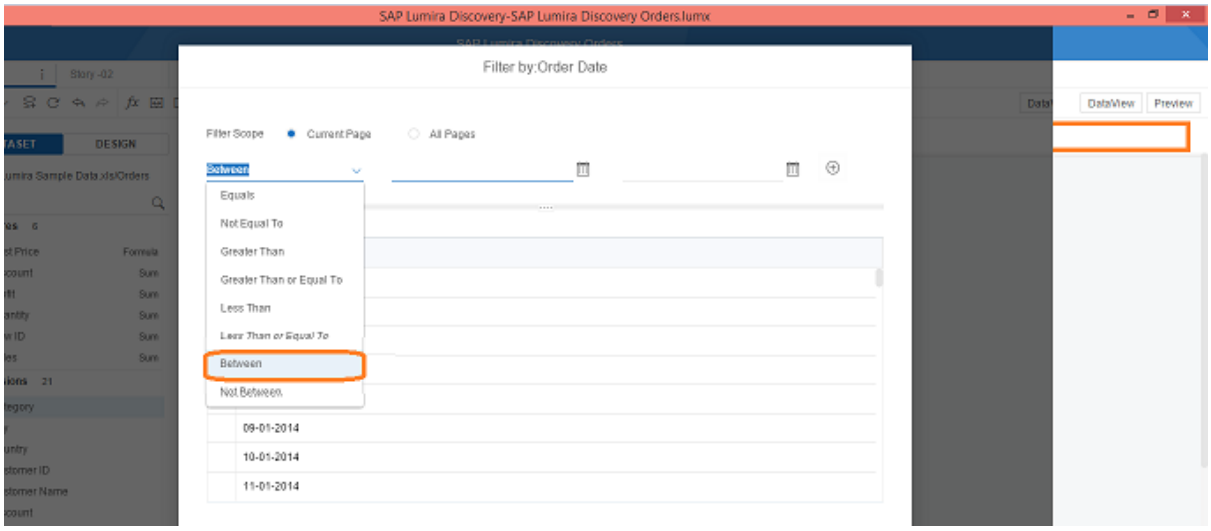
We can also choose filter by doing right click on the visualization as shown below:



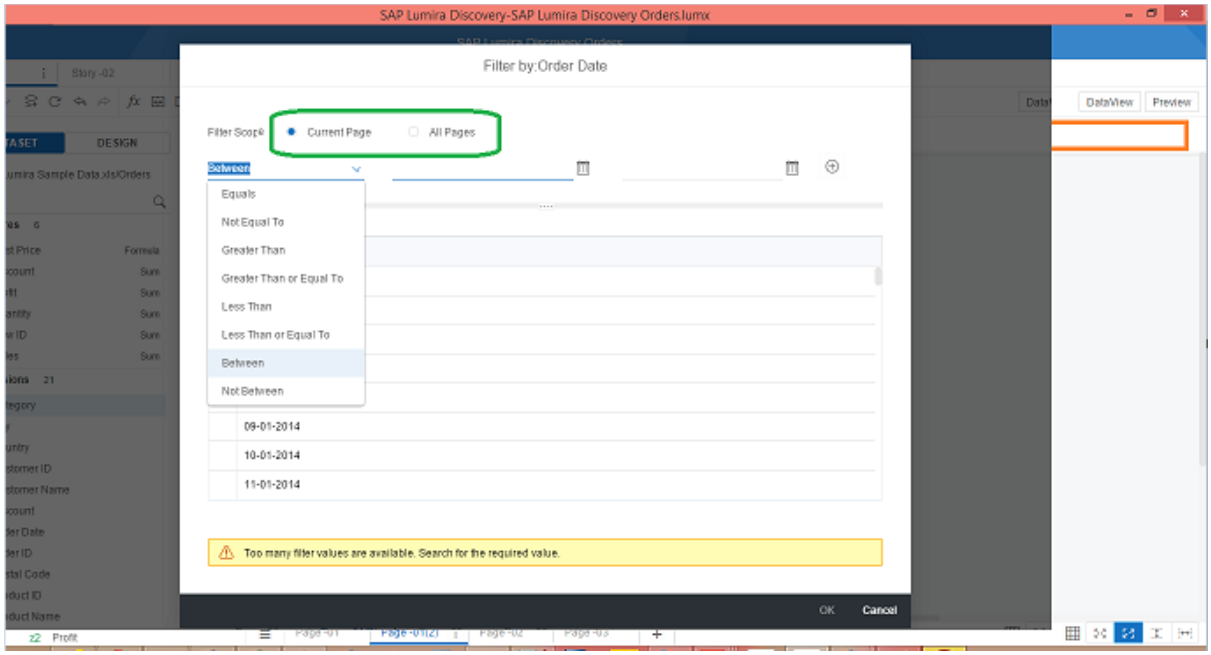
- Click on the **Filter** icon besides the filter bar to choose the desired dimension from the dropdown, which we want to filter. Here we will select "**Order Date**" dimension.



- After clicking on the desired dimension, filter dialog window will be popped up. Select operator from the list provided, based on which we will filter the data for the selected dimension. Here we have selected, "**Between**" operator.

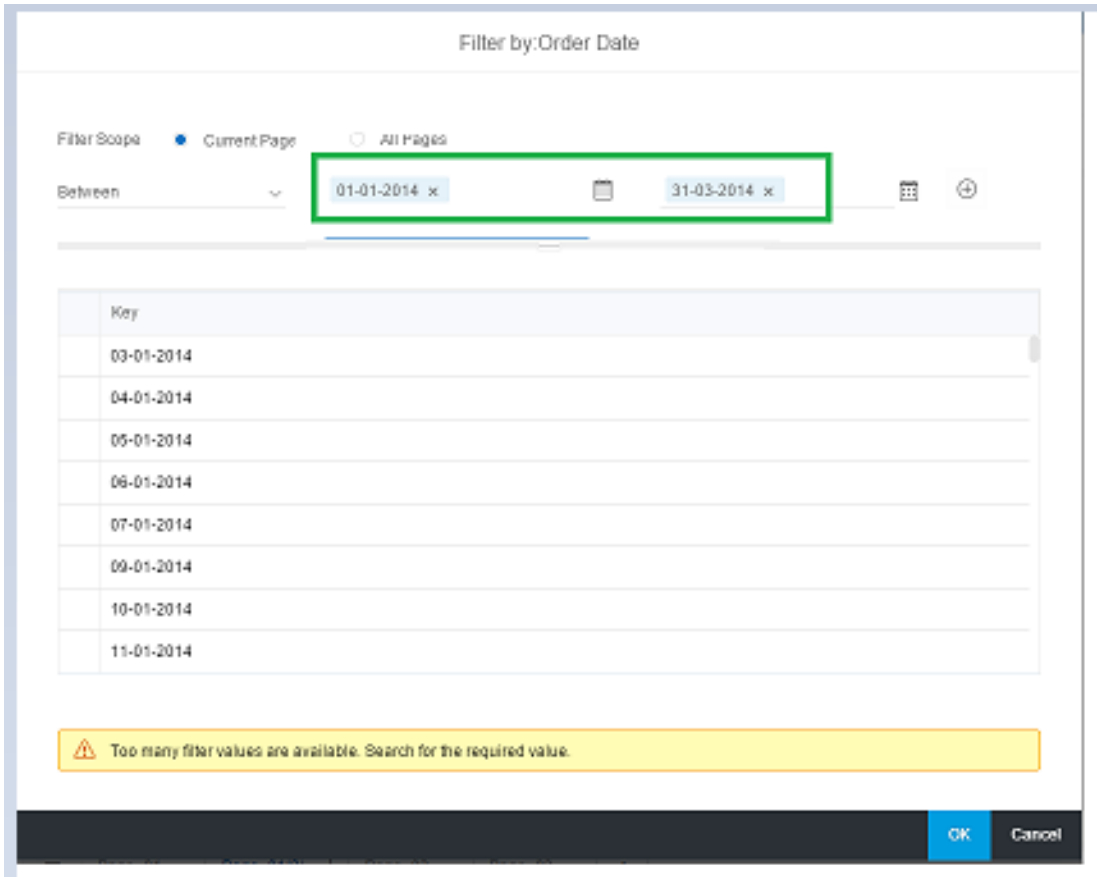


- We can apply filter to the current page or across all the pages by clicking on one of the radio buttons from the "**Filter Scope**" as highlighted below.

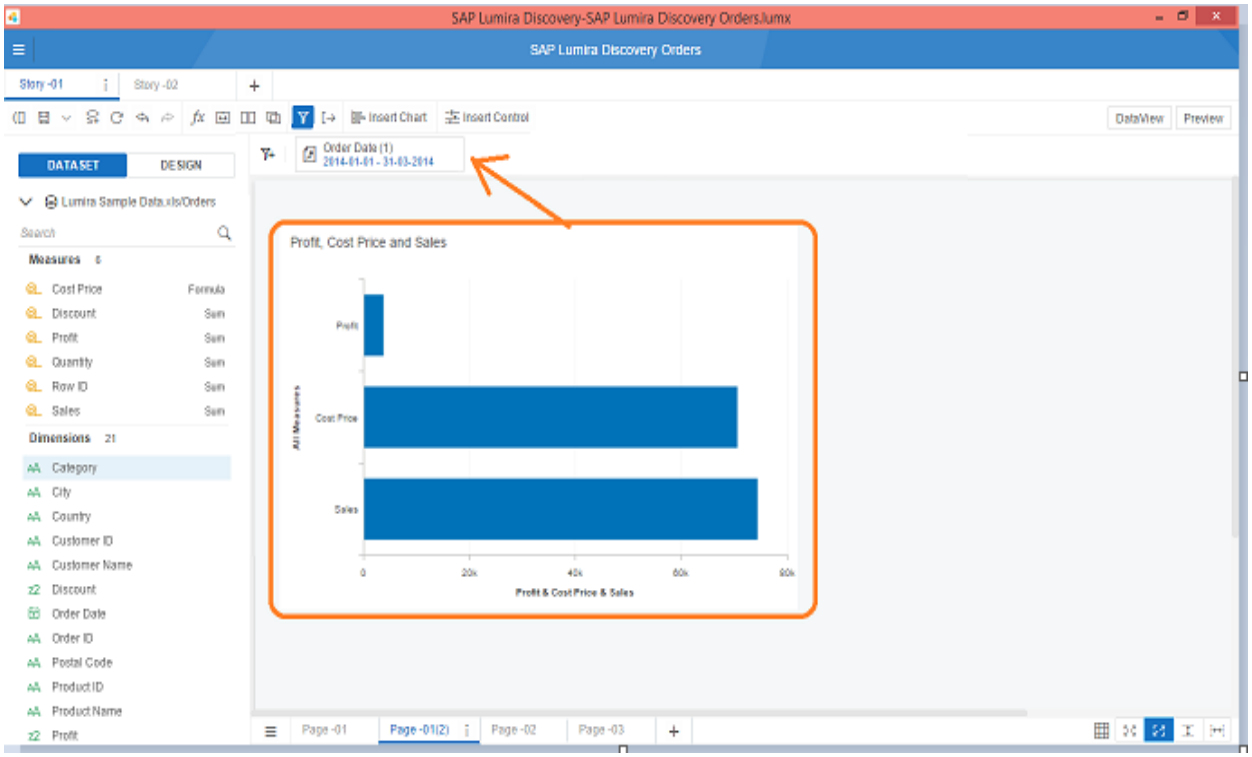


Here we have chosen **"Current Page"** option as we want to apply the filter only to the visualization i.e. chart, on which we are working. If we want to apply filter to all visualizations in a story, then we will choose "**All Pages**" option.

- Select suitable filter range according to which data will be filtered in the visualization and click on OK.



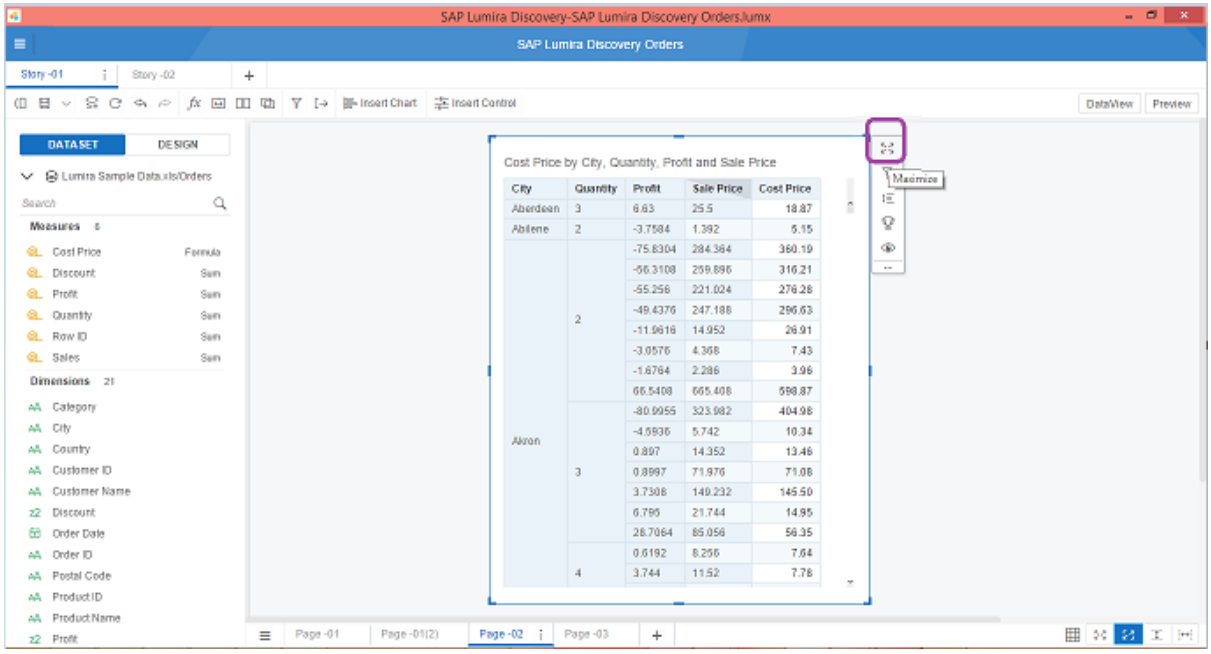
- In the following screenshot, we can see a token in the filter bar representing the filter is added and chart is displaying the values as per the given filter range.



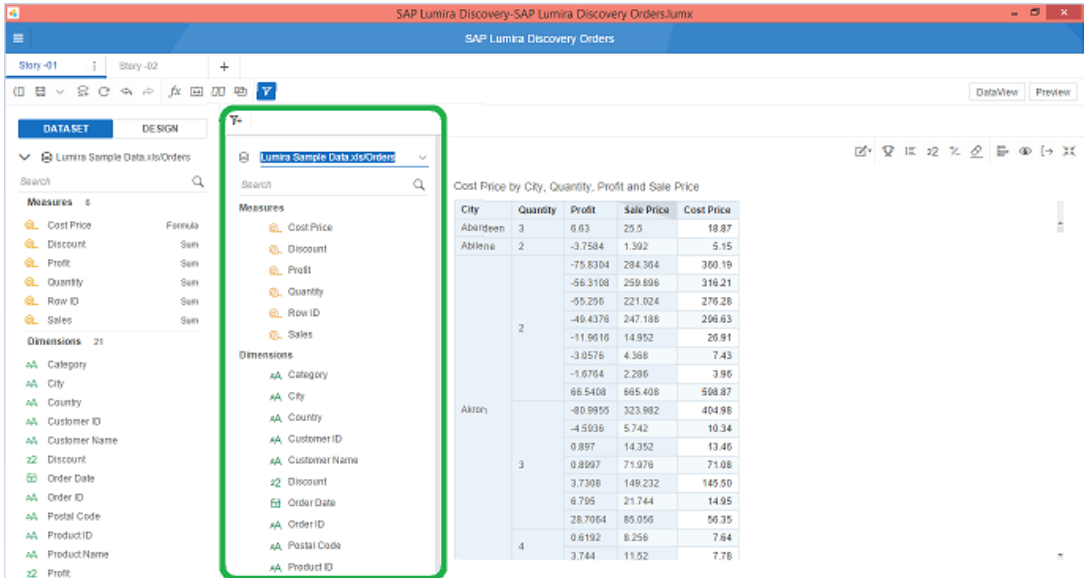
2. Measure Filter

Like Dimensions, measures cannot be filtered so in SAP Lumira Discovery we can use measures in combination with dimensions on a visualization to provide filters based on range along with categorical values.

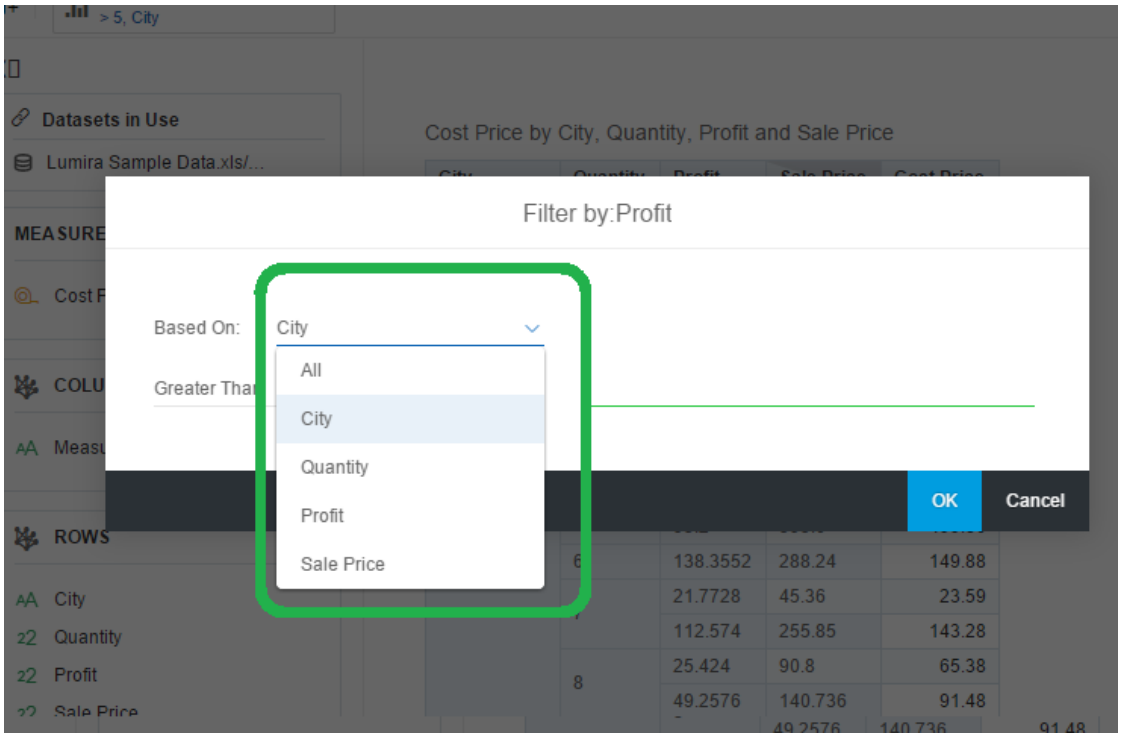
- Measure filter is possible only if the visualization is maximized. So, maximize the cross tab component on which we want to apply measure filter, by clicking on the "**Maximize**" option.



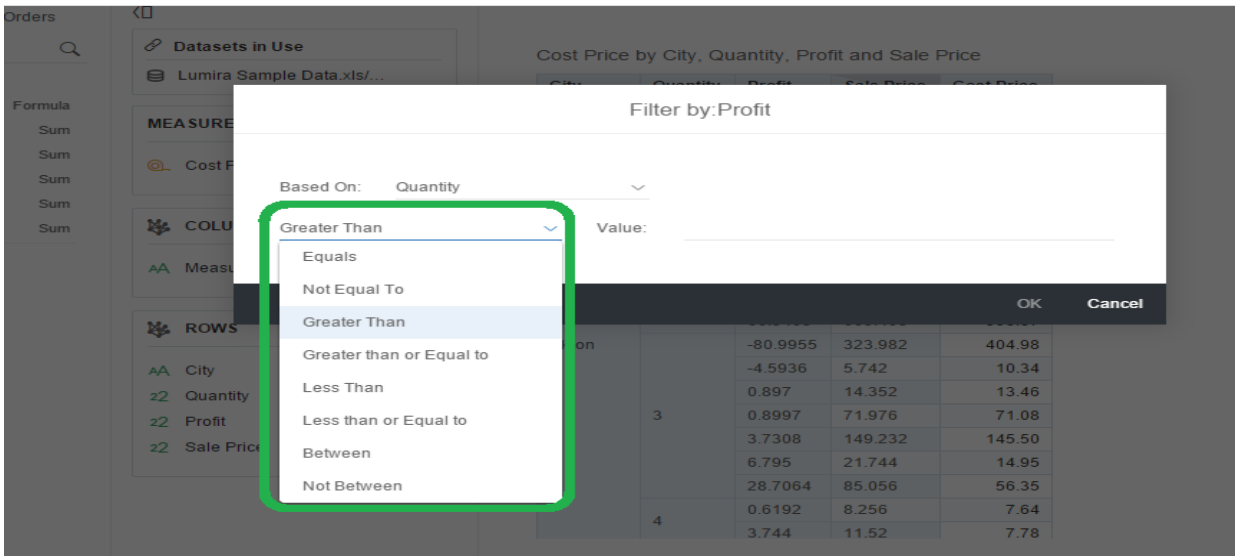
- Click on the "**Filter**" icon to filter the measures. Here we are going to select "**Profit**" measure.



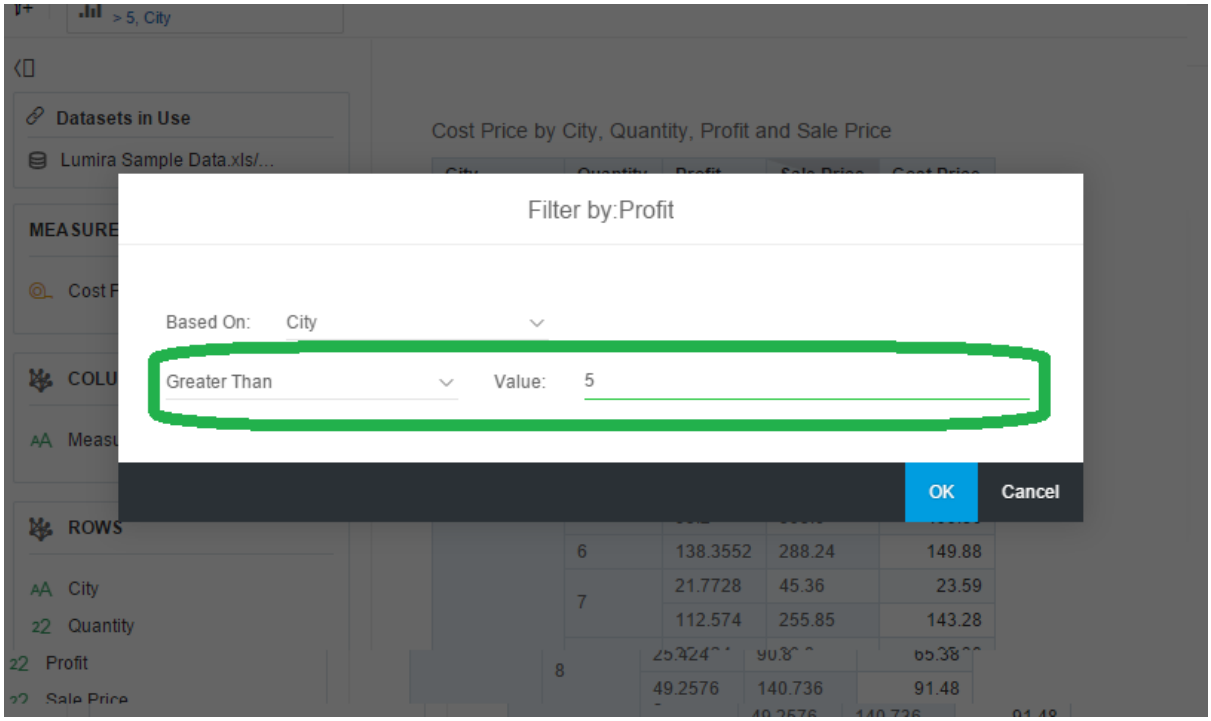
- After this, below screen will be appeared. “**Based On**” option contains the dimensions available in the selected component. We can filter the “**Profit**” measure based on a single dimension or all independently. Here we are choosing “**City**” dimension.



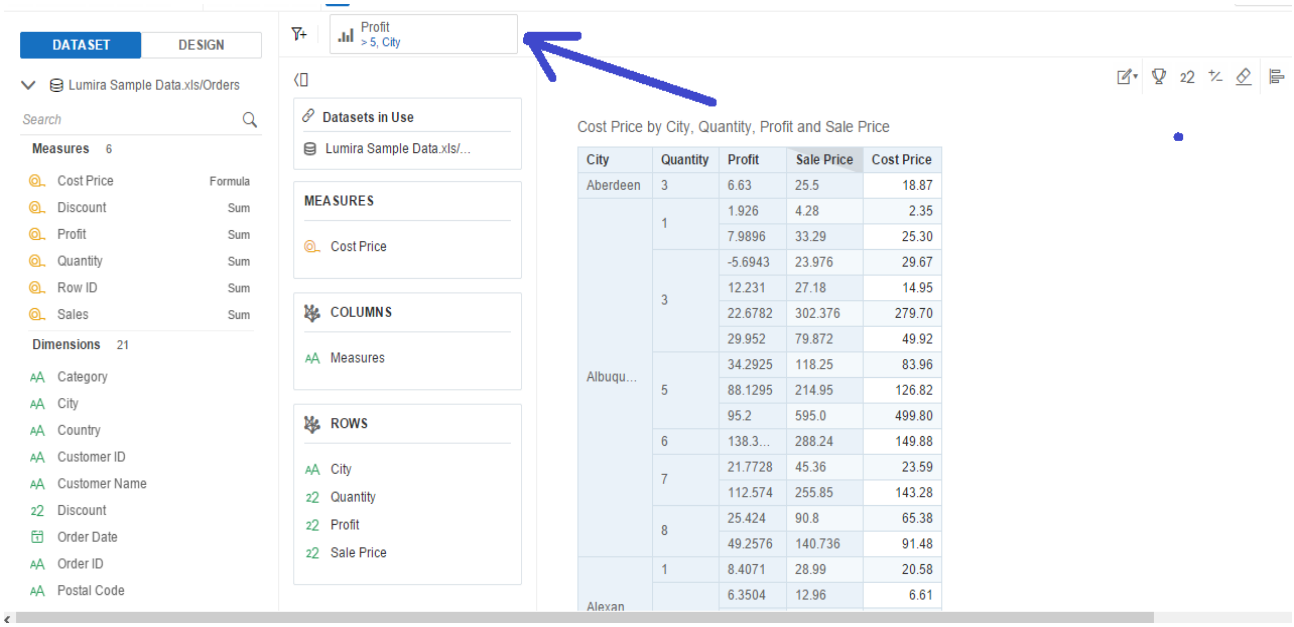
- Select “**Operator”** from the provided list based on which we will filter the data for the selected measure. Please note, filter can be applied only for the selected component with a single or range of values.



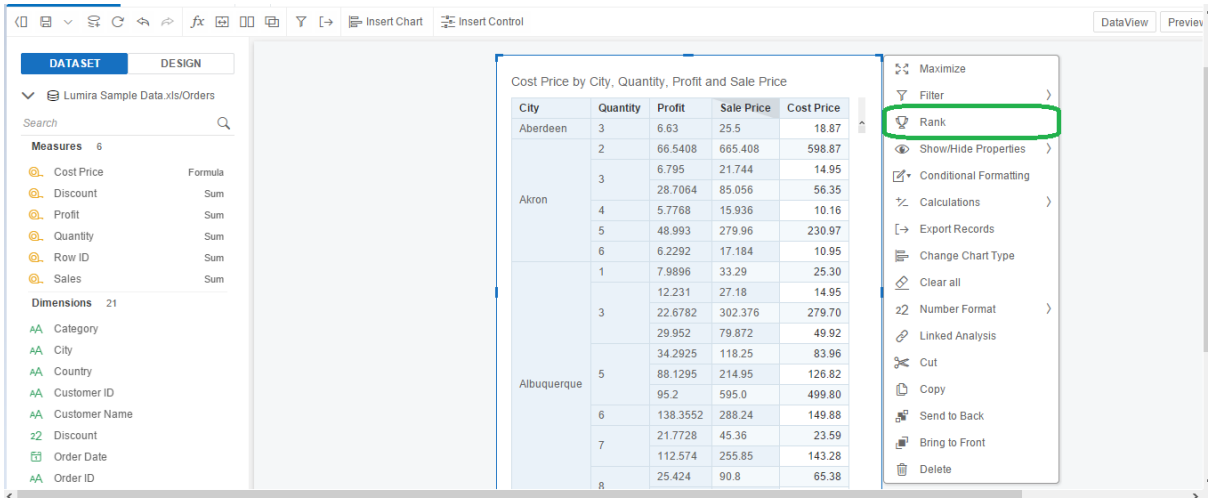
- Here we are selecting **“Greater Than”** operator with value “5”.



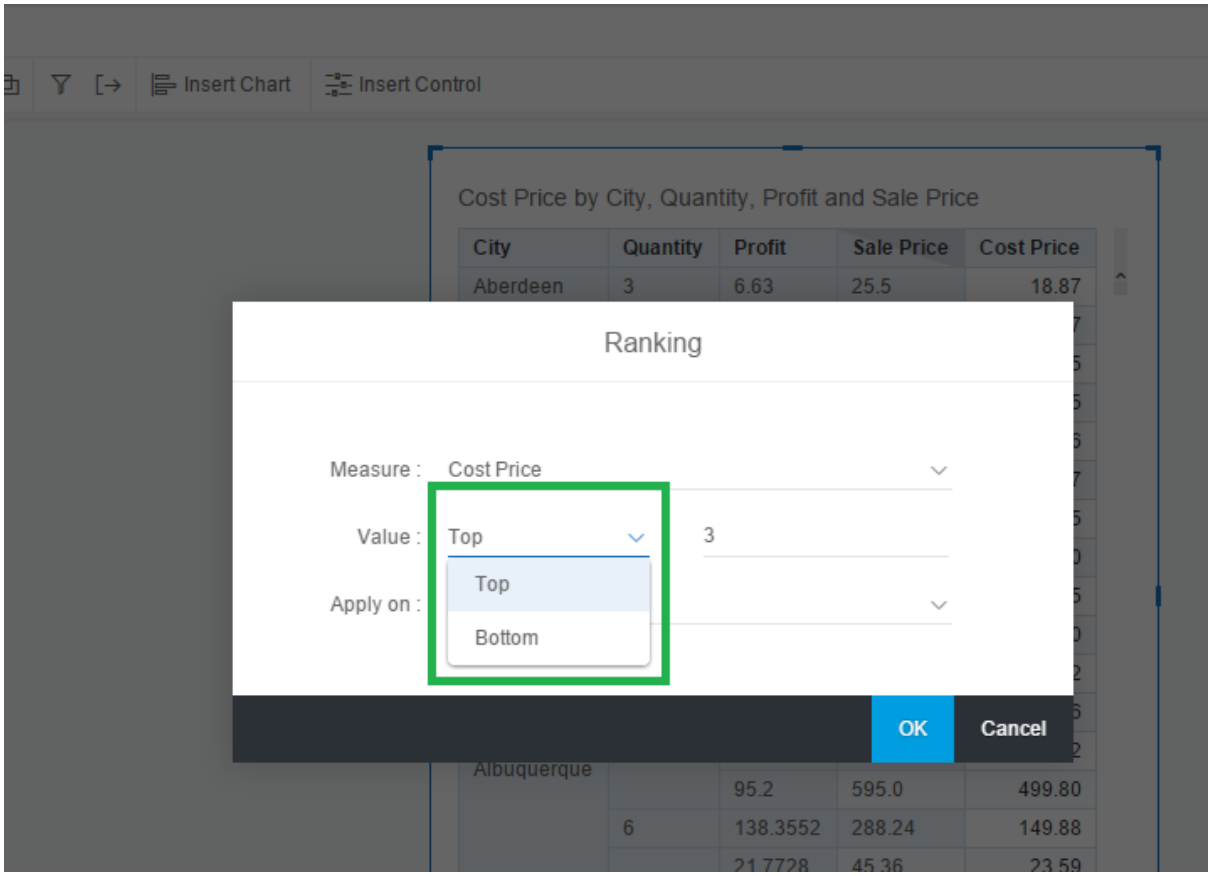
- In this way, the filter is added as represented by the token in the filter bar and data is also filtered in the cross tab based on the given condition.



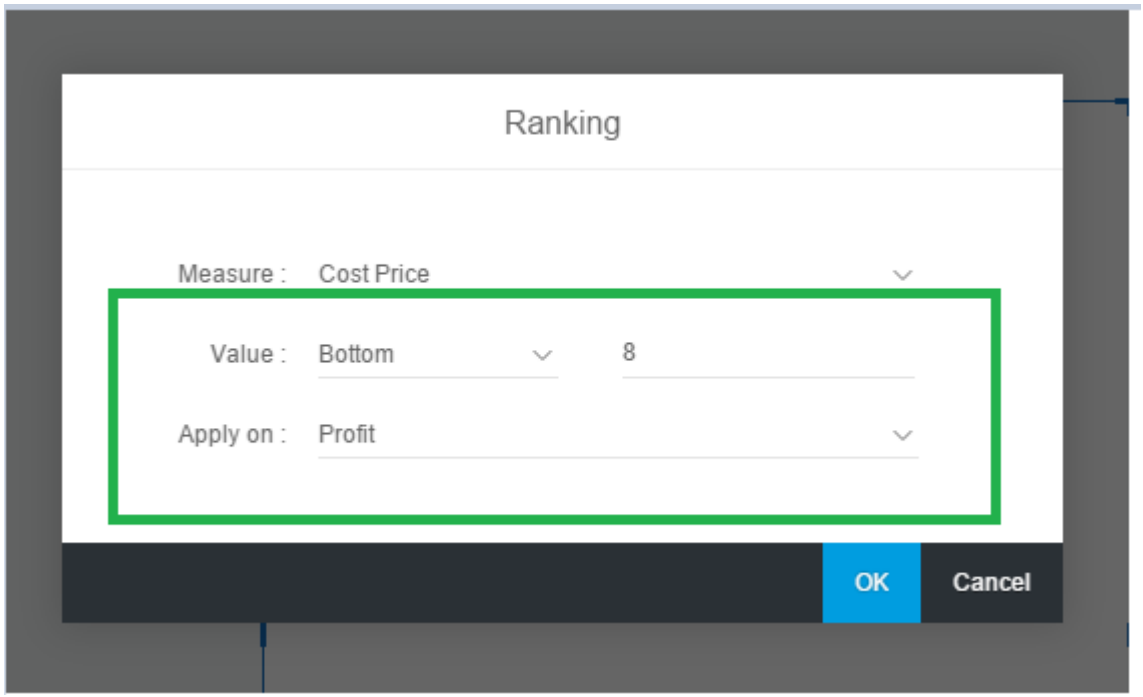
We can also filter the measures by using Rank**,** so to achieve this right click on the component and select “**Rank**” option as highlighted below.



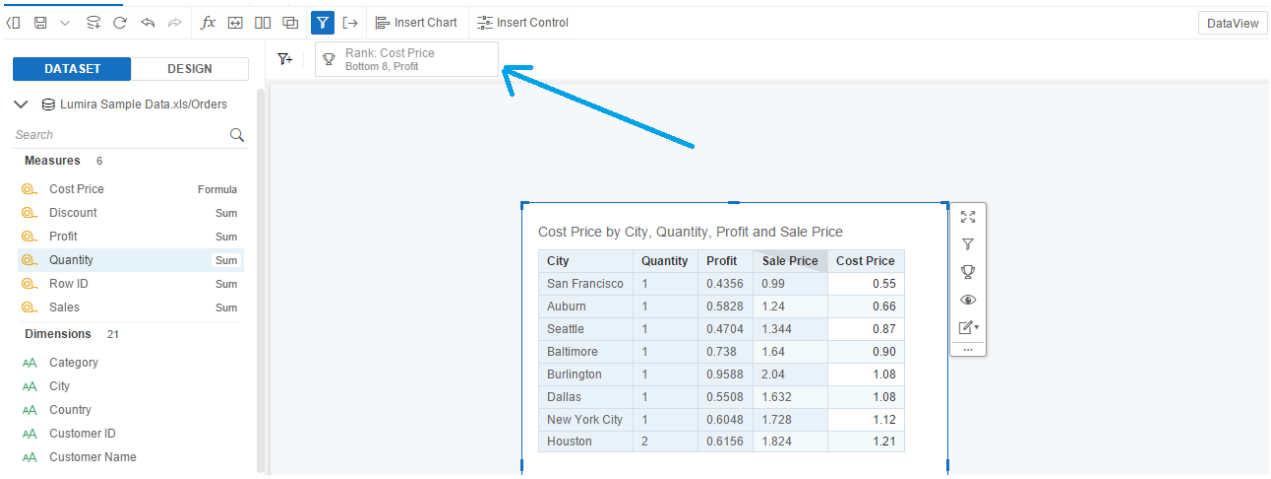
- The "**Ranking**" dialog box appears. Select the measure "**Cost Price**" for which we want to rank the values and select the order of ranking i.e. Top N or Bottom N to filter the measure accordingly.



- Enter the number of results to display and choose the dimension on which want to rank data. Here, we are applying ranking on "**Profit**" to filter the bottom 8 values for measure "**Cost Price**".



- In this way, we can see that the data is filtered by rank and "**Bottom 8**" values are displayed in the cross tab for **"Cost Price"** and token in the filter bar is also representing that filter is added.



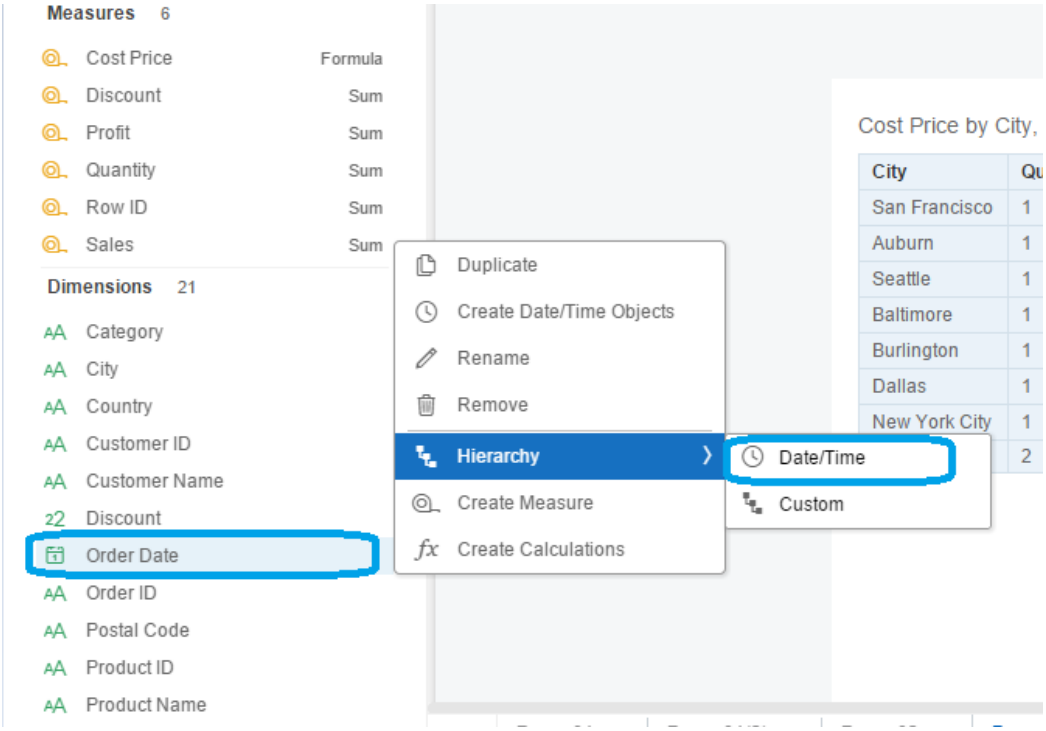
3. Hierarchy Filter

A hierarchy is an ordered sequence of linked dimensions which enable us to view data at different stages of granularity and is quite helpful for multi-dimensional analysis of data. In charts containing hierarchies, users can "drill up" or "drill down" on a hierarchy through the different levels of data to gain a deeper understanding of the relationship between the dimensions and measures.

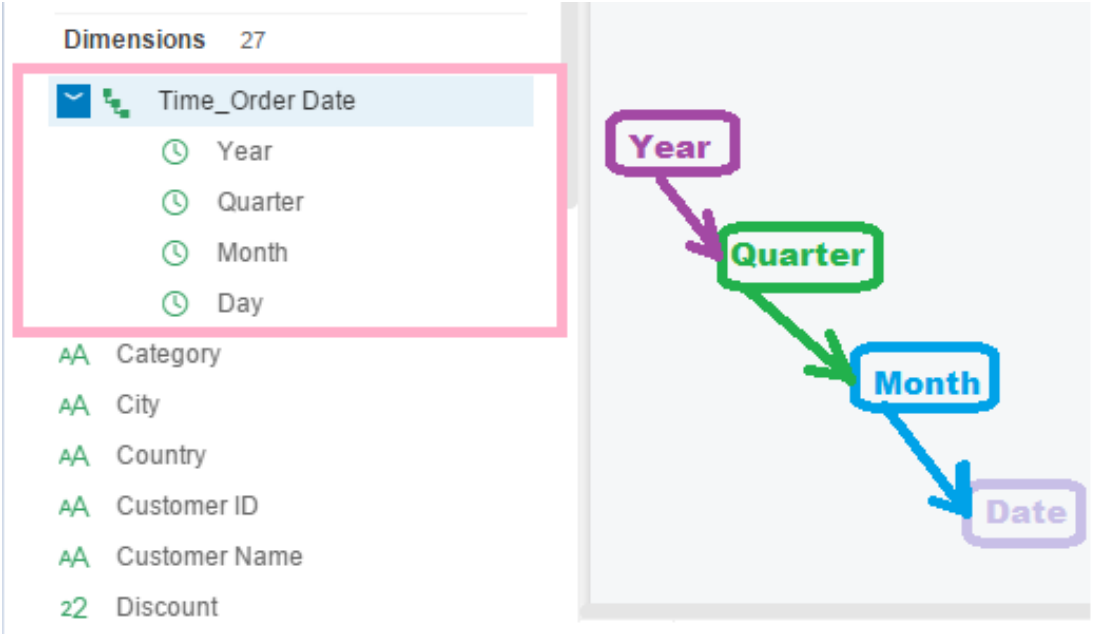
Below are the types of hierarchies which can be built in SAP Lumira Discovery: -

i) Date and Time Hierarchies

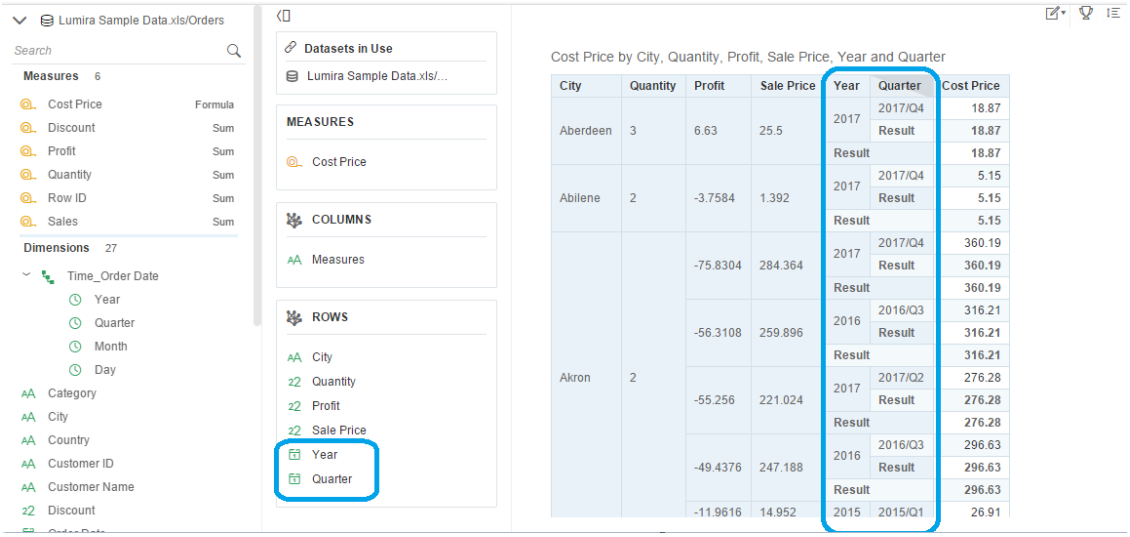
The Date/Time hierarchy offers the functionality to drill through different levels like Year-Quarter-Month-Day. In SAP Lumira Discovery, date field alone would not be enough to perform this trend analysis. So, Date/Time hierarchy provide this option with one click and we can find it by right clicking the suitable dimension as shown below:



On click, the hierarchy will be created automatically and can be seen on top of the dimension list as follows:

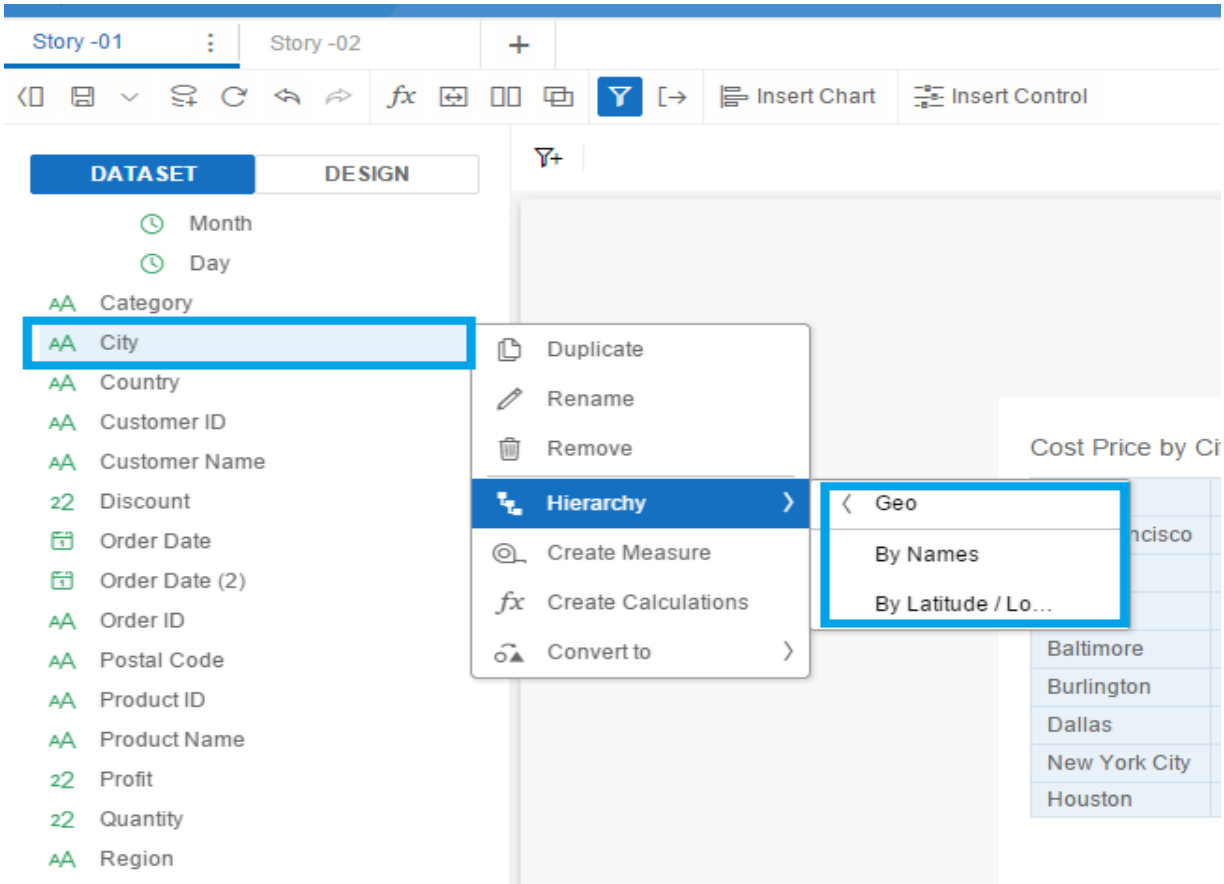


This created hierarchy can then be used into the visualizations for trend-based analysis as follows:



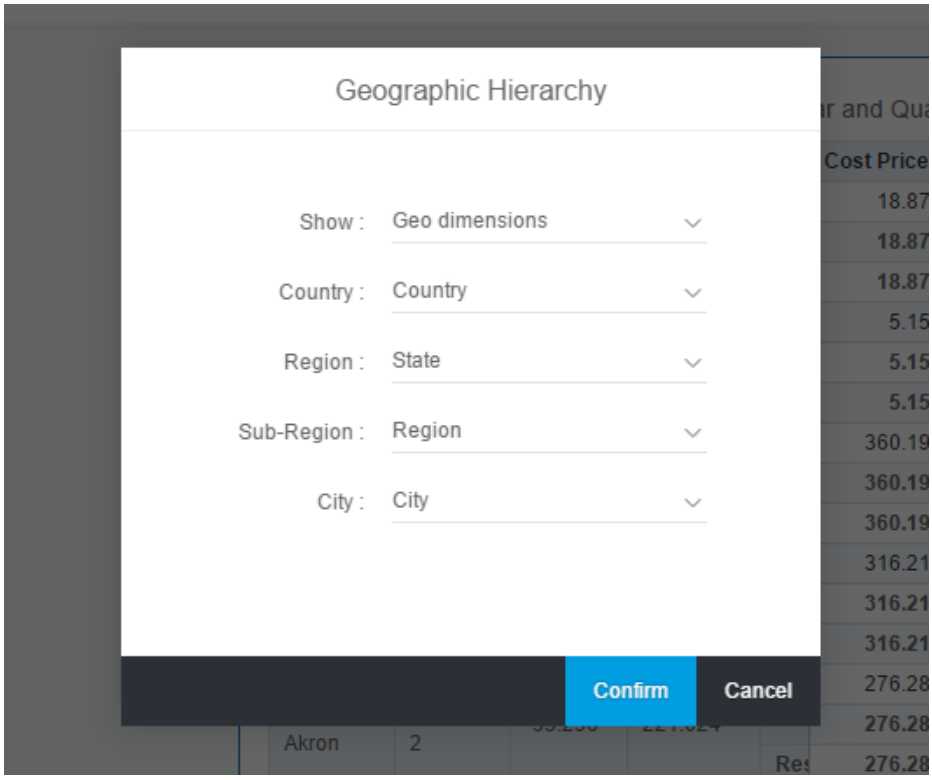
ii) Geo Hierarchies

SAP Lumira Discovery also enables us to control data for geospatial analysis. This helps us in performing location-based analytics on a geo map with the facility to drill through different stages of granularity. We can find this option by right clicking the suitable dimension as shown below:

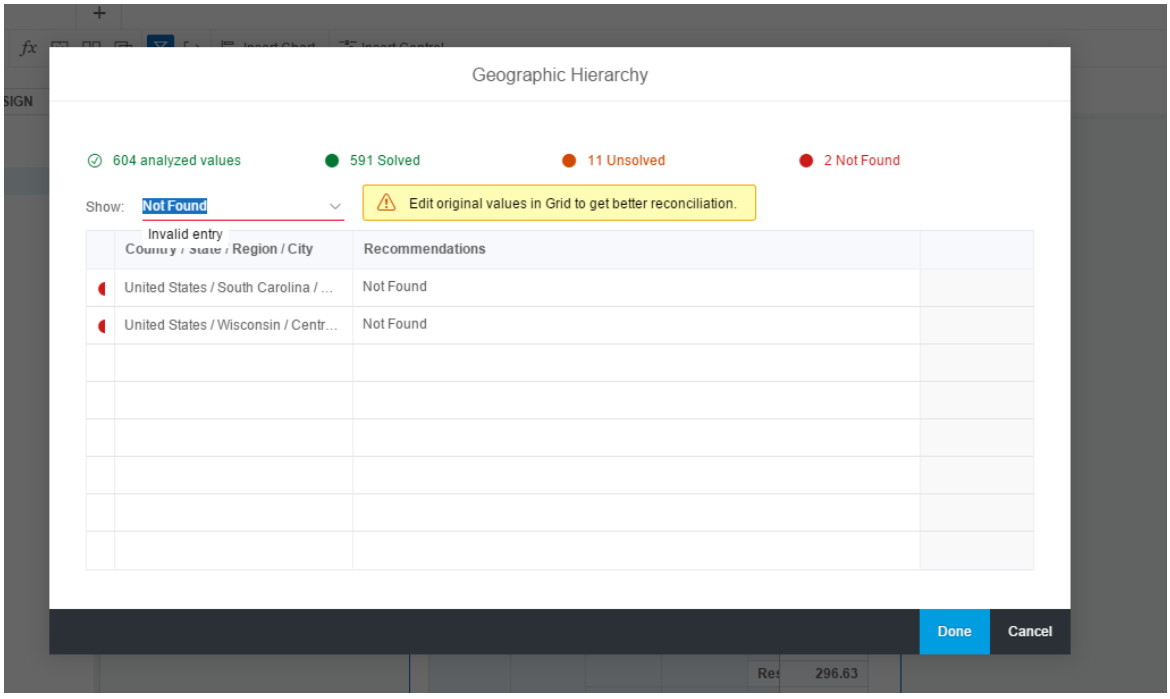


As we can see, there are two options available in SAP Lumira Discovery to create a Geo Hierarchy which are described below:

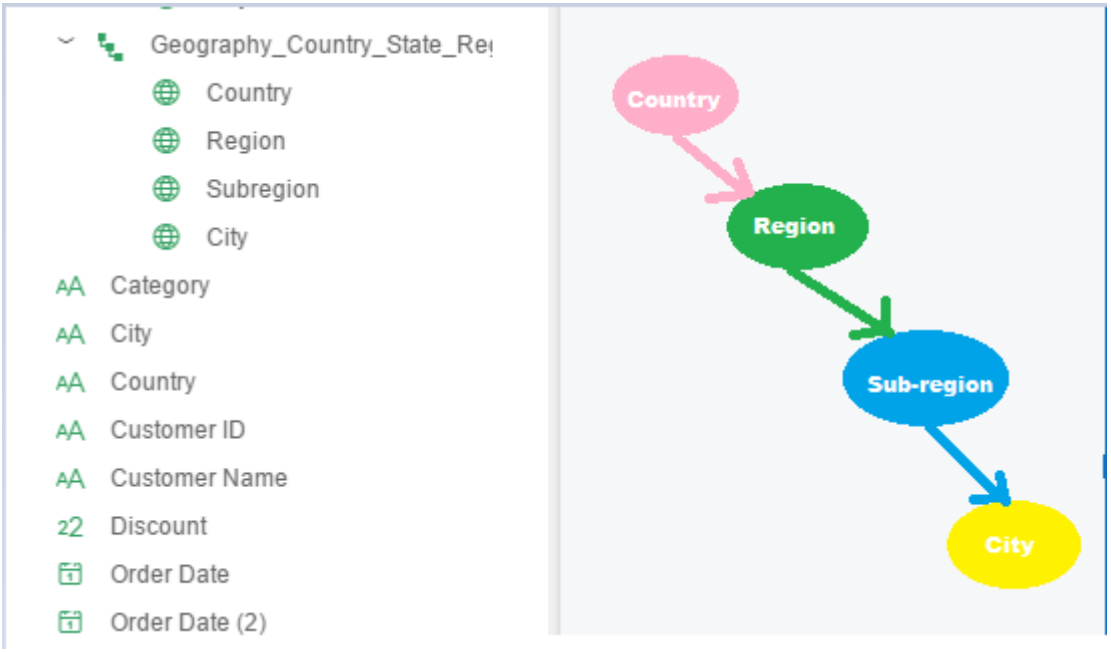
By Names: We will describe Country – Region – Sub-Region – City levels using suitable dimensions as shown below and SAP Lumira Discovery maps it by using “NAVTEQ” database.



After this, we need to finalize the mapping of locations to complete the hierarchy.



In this way, the hierarchy is created and can be seen on top of the dimension list as shown below:



By Latitude and Longitude: "NAVTEQ" database has a limitation of showing only cities having population above 100k.To overcome this limitation, we can make use of latitude and longitude values with the corresponding dimension as per following steps:

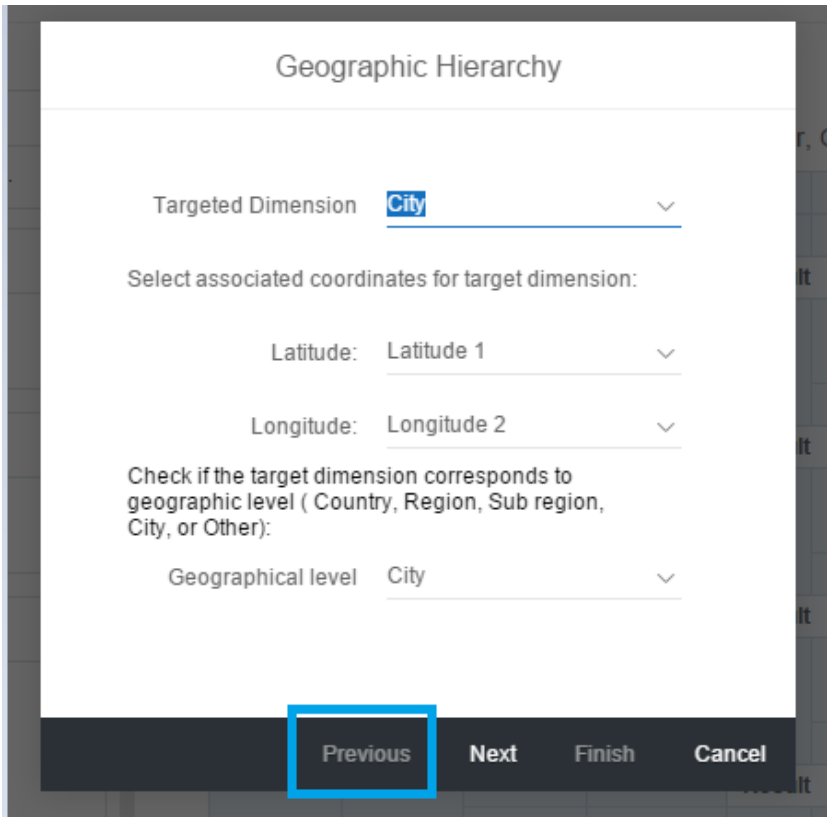


Fig. (i)

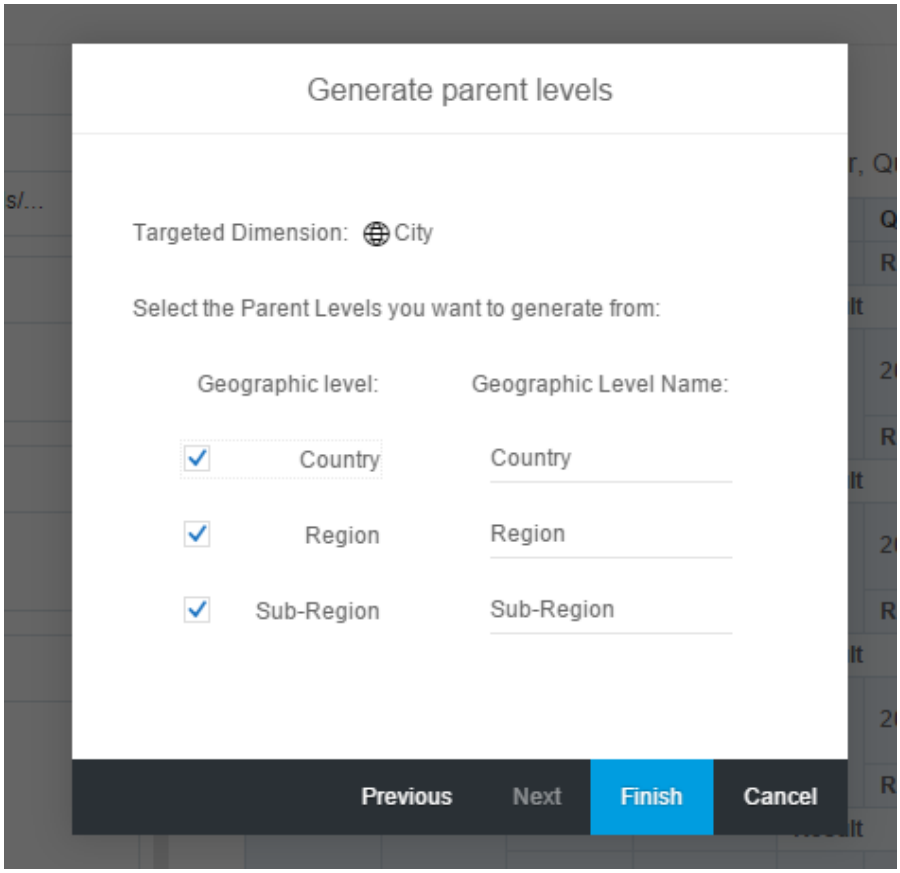
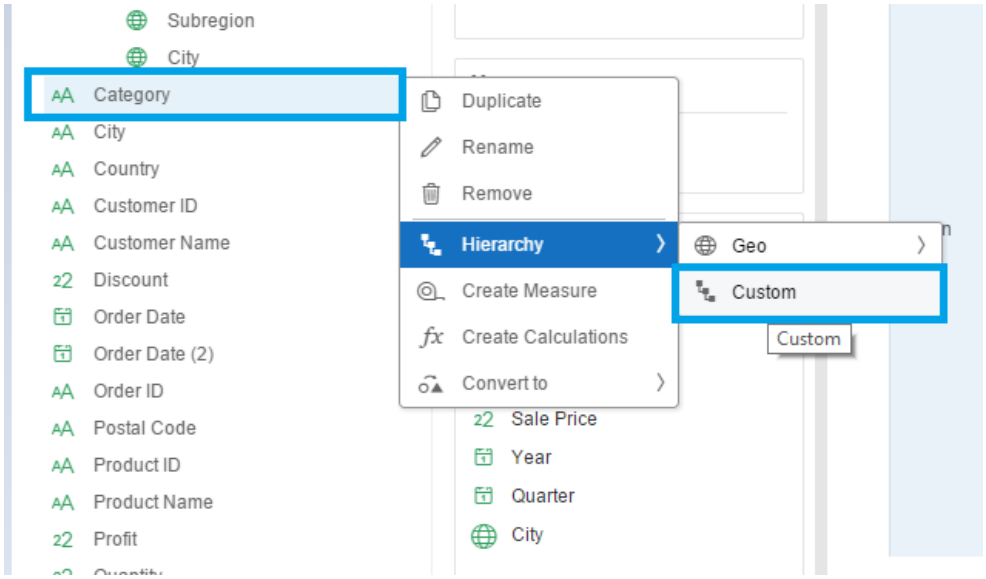


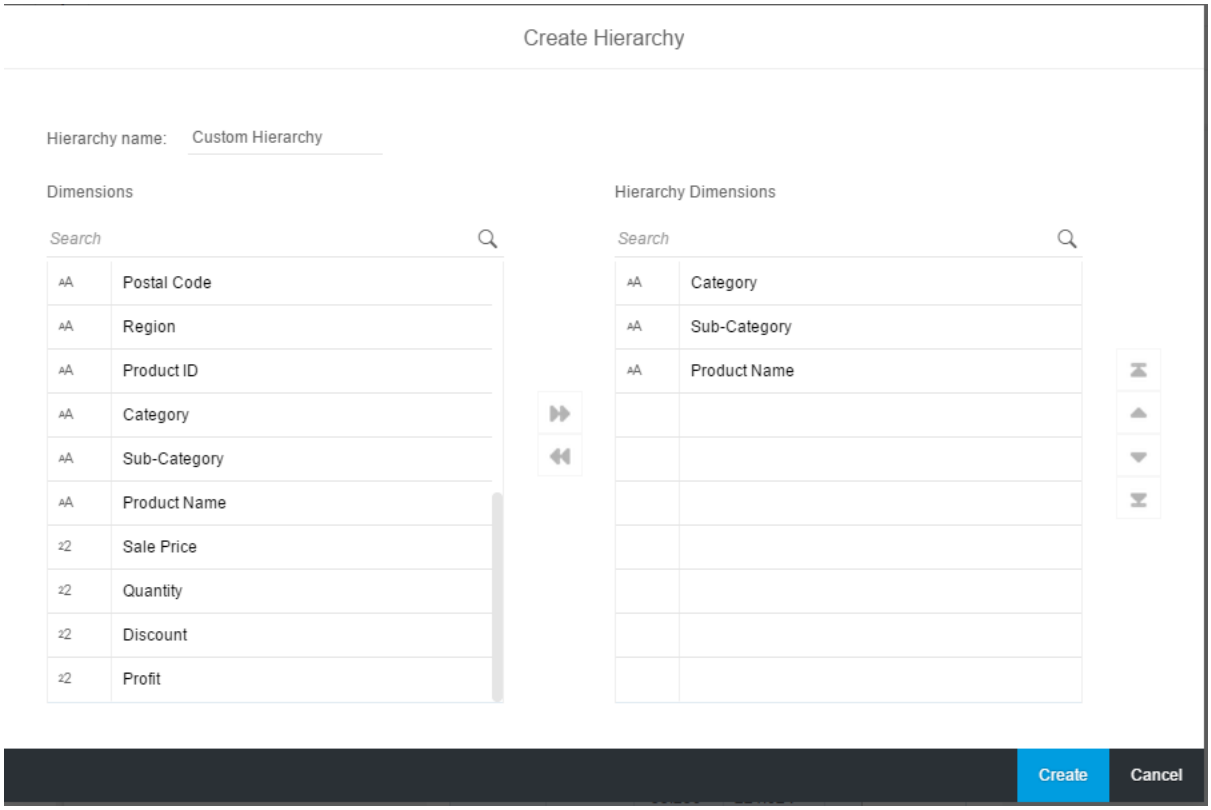
Fig. (ii)

iii) Custom Hierarchies

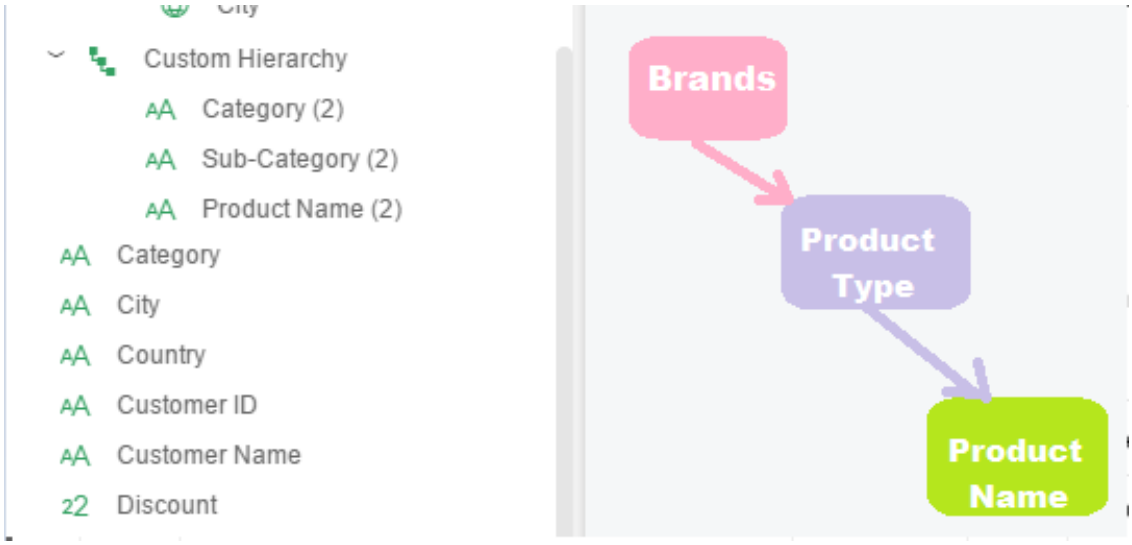
"**Custom Hierarchy**" option help us to create hierarchies based on customisation on set of dimensions. Right click on the appropriate dimension and find this option as seen below:



“Create Hierarchy” dialog box appears. Select the dimensions in correct order from the list displayed for which we want to create the custom hierarchy and then click on “Create”.



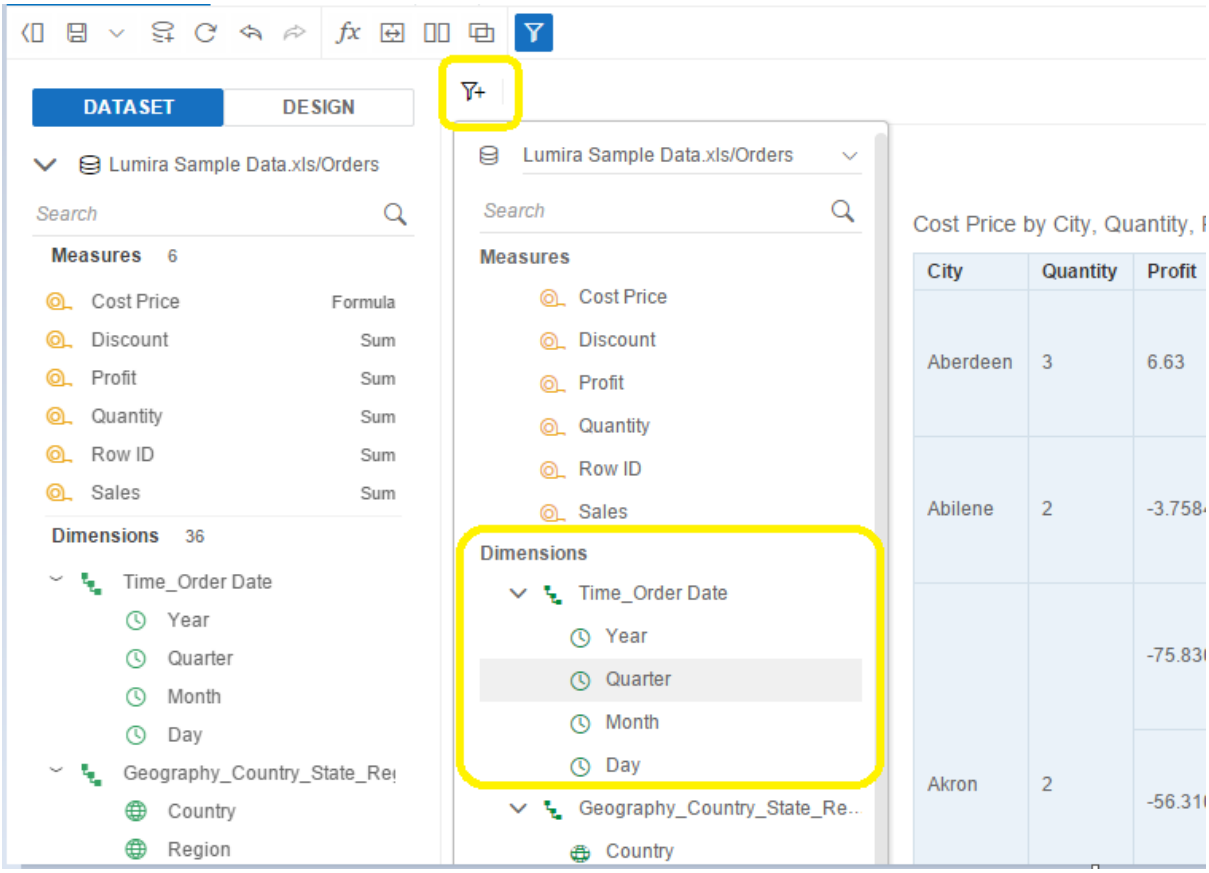
Now, we can see in below screenshot that custom hierarchy is created and listed in the dimension list.



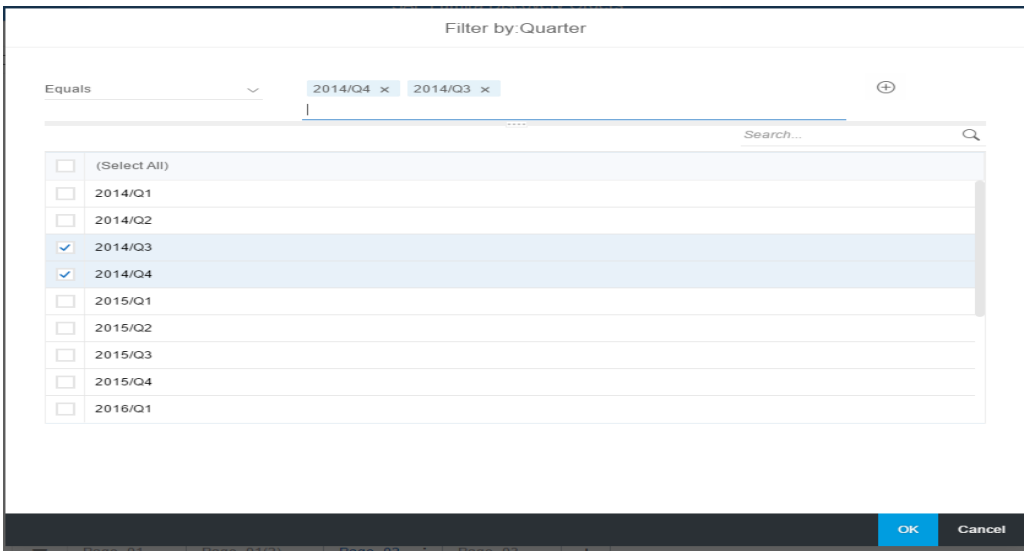
Please note, we cannot edit the hierarchies once these are created and can only be deleted or renamed.

In SAP Lumira Discovery, we can maintain hierarchy structure within a filter, enabling ease of navigation through hierarchical levels of detail as define below:

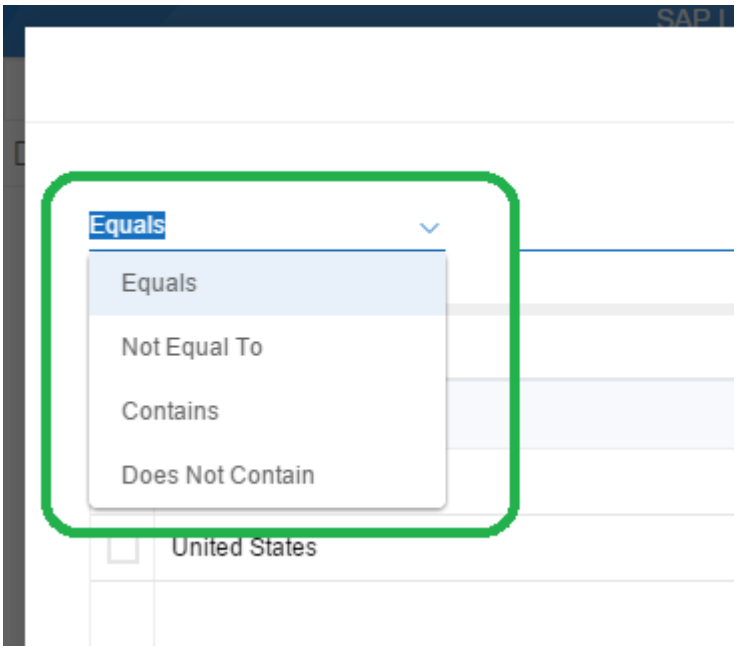
- Click on “Filter icon” and to filter the hierarchical dimension by selecting the required level of hierarchy.



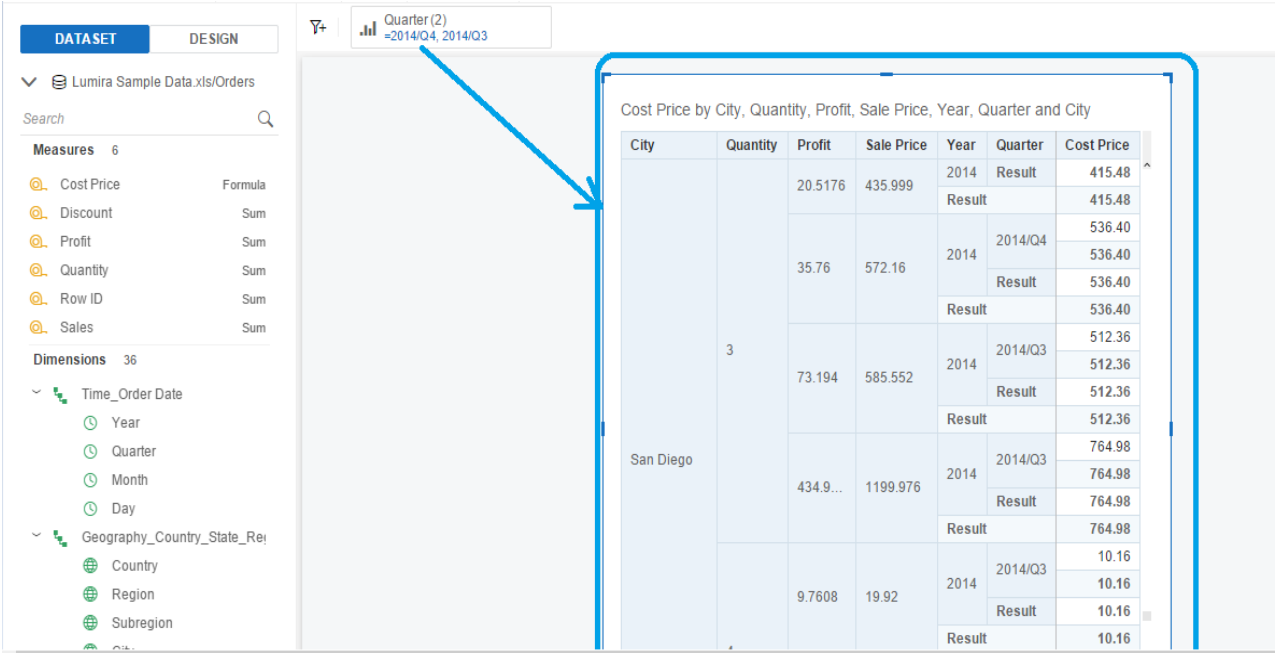
- Filter screen pops up. Select “**Operator”** from the provided list based on which we will filter the data for the selected dimension. Please note, filter can be applied only for the selected component with a single or range of values.



- Hierarchy filter provide only 4 options to filter the data as seen below. Unlike dimension and measure filter options, “Contains” and “Does Not Contain” options are only available for hierarchical dimension.



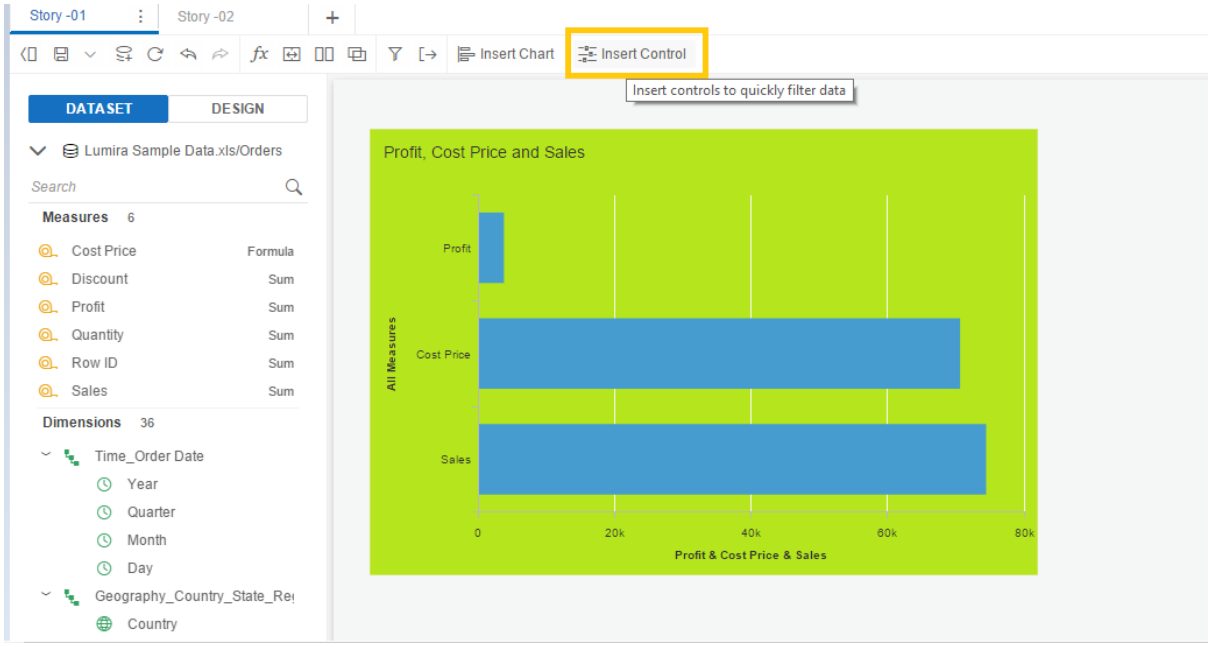
- In this way, the filter is added as represented by the token in the filter bar and data is also filtered in the cross tab based on the given condition.



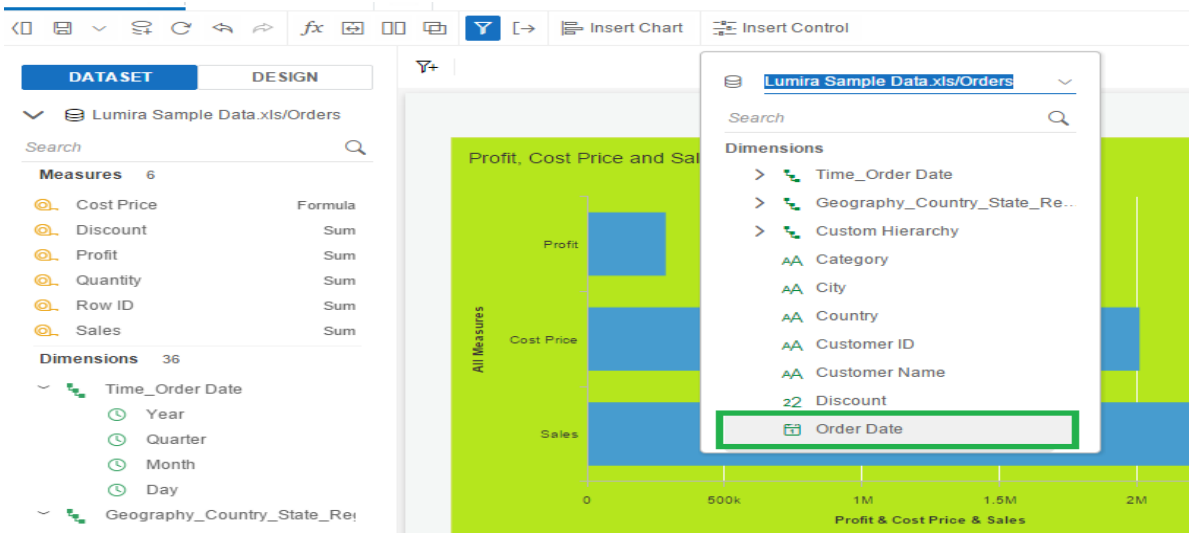
4. Controls

Interactive filters in a story make it easy to highlight different areas of the data in the story. In SAP Lumira Discovery, "**Controls**" provide us this functionality of interactively filter the data in story visualizations. The filter created by the control applies to each appropriate visualization. We can include controls in a section of the story or overlap the control on a visualization as describe below.

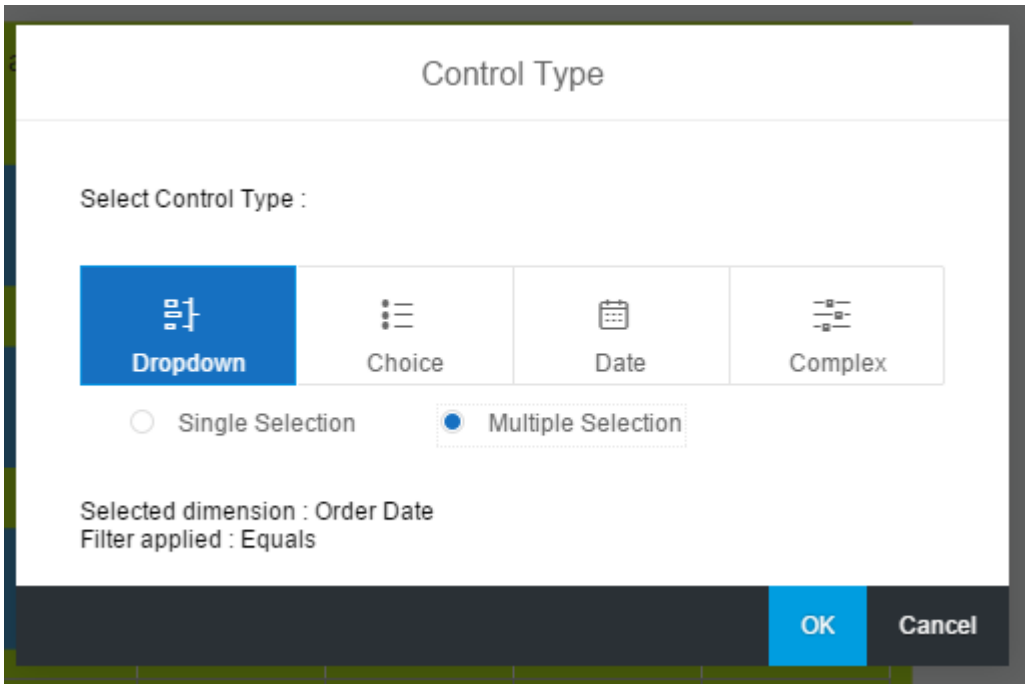
- Navigate to "**Design View**" and click on "**Insert Control**" icon as highlighted below in the global toolbar.



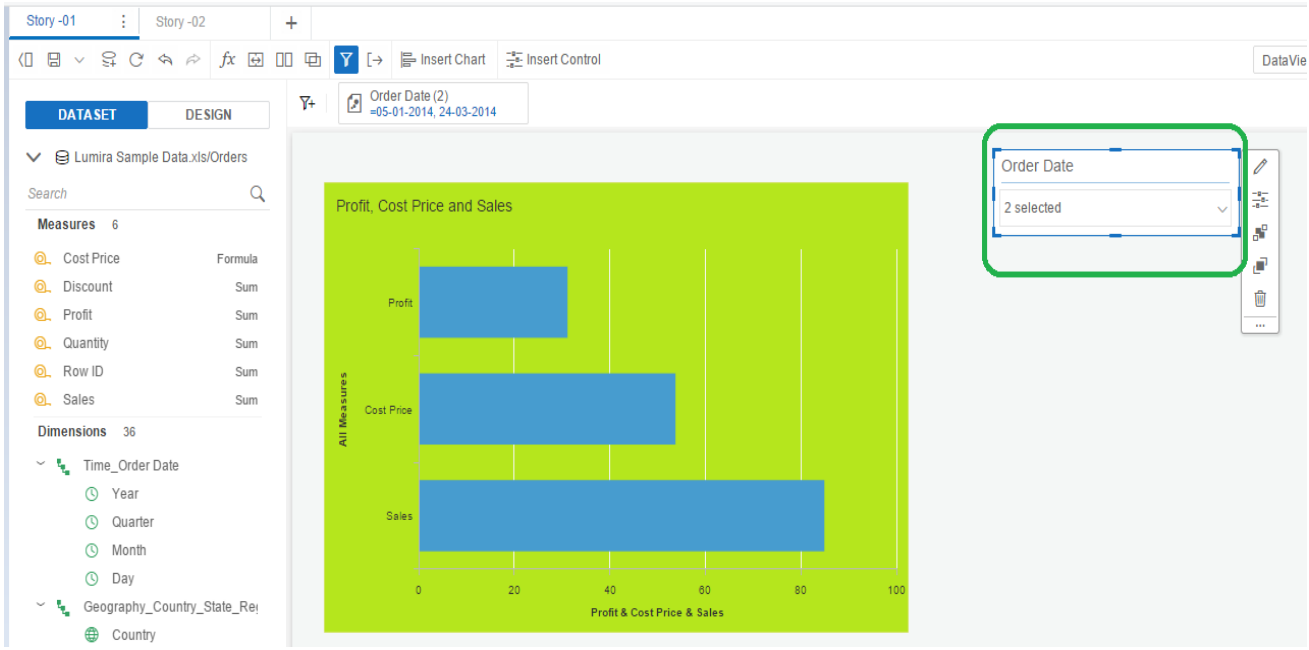
- Select the dimension which need to be filtered from the dropdown list.



- “Control Type” dialog box pops up displaying the multiple options to select from. Choose the required option and then press OK. Here we have selected “**Dropdown**” option with multiple selection.



- In this way, the “**Control”** is added to the story. The highlighted container specifies the location of the control in the visualization.



- Token is displayed in the filter bar above the chart canvas representing the data is filtered.

Once we have added a filter, there are number of options to control that how it looks and works. We can freely re-size or move the controls.