SAP LUMIRA

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About the Tutorial

SAP Lumira is known as a visual intelligence tool that is used to visualize data and create stories to provide graphical details of the data.

Data is entered in Lumira as dataset and you can apply filters, hierarchies, and columns to prepare documents. You can choose various charts like Bar charts, Pie charts, etc. to visualize the data effectively. This basic tutorial explains how to use SAP Lumira.

Audience

SAP Lumira is meant for Business Analysts who can alter data structures and correlations in whatever way they want. They can create data visualizations and stories from multiple data sources. SAP Lumira helps to adapt data to organizational needs to create stories with visualizations.

Prerequisites

Before you start proceeding with this tutorial, we are assuming that you are already aware of the basics of SAP HANA. If you are not exposed to SAP HANA, then we will suggest you first to go through our short tutorial on SAP HANA.

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1. Lumira – Overview

SAP Lumira is known as a visual intelligence tool to create and visualize stories on dataset. It was earlier known as Visual Intelligence tool where you could visualize data and create stories to provide graphical details of the data.

Data is entered in Lumira as data set and you can apply filters, hierarchies, calculated columns to build documents on Lumira. You can choose various charts like Bar charts, Pie charts, etc. to visualize the data effectively.

Example

You can put multiple charts on a story page to create presentation and can add images and text fields in these pages.

These stories can be published to other platforms using the **publish** option in the application:

- SAP Business Object BI Platform
- SAP Business Object Explorer
- SAP Lumira Server
- SAP HANA
- SAP Community Network (SCN)

Features of Lumira

The key features of Lumira are as follows:

- It allows you to predict future outcomes and forecast as per the changing market situations.
- You can create data visualizations and stories from multiple data sources.
- It helps you to adapt data to organizational needs to create stories with visualizations.
- You can share the visualizations on different platforms like SAP HANA, BO Explorer, Business Objects BI Platform, etc.

Key Terms of SAP Lumira Data Set

Data is entered in Lumira as dataset and it contains **Attributes/Dimensions** and **Measures**.

- **Measure:** Measures are defined as numerical data types. **Example**: Quantity sold, Revenue, Unit Price, Average cost, etc.
- **Attributes/Dimensions**: Data containing details about the measures is called Attributes or Dimensions in dataset. This represents the object on which analysis is done. **Example**: Customer, Product, Order, Time, Region, etc.

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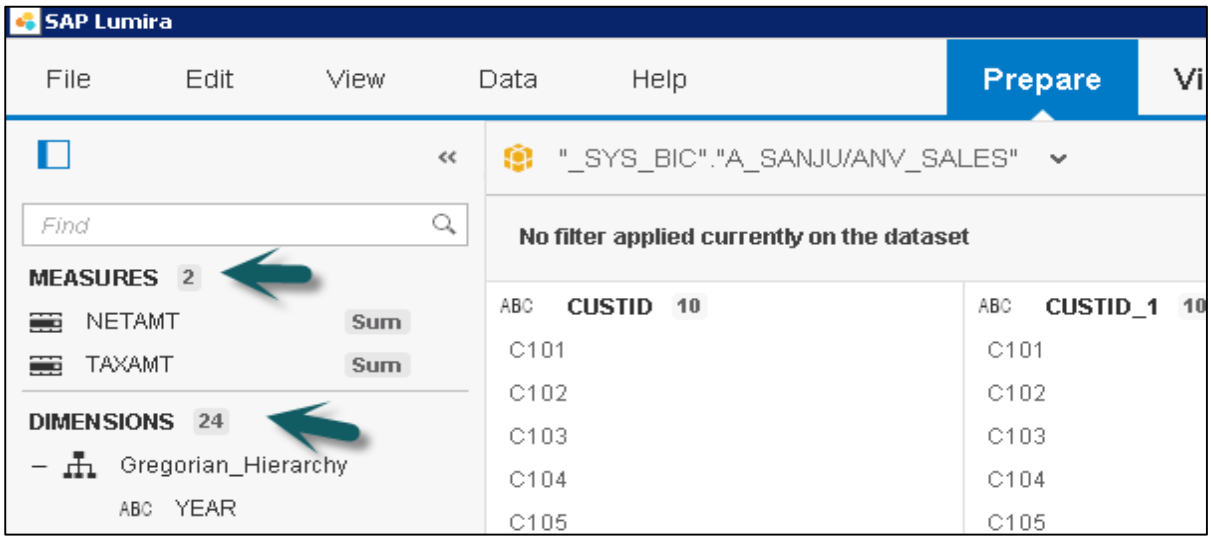
Hierarchies: Hierarchies are used for drilling the data to sub levels and defines a parent-child relationship. **Example**: Time Hierarchy, Region hierarchy.

- **Custom Calculations:** You can create custom calculations in Lumira data Visualization, which are not available in data set or at database level. **Example**: You have a "Salary" column in the data set, you can add a new calculated column with name "Bonus" and can apply a calculation on Salary to get the value of this column.



SAP Lumira – User Interface

When you login to Lumira Data visualization tool, there are four tabs at the top:

Prepare

Prepare is used to import data set in SAP Lumira. Data is cleansed and converted into appropriate measures or attributes for the reports. You can add new custom calculations here.

Visualize

The **Visualize** tab is used to add graphs and charts on the data that has been imported and organized in **Prepare** tab. You can add different attributes and measures to the Label axis.

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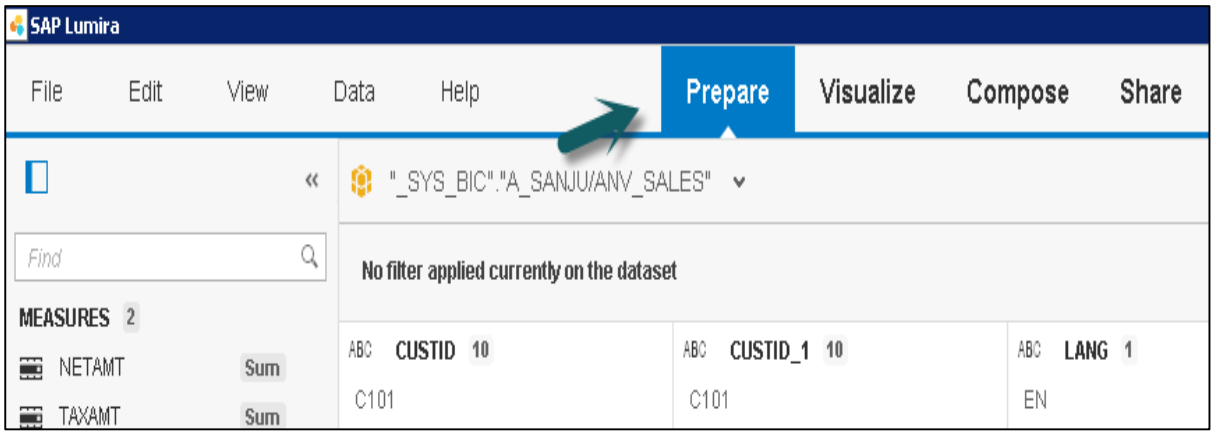

Compose

The **Compose** tab is used to create stories and presentations, including background colors, titles, pictures, and text.

Share

The **Share** tab is used to publish your visualizations to different platforms or with different set of users in the BI Repository.

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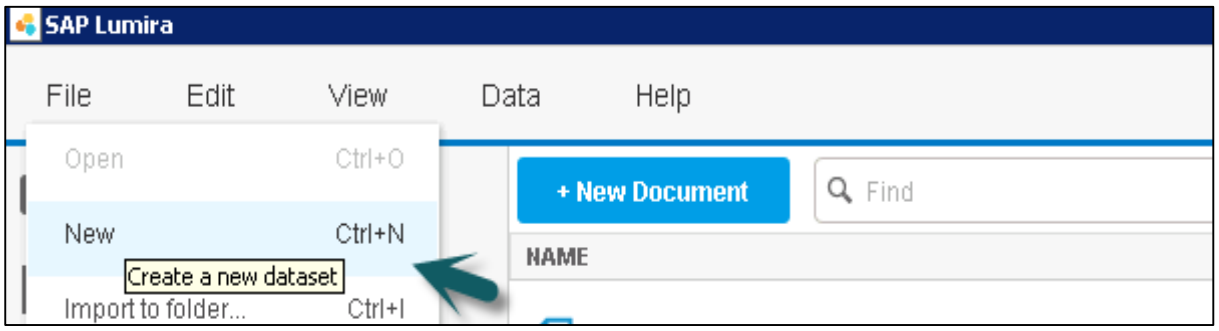
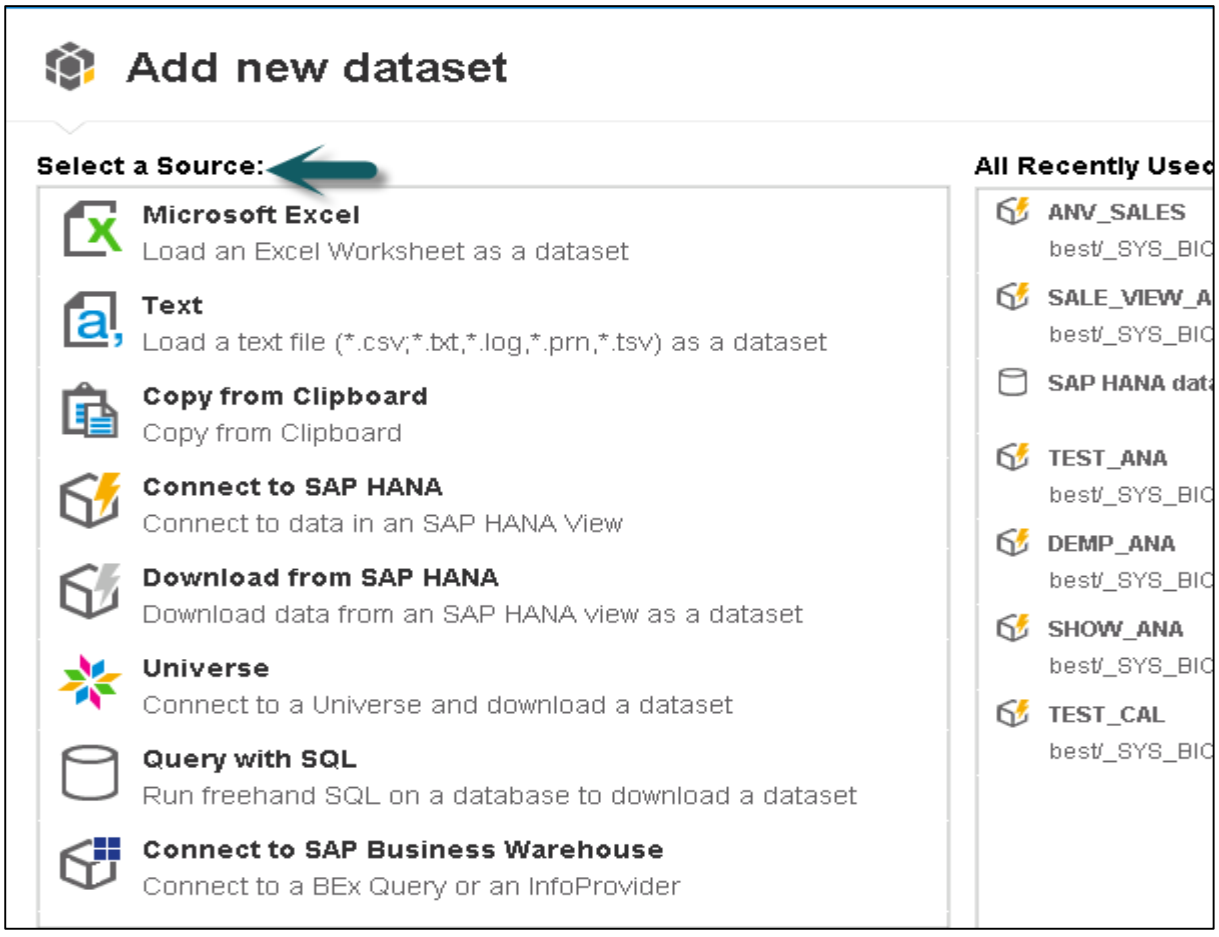
2. Lumira – Data Sources

You can use different data sources with SAP Lumira to create a data set. A data source can be an Excel file, text file, clipboard, HANA Information Models, Universe created in IDT/UDT, SQL query, connected to a BEx Query or an info provider.

Once you open SAP Lumira, go to **File -> New Data set**



You can select from various Data sources to create a new data set.



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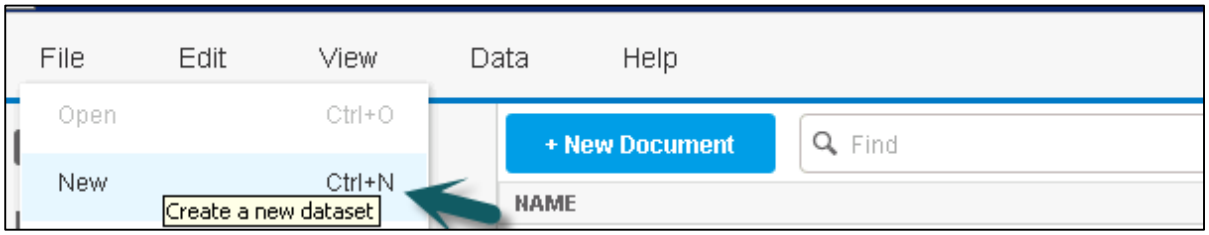
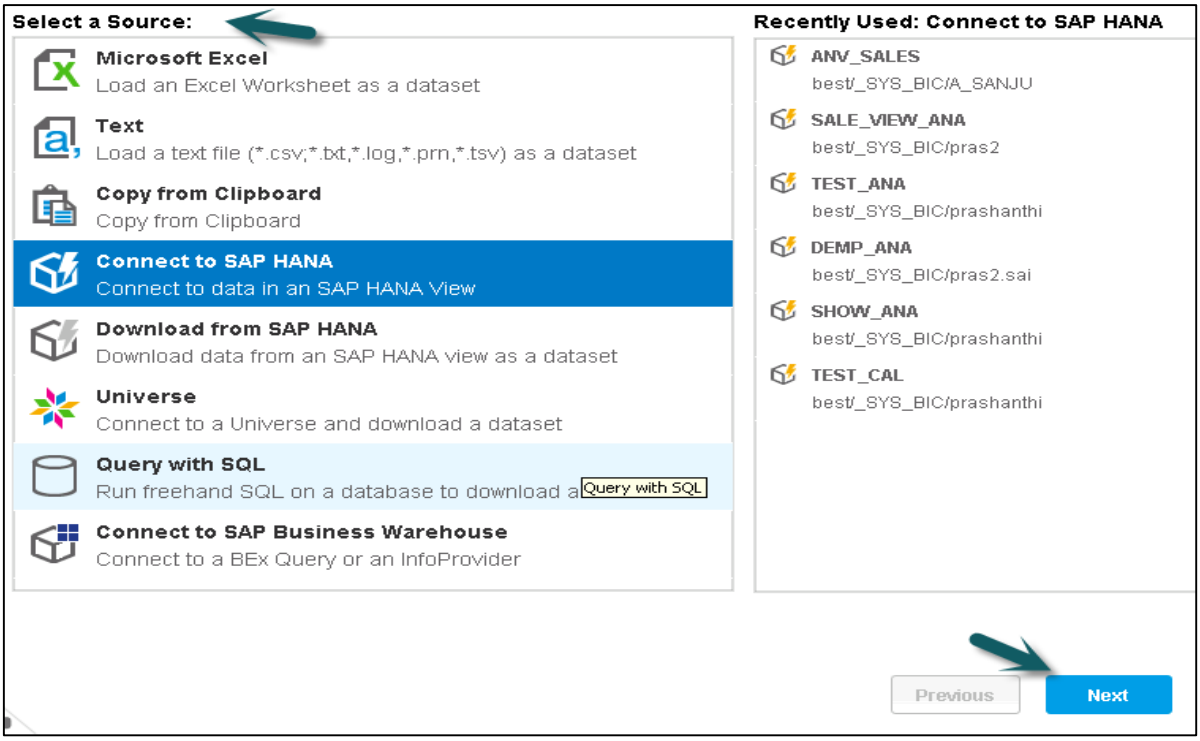
3. Lumira – Data Acquisition

The key steps in **Data acquisition** are as follows:

- For data acquisition in SAP Lumira, create a new document that will contain the data and visualization of acquired data.
- Next is to connect to a data source, which contains data for visualization.
- Acquire the data to create a data set.
- Data acquisition can be done from multiple compatible data sources to use in a single visualization or data analysis.
- Once data is acquired, it comes under the **Prepare** tab.



- Select a Data Source. Enter the system details from where the data is to be acquired and click **Next**.



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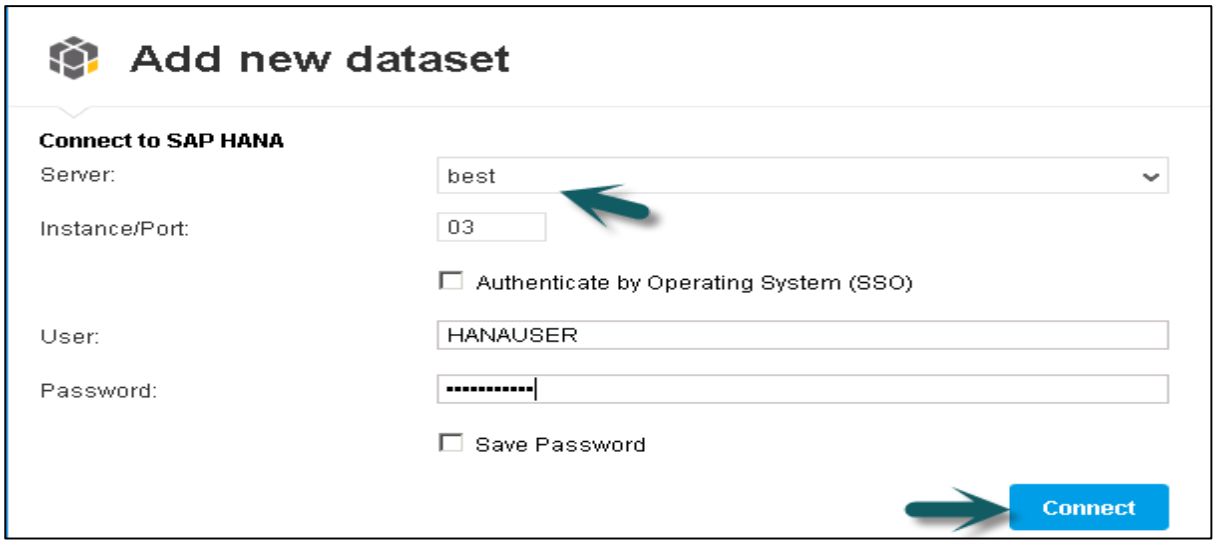
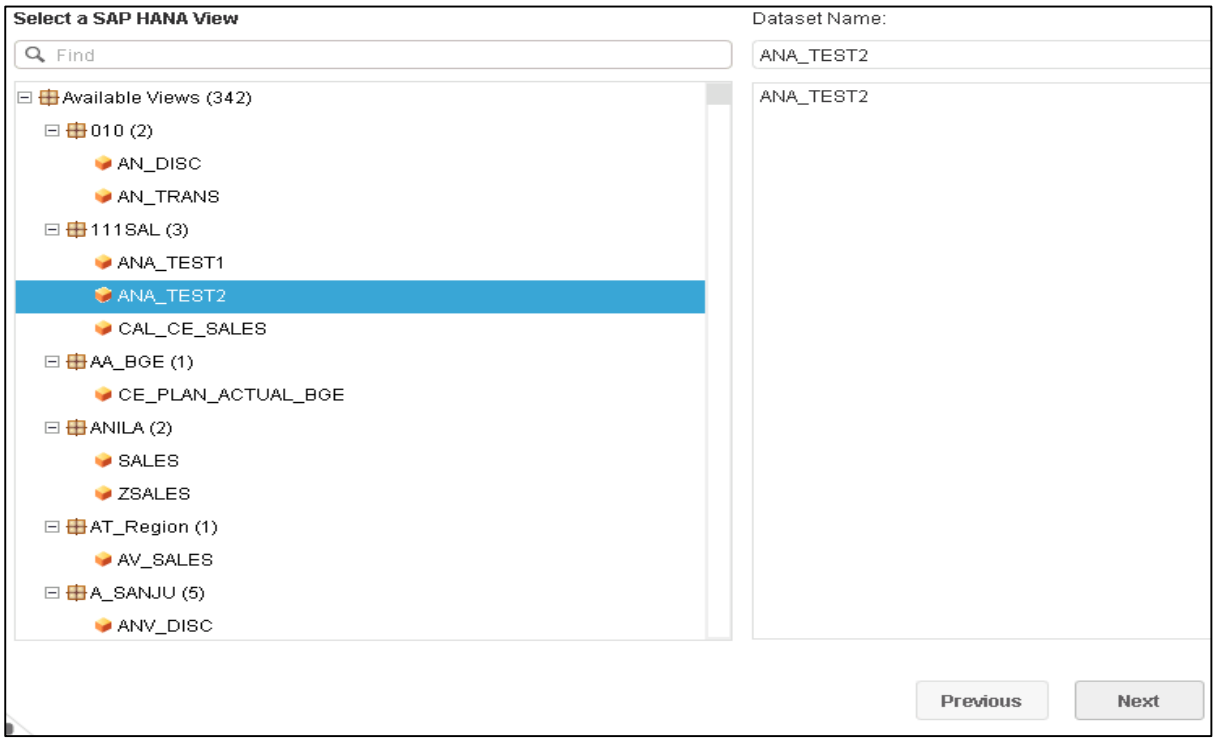


- Select a Data source like SAP HANA **View** and click **Next**.



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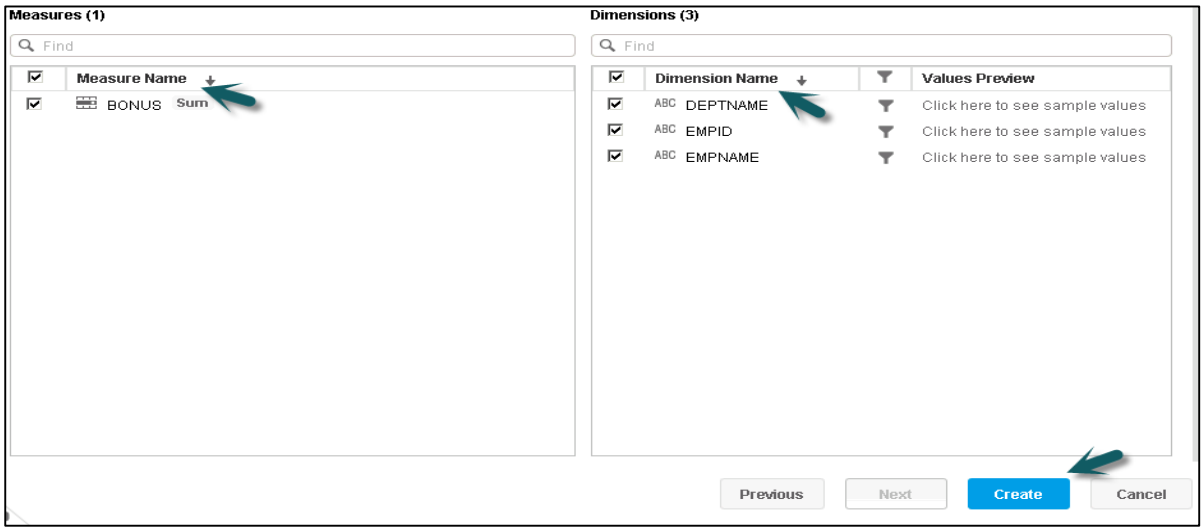
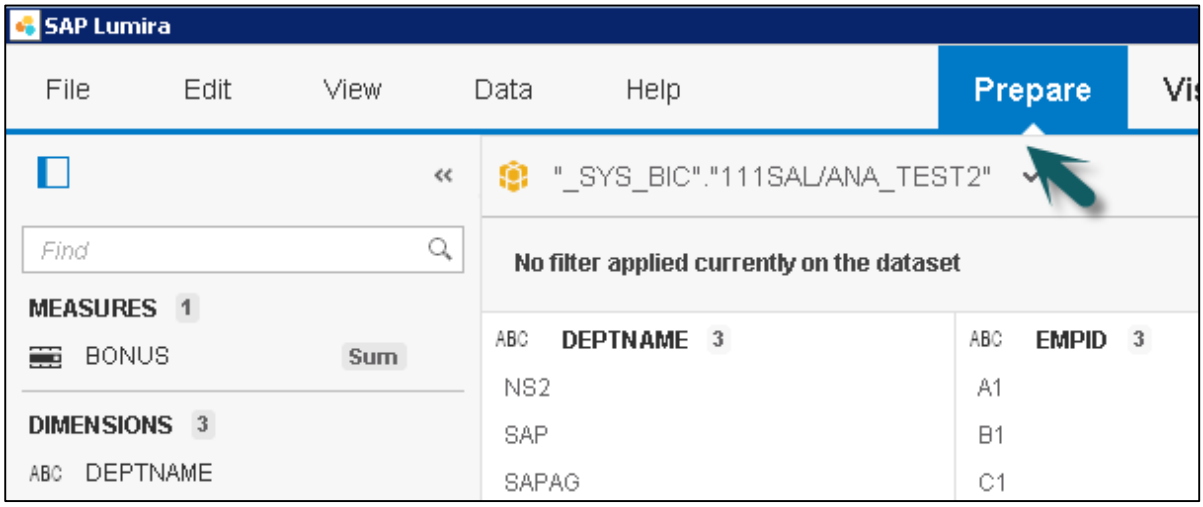
- Select **Dimensions and Measures** and click **Create**.





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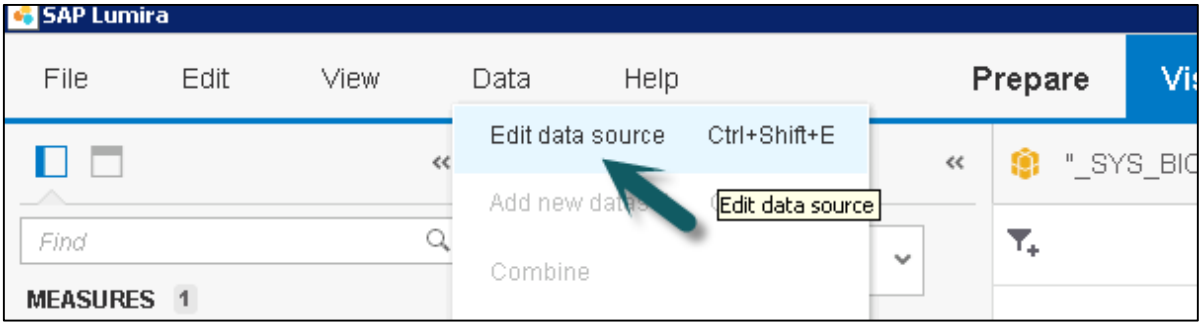
4. Lumira – Editing Acquired Data

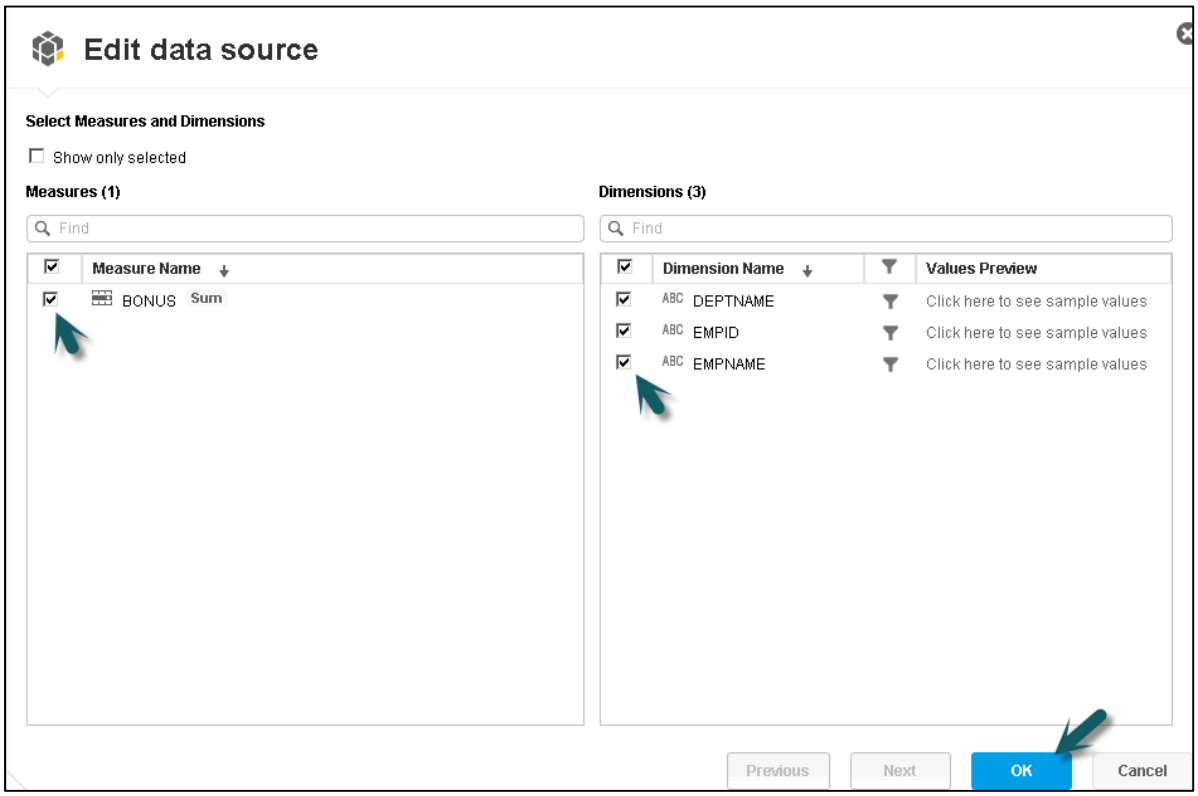
Let us learn how to edit the acquired Data. Follow the steps given below.

1. To edit data in **SAP Lumira**, go to the **Data** tab and click **Edit Data Source** from the menu.



2. It will take you to Edit Data Source window, where you can again select **Measures and Dimension**.

3. You can check or uncheck any of the attributes and measures to add to data set and click the **OK** button.



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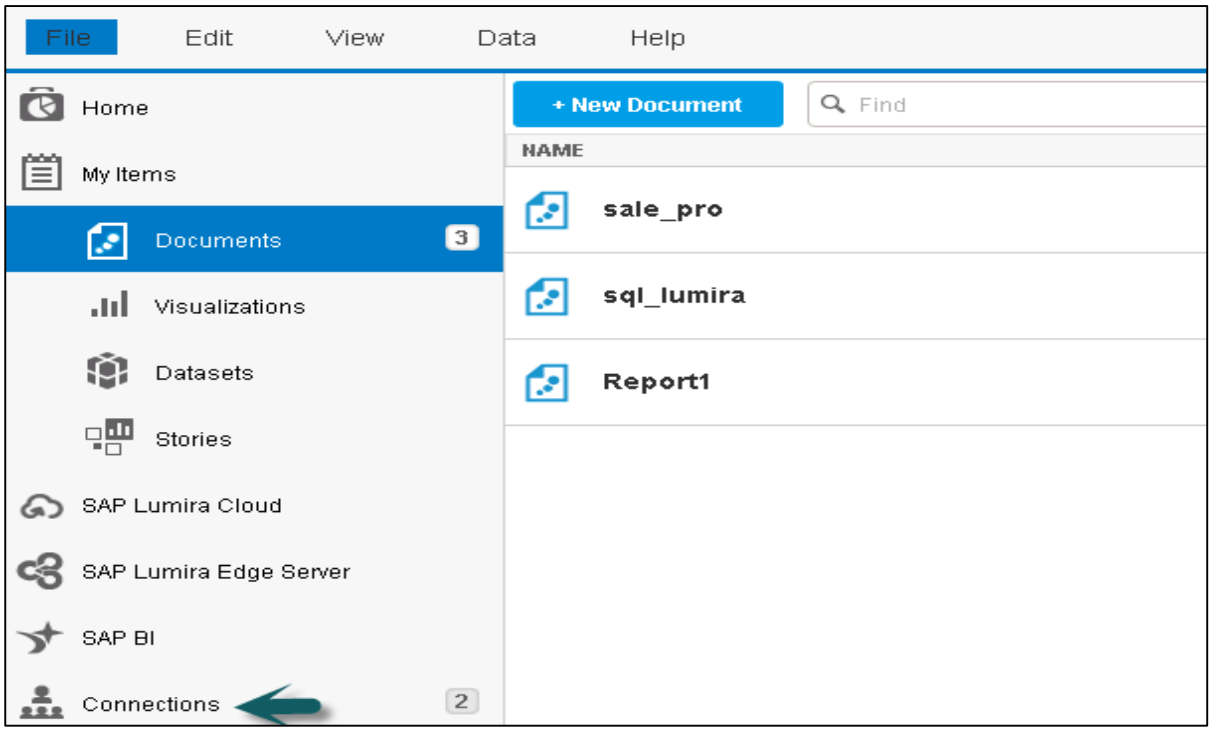
5. Lumira – Viewing Connections

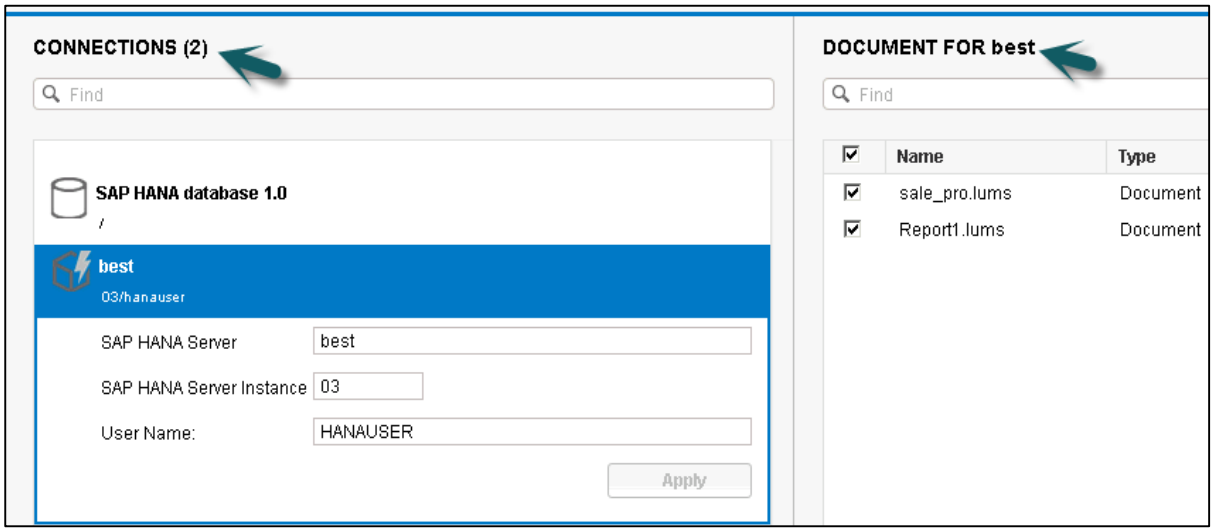
In SAP Lumira, you can check all the connections for an existing application and document associated with each connection and you can change the data source for an existing connection.

To view existing connections, close all the data set.

1. Click **New** and close the **Add new data set** window. In the left pane, it will show you the **Connections** option.



2. A new window will open with a list of all the existing connections and associated documents. Click a connection and you can change the target data source.



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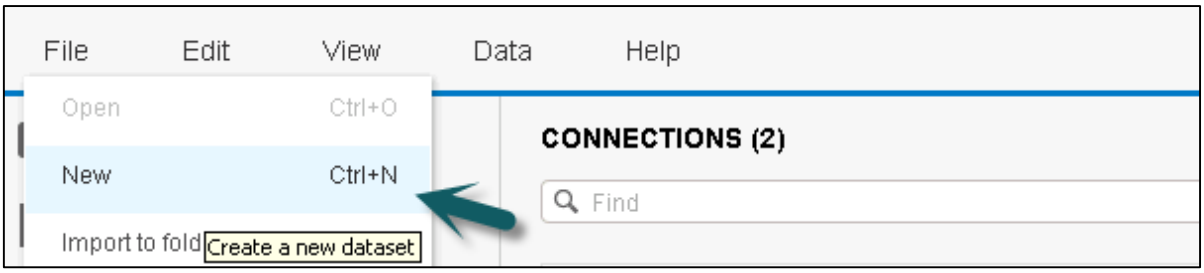
6. Lumira – Excel File as a Data Source

You can use an **Excel file** to create data set in **SAP Lumira**.

Follow the steps given below.

1. Go to **File -> New** (Create a data set).



2. Select a Source: Load an Excel worksheet as a dataset and click the **Next** icon at the bottom.

3. Browse the path of **.xls** file. You have an option to choose the first row as column names. You can hide a particular column from **.xls** by selecting the **Select All** option.

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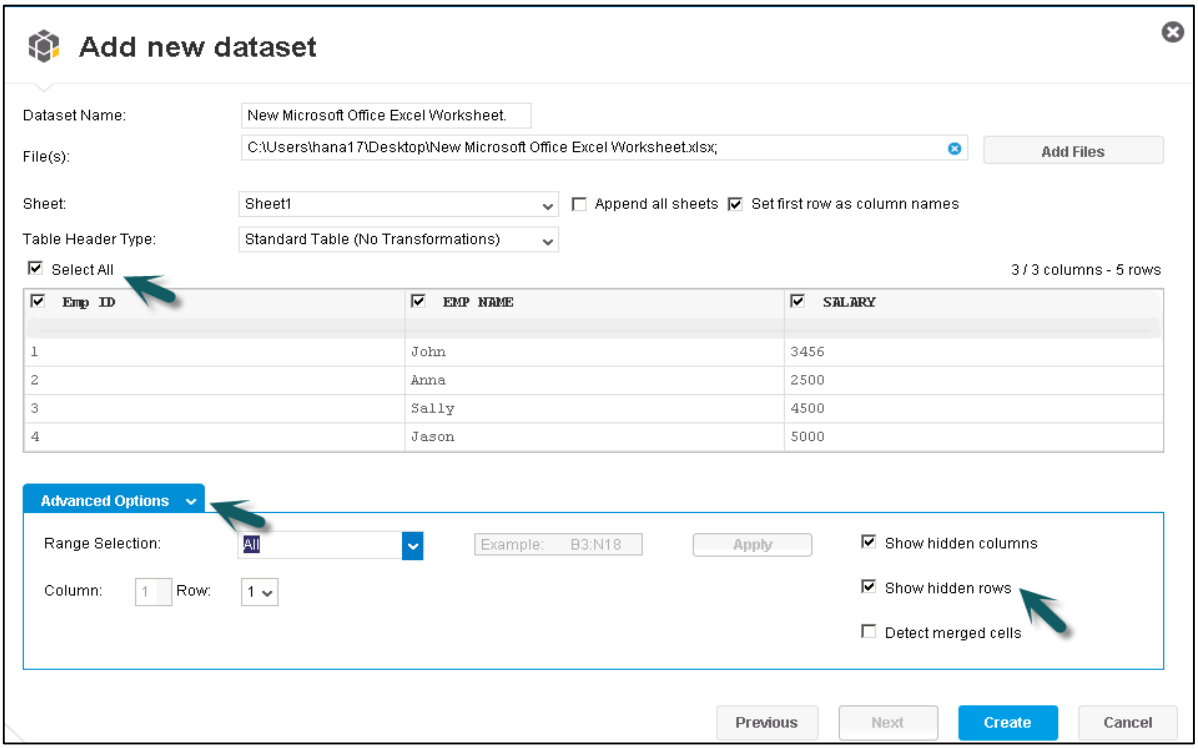
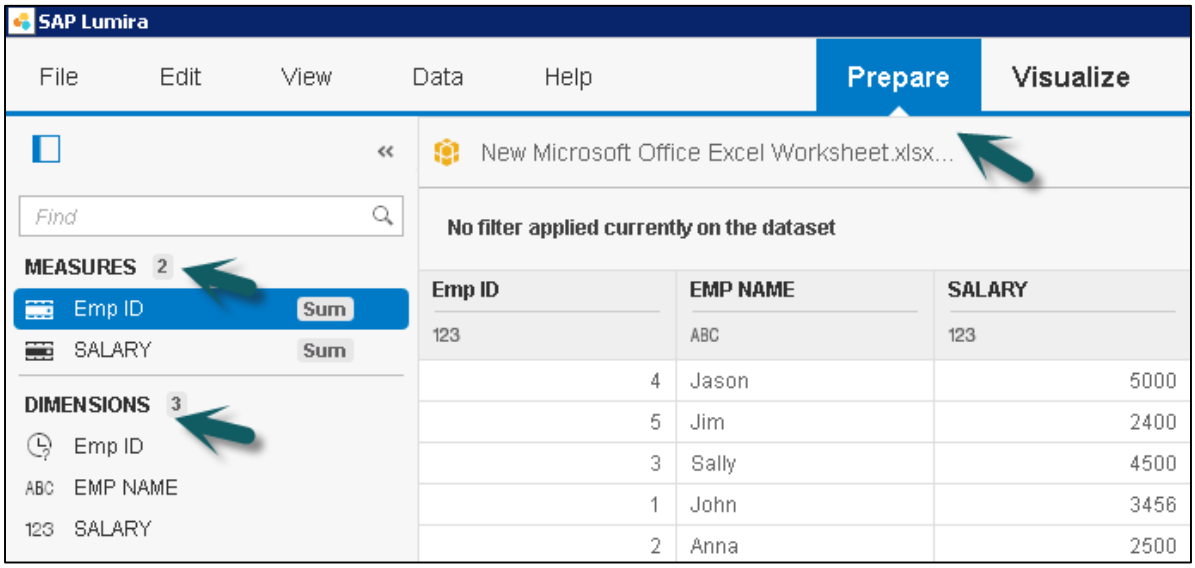
4. You can click the **Advance** option to select a custom range. You can also include hidden rows and columns. Once correct options are selected, click the **create** button at the bottom.



5. All the data with integer values appear under **Measures** and all the columns appear under **Dimensions**. This data will come under the **Prepare** tab.



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6. Go to the **Visualize** tab at the top to create the visualization on top of the data set.

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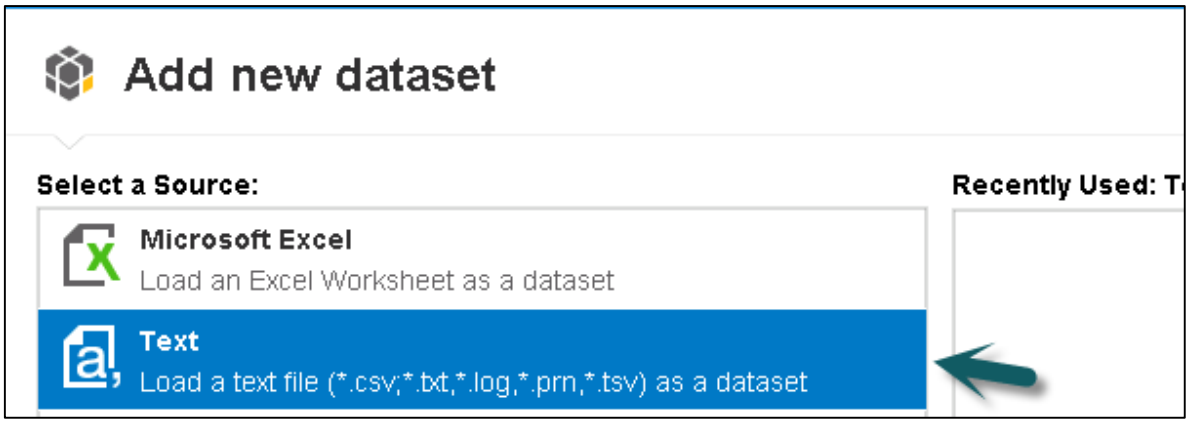
7. Lumira – Working with CSV Files

You can use a Text file as a data set like **.csv file, .txt file, .log file, .prn file, .tsv file.**

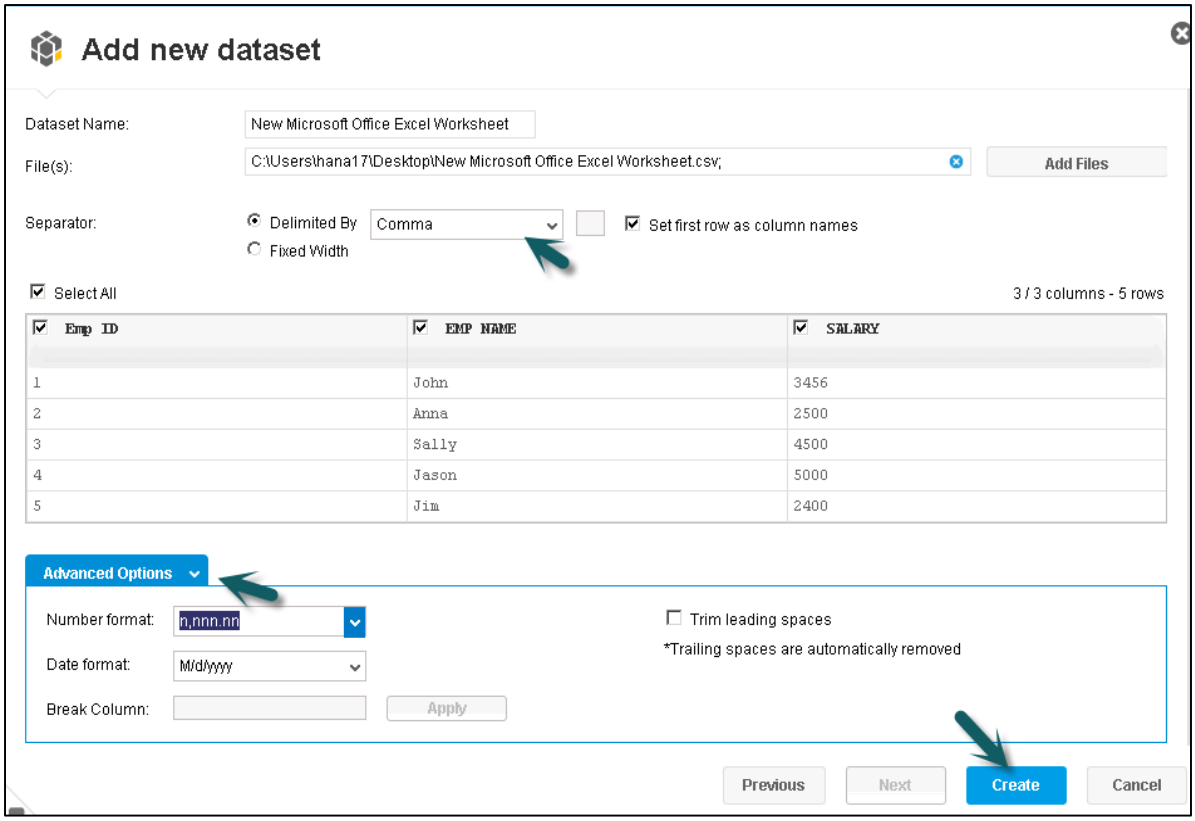
The following steps explain how to use a text file as a data set.

1. Go to **File -> New -> Add New Dataset -> Next.**



2. Select the path of csv file, for example an Excel file. You can set the first row as column names. Select the separator as comma, tab, etc.

The **Advance** option can be used to select the **Number** and **Date format**. Click the Create button to enter the data in the **Prepare** tab.



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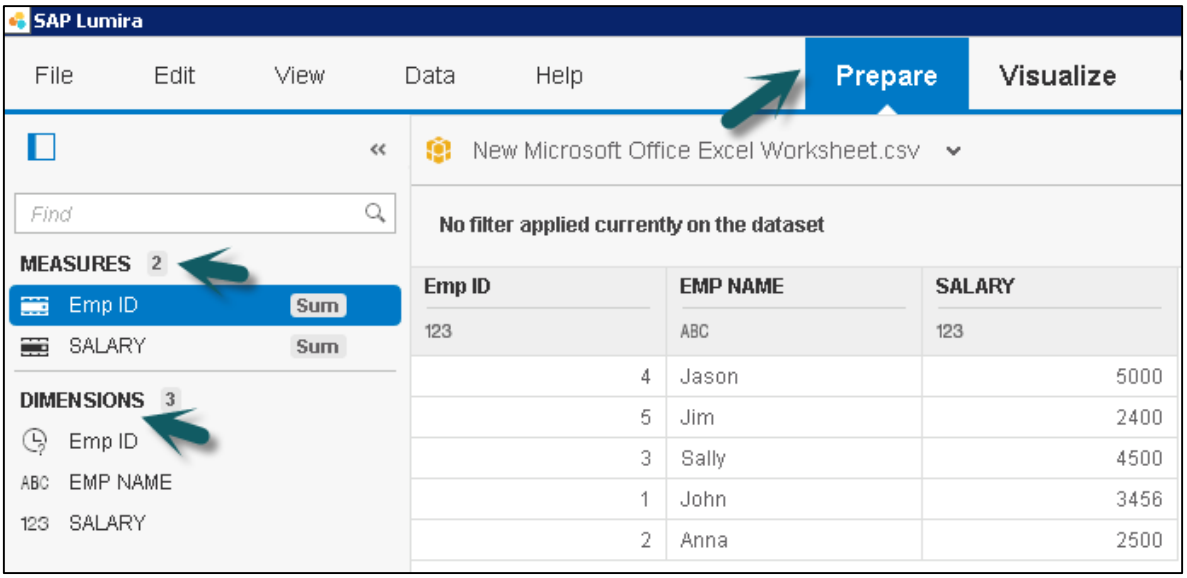

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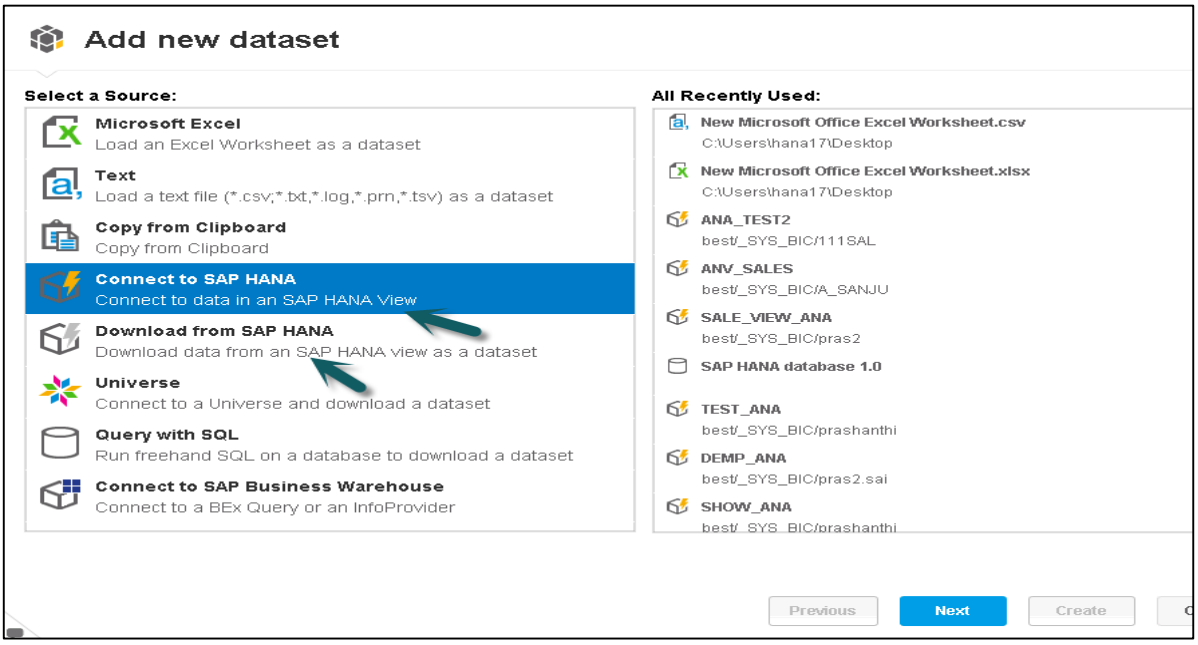
8. Lumira – Connecting SAP HANA Views

You can connect to SAP HANA Modeling Views in SAP Lumira. This can be done in the following two ways:

- Connect to SAP HANA
- Download from SAP HANA

Connect to SAP HANA

1. Go to **File -> New**



2. It will show you all the HANA Modeling Views that have been recently used. Click the **Next** command button after selecting the option "**Connect to SAP HANA**". This will allow you to access the data in read mode and you can visualize the data in the form of charts.

You should know the details of HANA system i.e. Host Name, Port Number, User Name and Password.

3. Click the **Connect** button.

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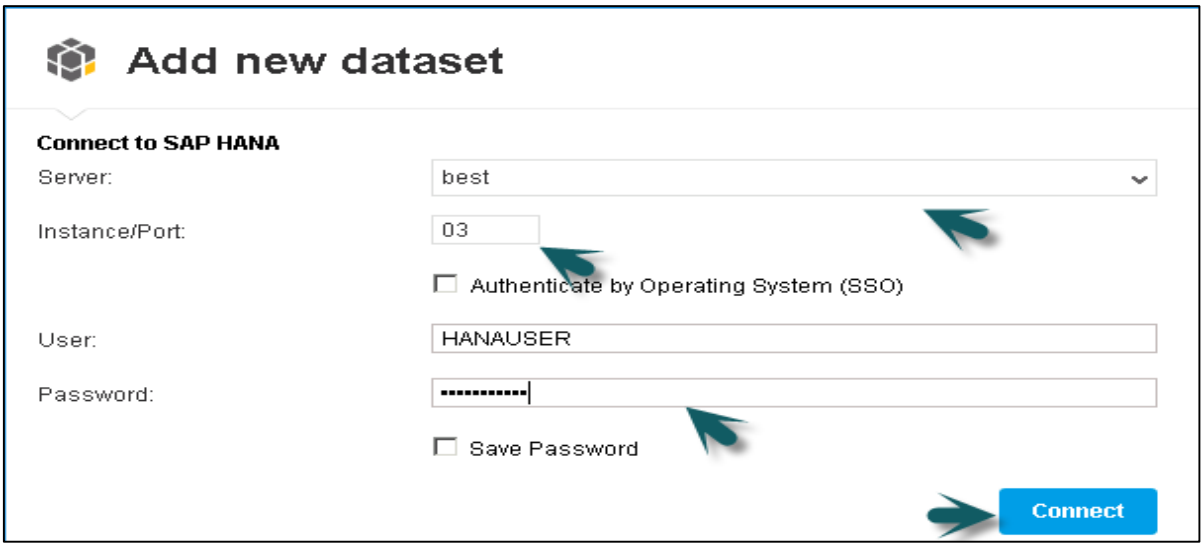

4. Select a **SAP HANA view** and then Click **Next**.

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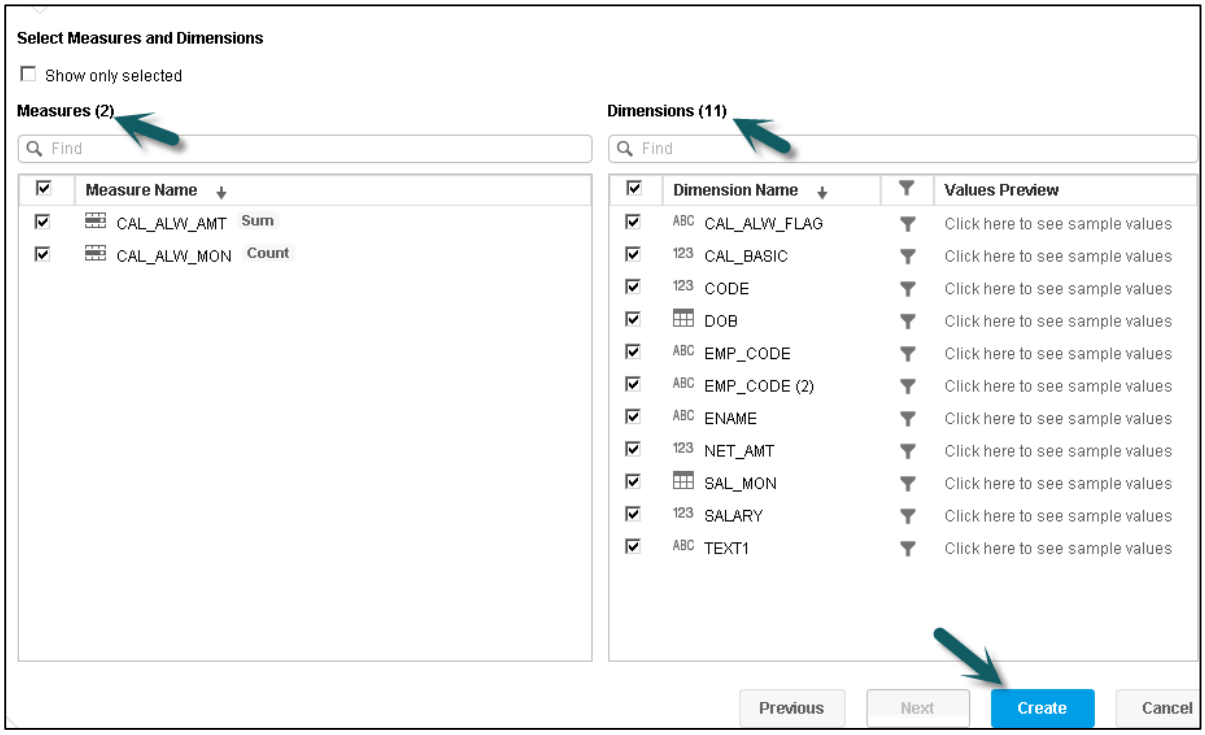
5. Select **Measures and Dimensions** you want to add to the data set and click the **Create** option.



6. The data will be added to the **Prepare** tab.

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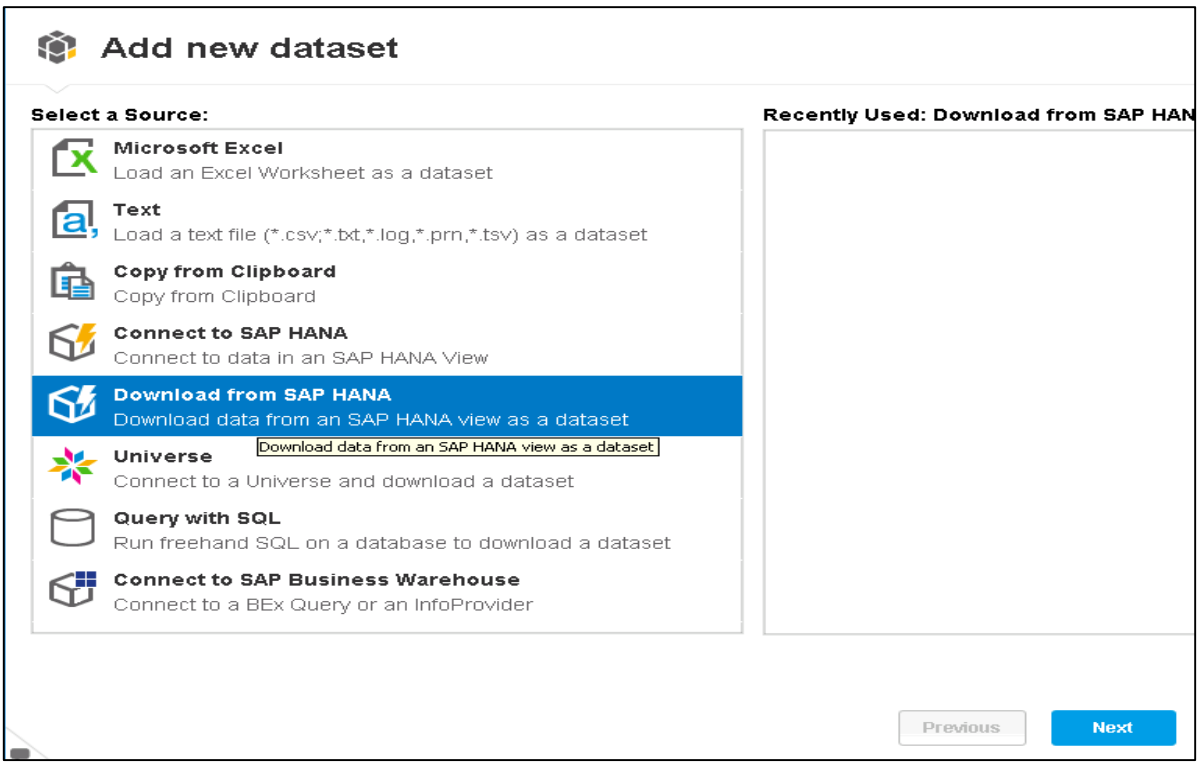
9. Lumira – Download from SAP HANA

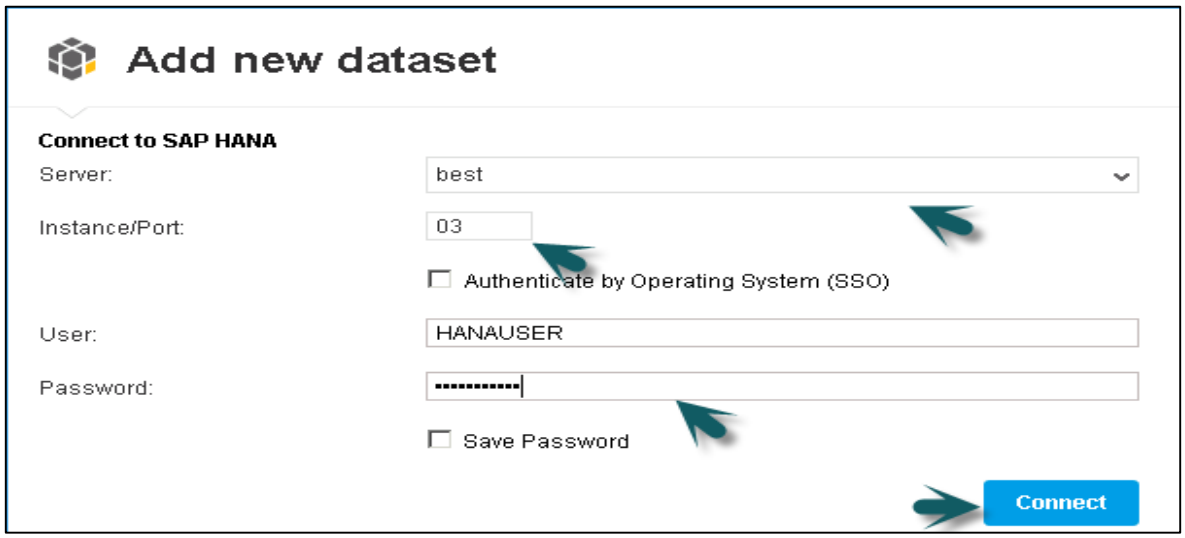
The **SAP Lumira – Offline** option allows you to copy the data locally and edit and manipulate the data to visualize in the charts.

1. Go to **File -> New**

The **Add new Dataset** window will open. On the right pane, most recently used HANA Views, in Lumira data set, will be displayed.



2. You should know the details of **HANA system** i.e. Host Name, Port Number, User Name and Password. Click **Connect**.



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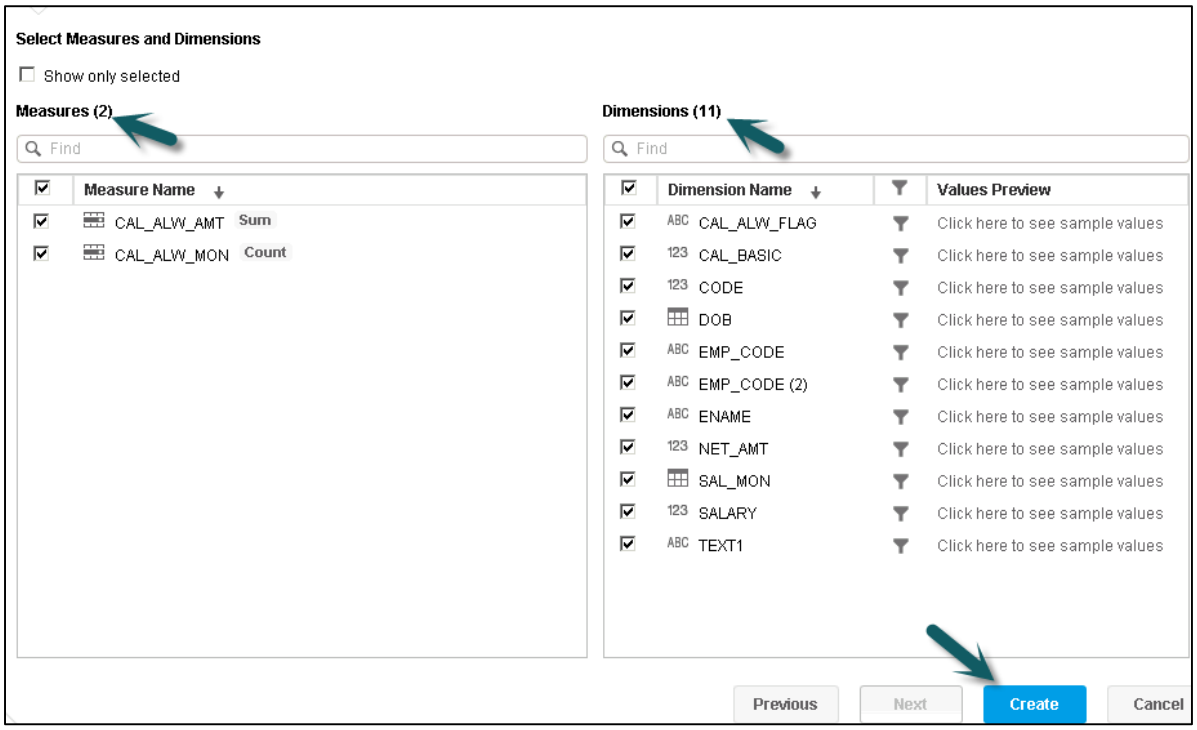
Note: You can connect via **SSO**. Select the **Authenticate by Operating System** (**SSO**) check box and click **Connect**.

3. Select a **SAP HANA View** and Click **Next**.

4. Select **Measures and Dimensions** you want to add to the data set and click **Create**.



The data will be added to the **Prepare** tab in **SAP Lumira** for visualization.

Specifying values for SAP HANA variables and input parameters

If you have used input variables while creating HANA Modeling Views that will be imported to Lumira data set, you can specify a constant value for user parameter or a range of values.

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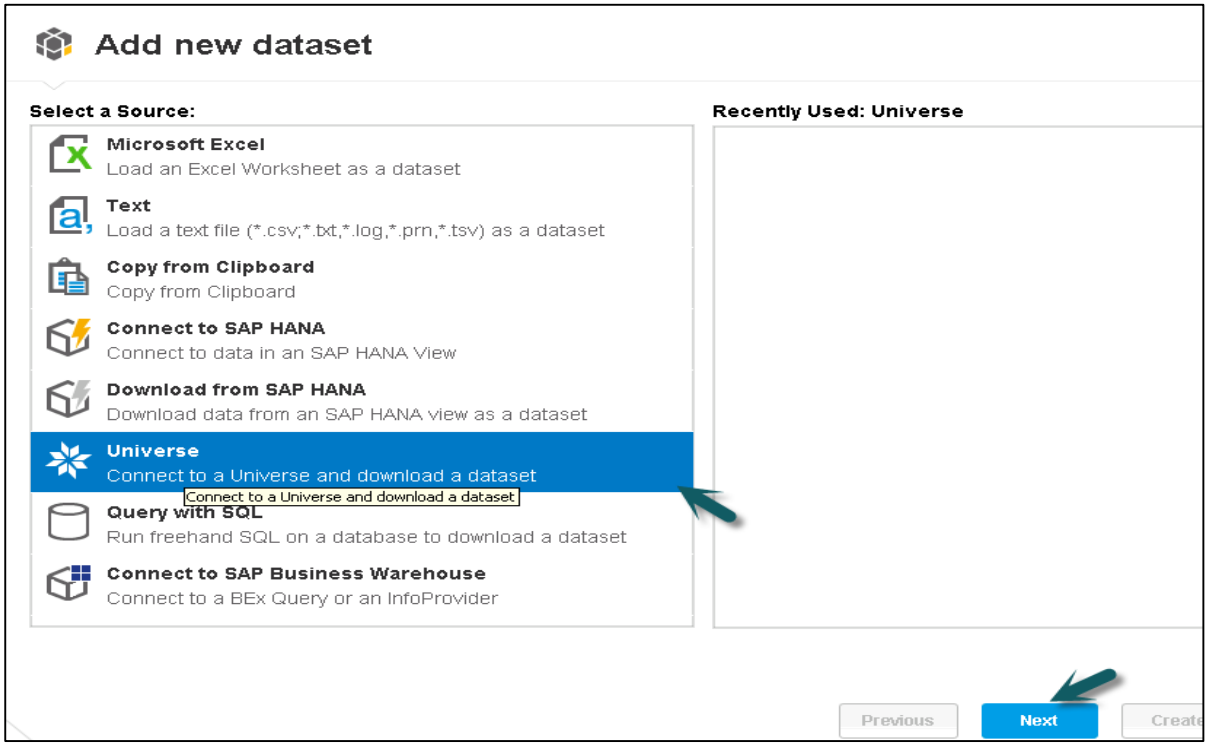
10. Lumira – Universe as a Data Source

You can use **SAP Business Objects Universe** as data source in Lumira. The various Universe that are created with **.unx** extension using Information Design Tool and **.unv** files created in UDT and published to BI repository can be used as data source in SAP Lumira.

Connecting to a Universe Data Source

The following steps demonstrate how to connect to a Universal Data Source.

1. Go to **File -> New.** Select the option **Universe** to connect to and download a dataset.



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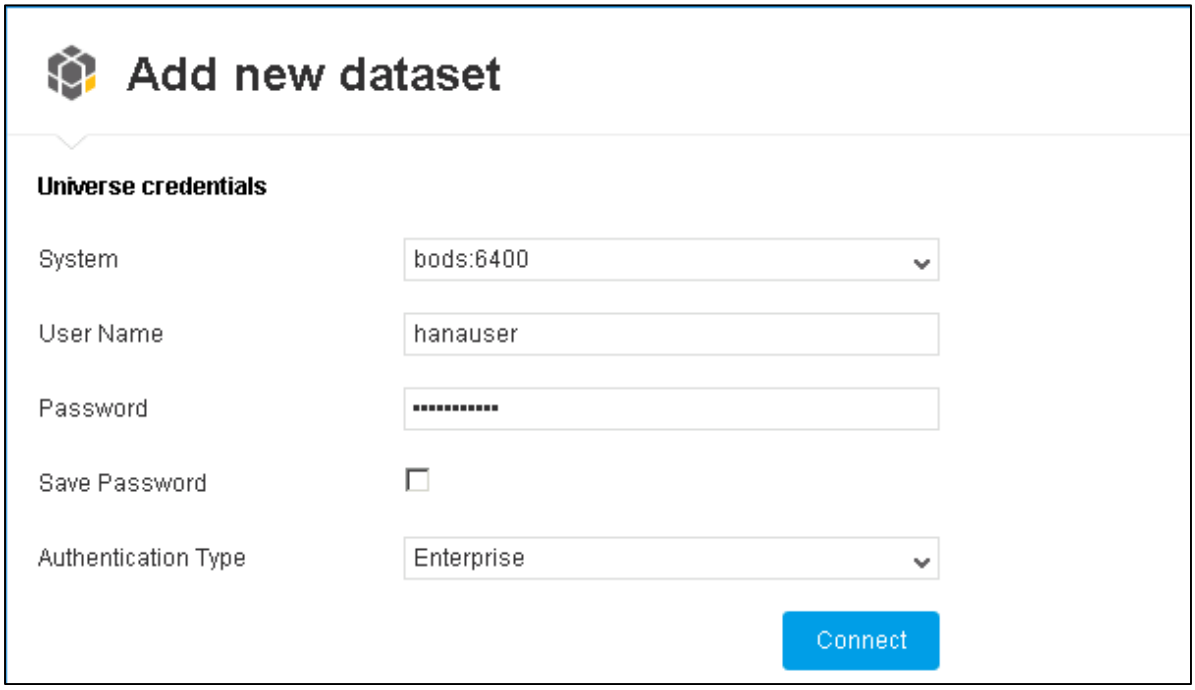
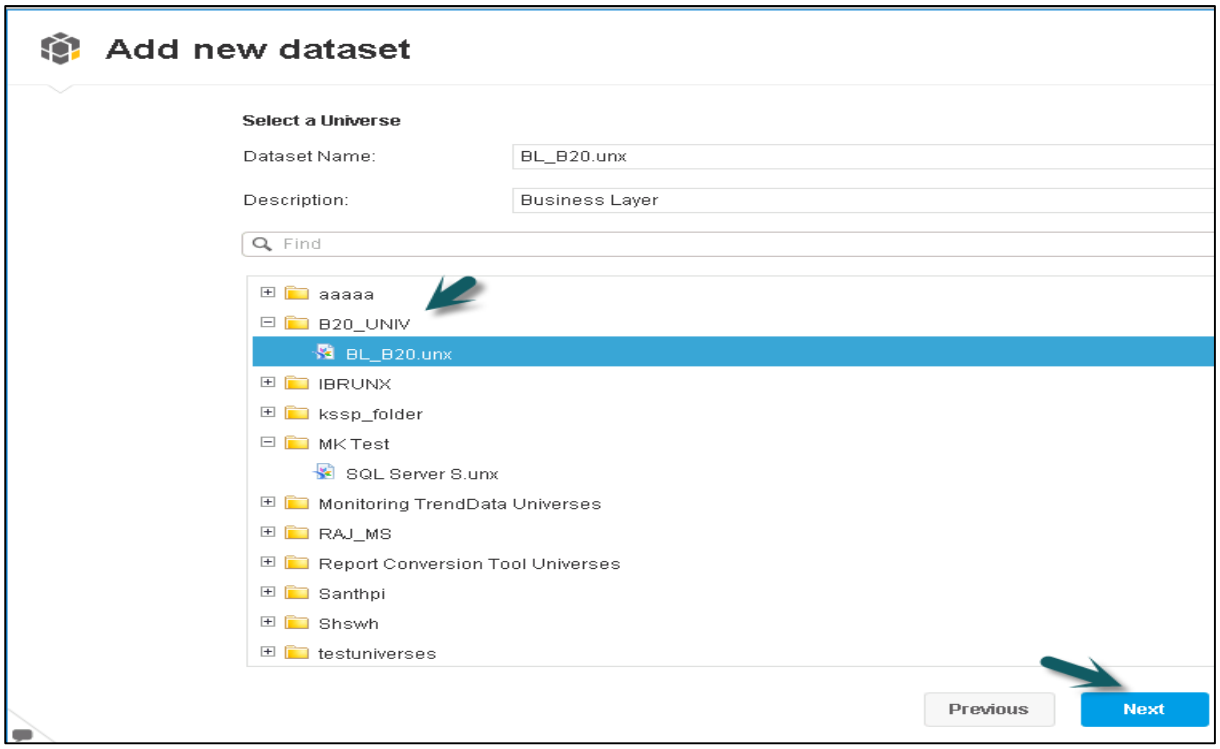
2. Enter the Credential details for Universe i.e. **Host name, User Name, Password, Authentication Type.** Click the Connect command button.



3. It will show you all Universe created in Information Design Tool. Select the **Universe** you want to use as a dataset in Lumira and click **Next**.



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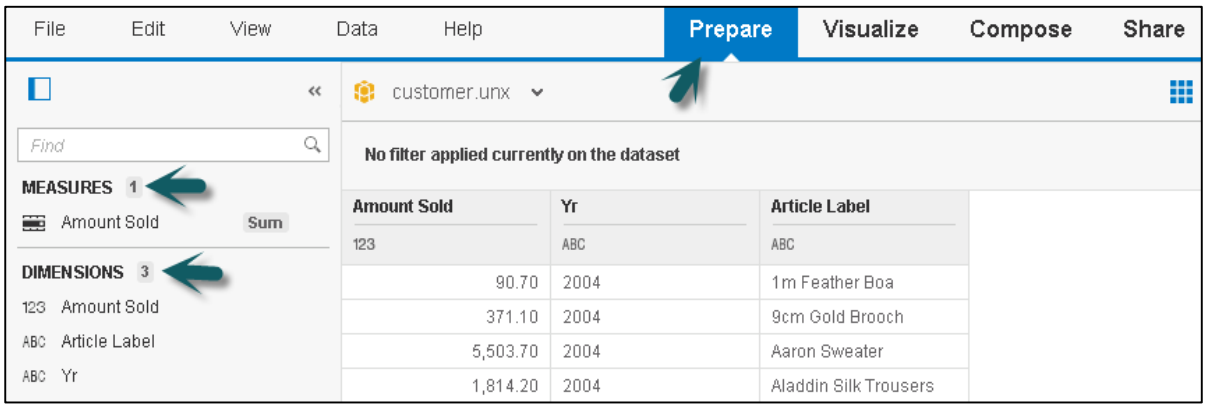
4. A new window will open. In this window, you can add the result objects and filters, which can be applied on the dataset as shown below. Click the **Next** button at the bottom. If you want to delete any of the object, click the cross icon in front of the object.

5. Acquired dataset will come under **Prepare** tab in SAP Lumira with **Dimensions and Measures** defined at the Universe level.



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11. Lumira – Using Query with SQL

SAP Lumira allows you to create dataset by using **SQL query** for target data source, manually. You can specify the source tables, columns, procedures, and functions to acquire data in SAP Lumira.

You can use JDBC drivers for typical databases like Oracle, SQL Server, IBM DB2, Sybase, Teradata.

Database	JDBC Driver Name
Oracle	`ojdbc14.jar`
Microsoft SQL Server	`sqljdbc4.jar`
Teradata	`terajdbc4.jar` and `tdgssconfig.jar`
Sybase	`jconn4.jar`
IBM DB2	`db2jcc.jar` or `db2cc.jar` and `db2jcc_license_cu.jar` for versions earlier than 9.5
IBM Netezza	`nzjdbc.jar`

Connecting to a Query with SQL Data Source

To connect to a database using SQL query to acquire data, you should have a good understanding of your database and good command over SQL.

You should have correct database drivers installed for your middleware, which allow the client application to connect to middleware and to database.

JDBC drivers have to be installed for database middleware for using SQL query. The access driver is the **.jar** file. You can download this file from the vendor site and copy to the driver folder in application path.

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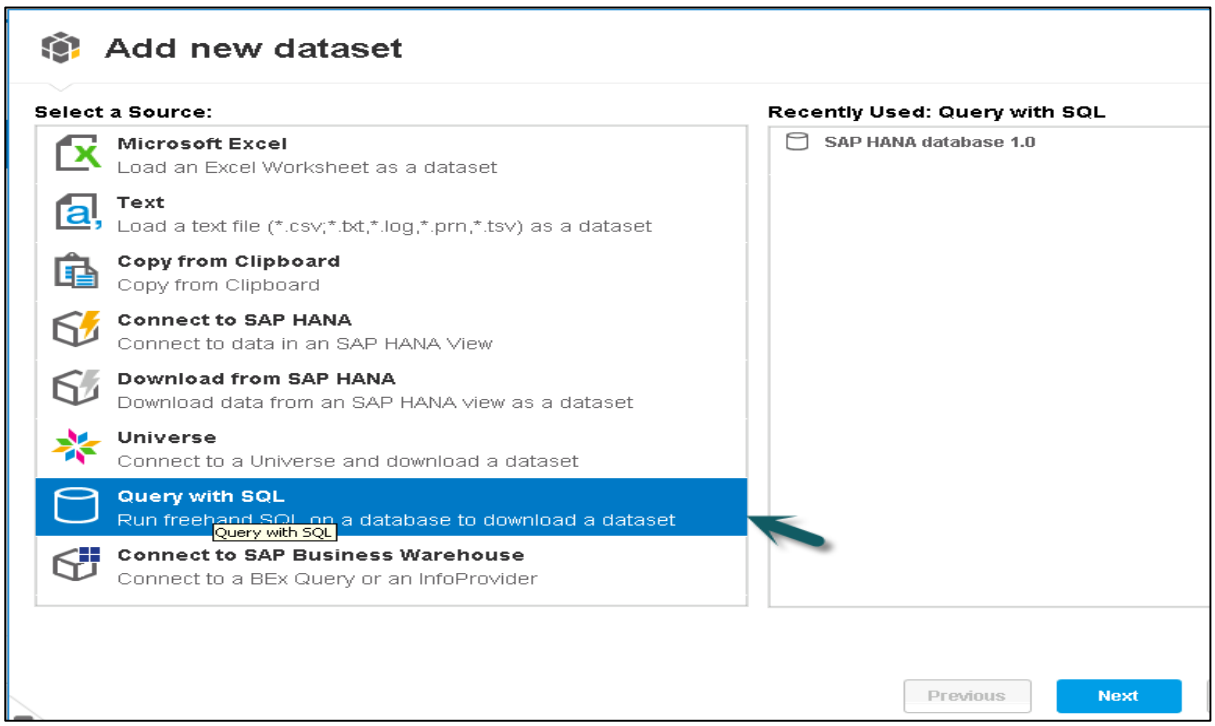
Given below are the steps to connect to a query with SQL Data Source.

1. To use SQL query to create dataset, go to **File -> New.**

Select the option **Query with SQL** to download a dataset and click **Next**.



2. Select SQL query. All queries in green represent the drivers, which are installed properly for middleware.

3. Select database middleware for target database and click **Next**.

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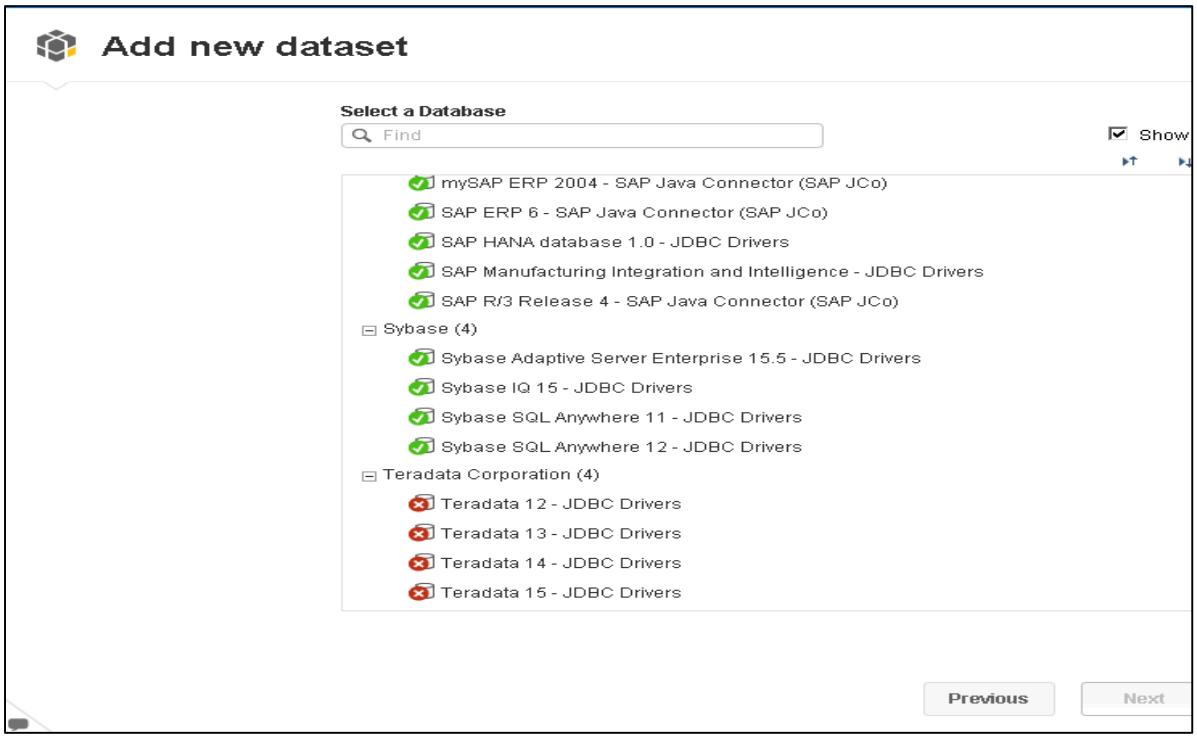
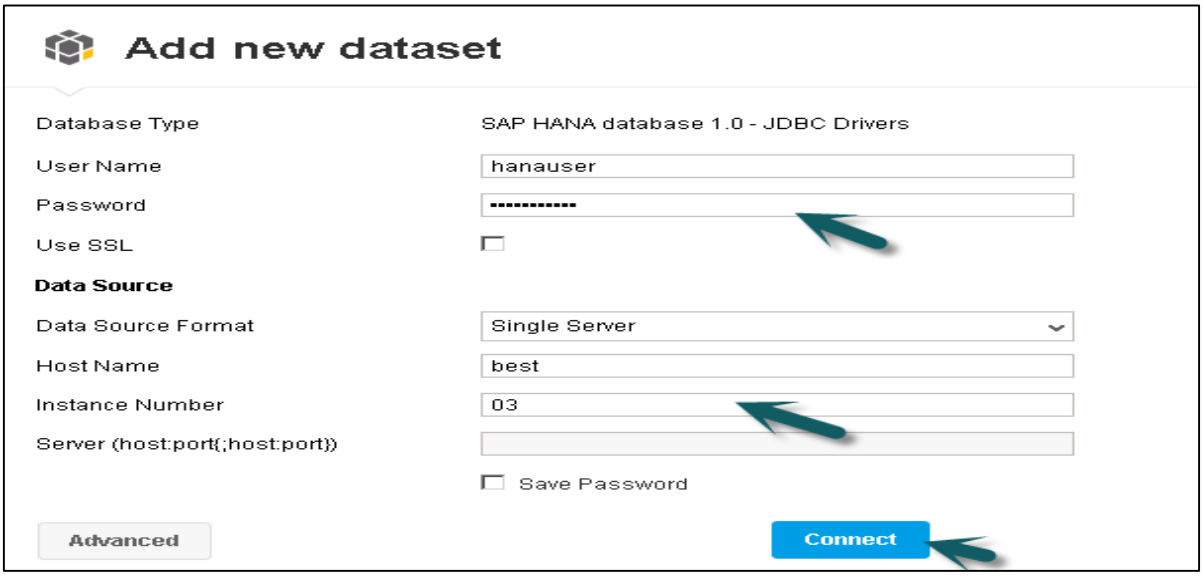


4. Enter the Login Credentials, like host name, Instance number, User name and Password and click **Connect** as shown below.



5. In the left pane, it will show you all the Schemas and tables in the target database.

Select the target table and add to the **Query** panel. You can click the **Preview** option to see the data preview.

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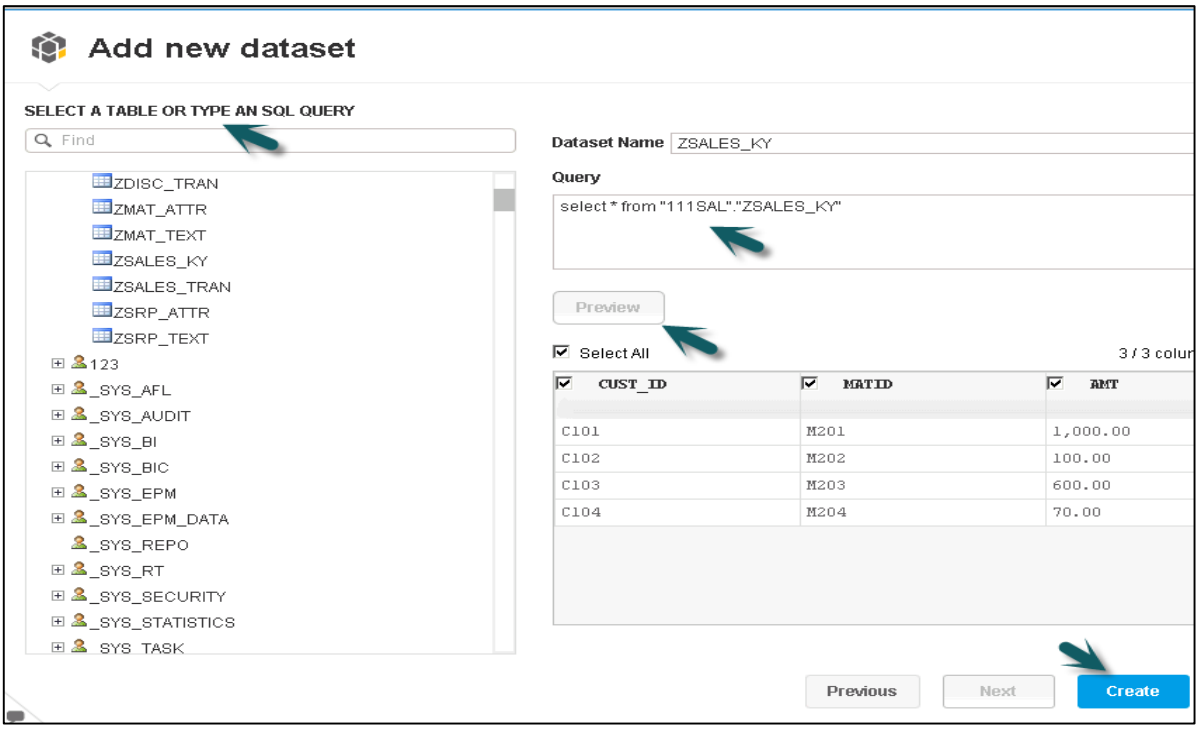
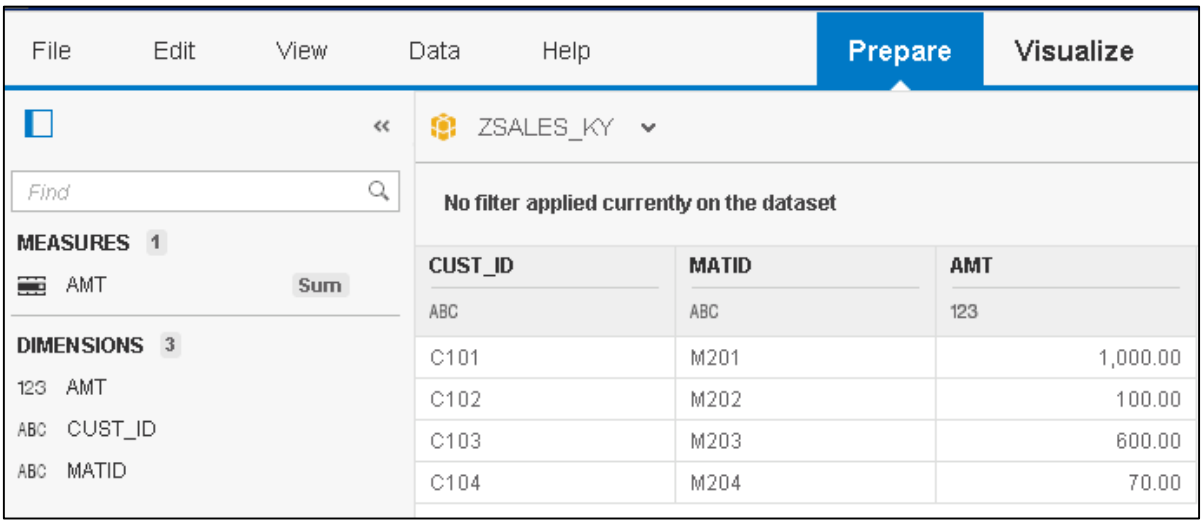


6. You can use the **SELECT** statement only in the SQL editor to acquire data from database tables. Click **Create** to add the dataset to the **Prepare** tab. You can also use "**Select All**" option, if you want to use all the columns or uncheck the box to remove any columns to dataset. Click **Create**.



Specifying Query with SQL connection properties

Using SQL Query option also allows you to create your own data provider, by manually entering the SQL for a target data source to acquire table data.

While using **Query with SQL**, connection information for the target database should be entered and various connection properties can be used.

- **User Name:** To connect with target database

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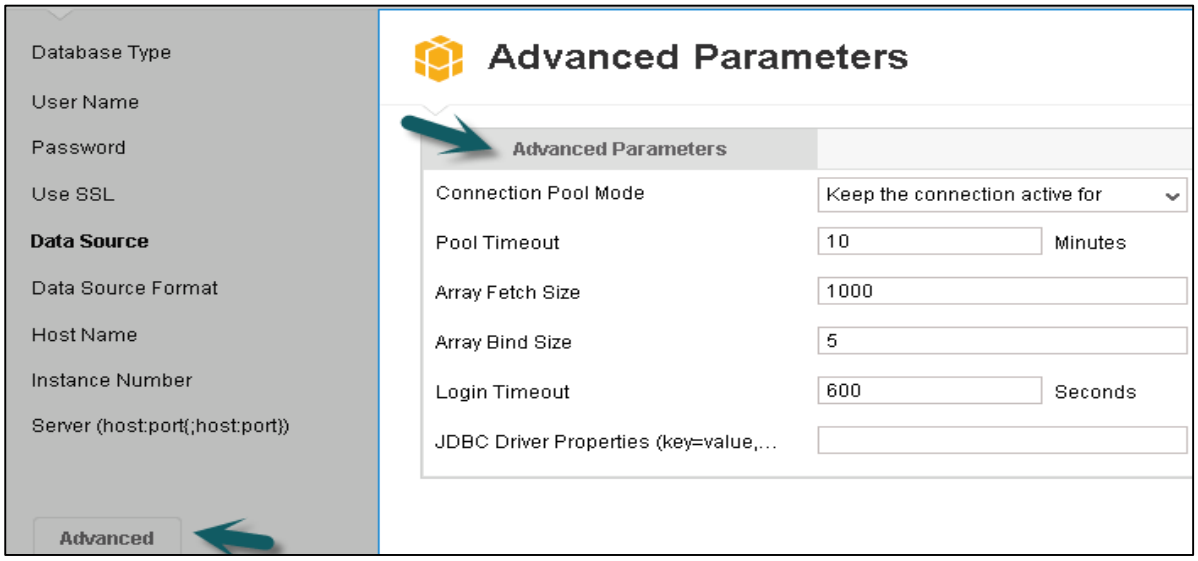
- **Password**: To connect with target database
- **Server and Port name:** of the target database
- **Database:** Name of the database

You can select **Advance** options like:

- **Connection Pool Mode:** To keep connection active
- **Pool timeout:** Time duration to keep connection active in minutes.
- **Array Fetch Size:** to determine number of rows to fetch from target database.
- **Array Bind Size:** Larger bind array, more number of rows will be fetched.
- **Login Timeout:** Time before a connection attempts a timeout.

JDBC Driver Properties



These are various connection properties, which can be defined while using query with SQL option in creating Lumira dataset.

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12. Lumira – Working Modes

You can use SAP Lumira for data visualization, creating charts and stories. Visualizations that are created in Lumira can be kept as private or you can also share with others.

The following functions can be performed in SAP Lumira, once the dataset is created:

- **Prepare** the data for visualizations
- **Visualize** data as charts and stories
- **Share** visualizations and data sets

We will discuss these pages in the next three subsequent chapters.

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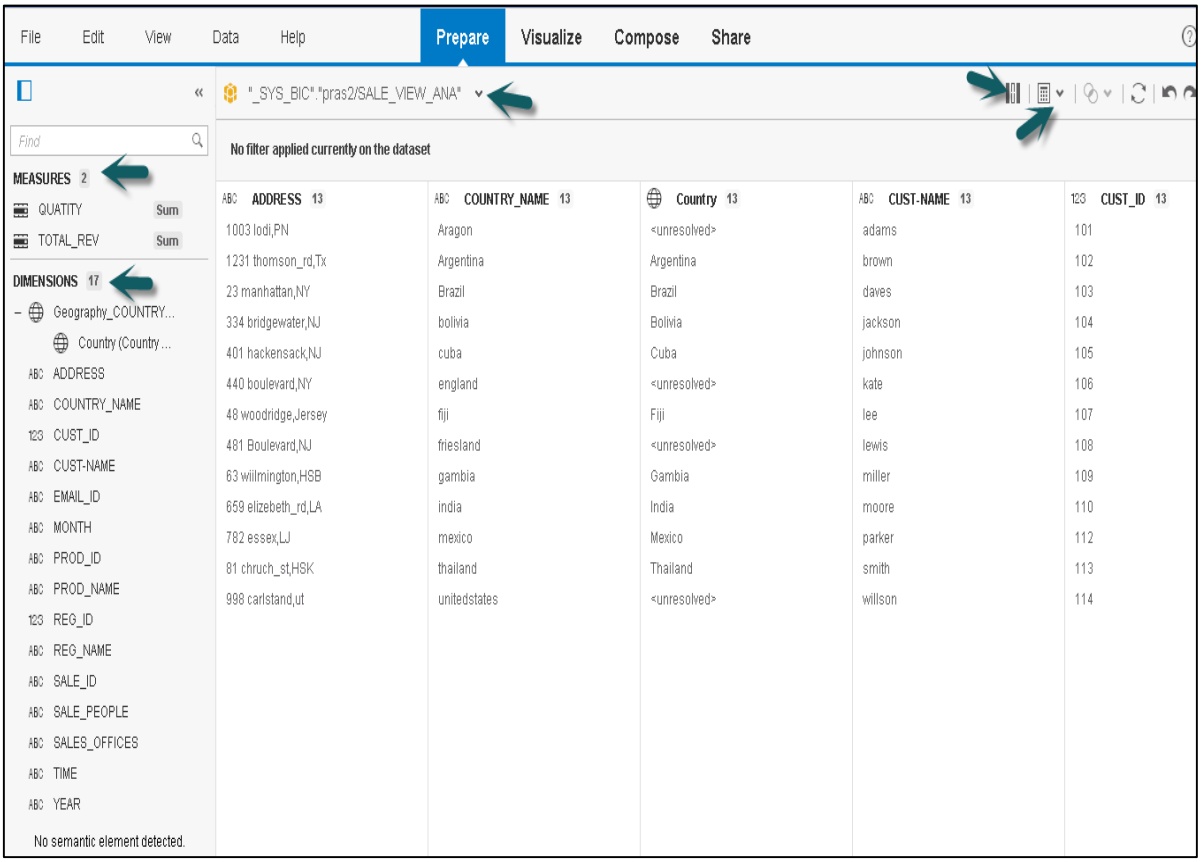
13. Lumira – Prepare Phase

Once data set is acquired, it appears in **Prepare** tab. This data needs to be formatted before charting and visualizations. Different types of formatting can be done on acquired data set:

- Data Cleansing
- Create New Measures
- Create Formula
- Add New Dataset

Prepare tab has different panels that can be used to perform these functions.



Dimension and Measure Panel

It contains a list of all the **dimensions and measures** acquired in the data set. The number in front of each object represents its data type.

You can use different tools in this panel to edit the data objects and to add hierarchies.

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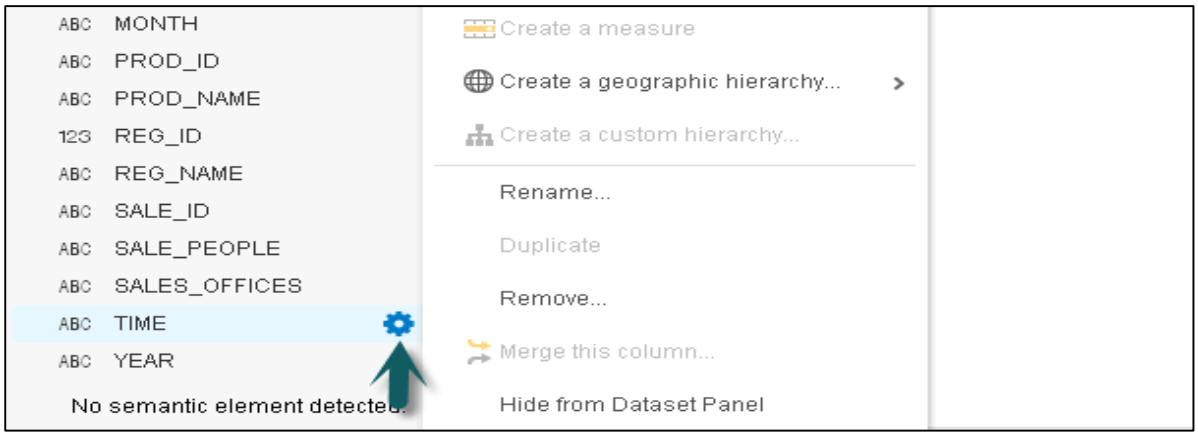
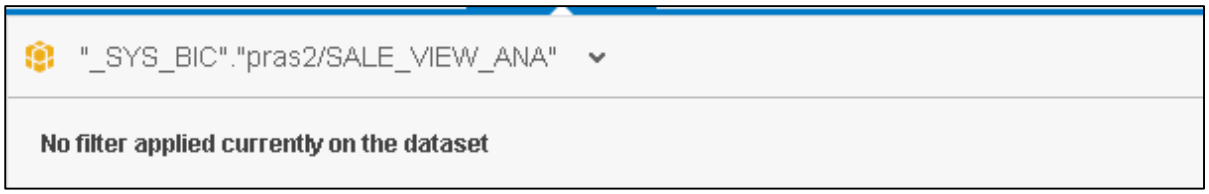


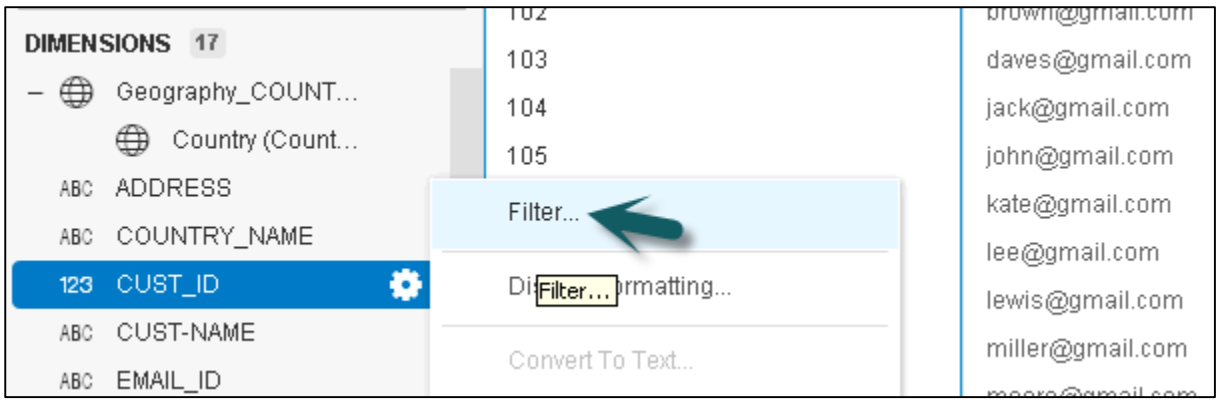
Dataset Selector

You can select between multiple datasets or you can also acquire a new dataset using this option.



Filter Bar

This represents filter applied to any dimension in dataset. To add a filter click on the icon in front of dataset and click on Filter.



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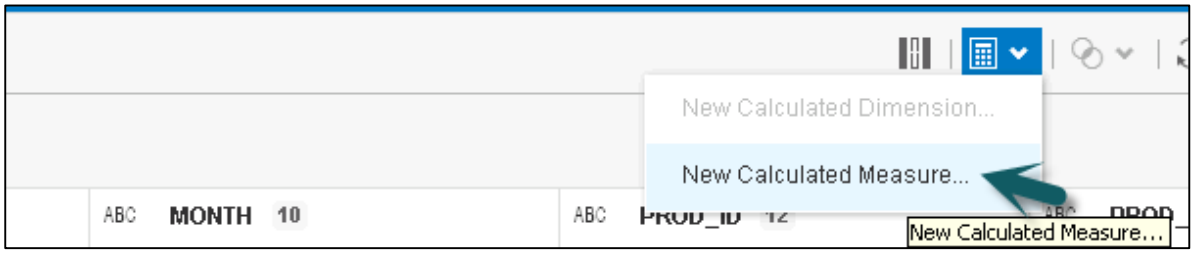
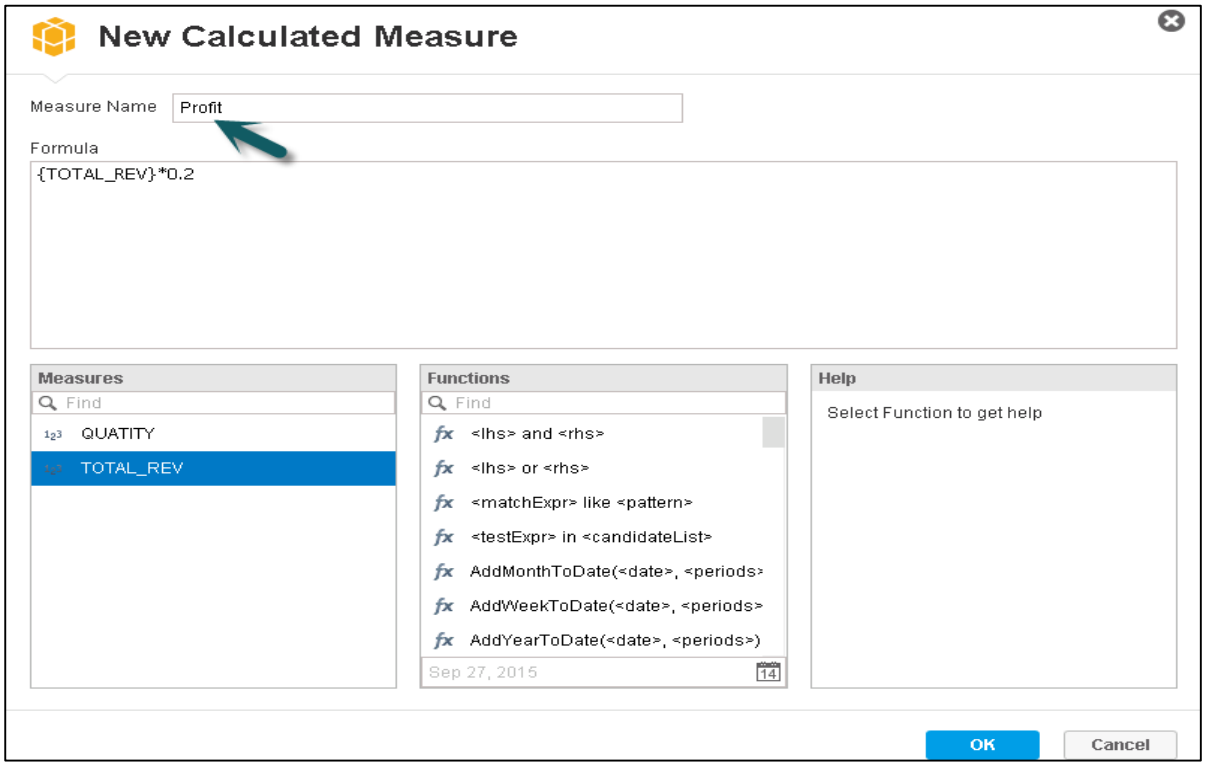
How to add a new Calculated Measure

Go to the following screen, as shown here.



- Enter the new Measure name.
- Enter the formula
- Use function, if required, and click OK.



New Calculated Measure will get added under measures tab in dimension and measure panel.

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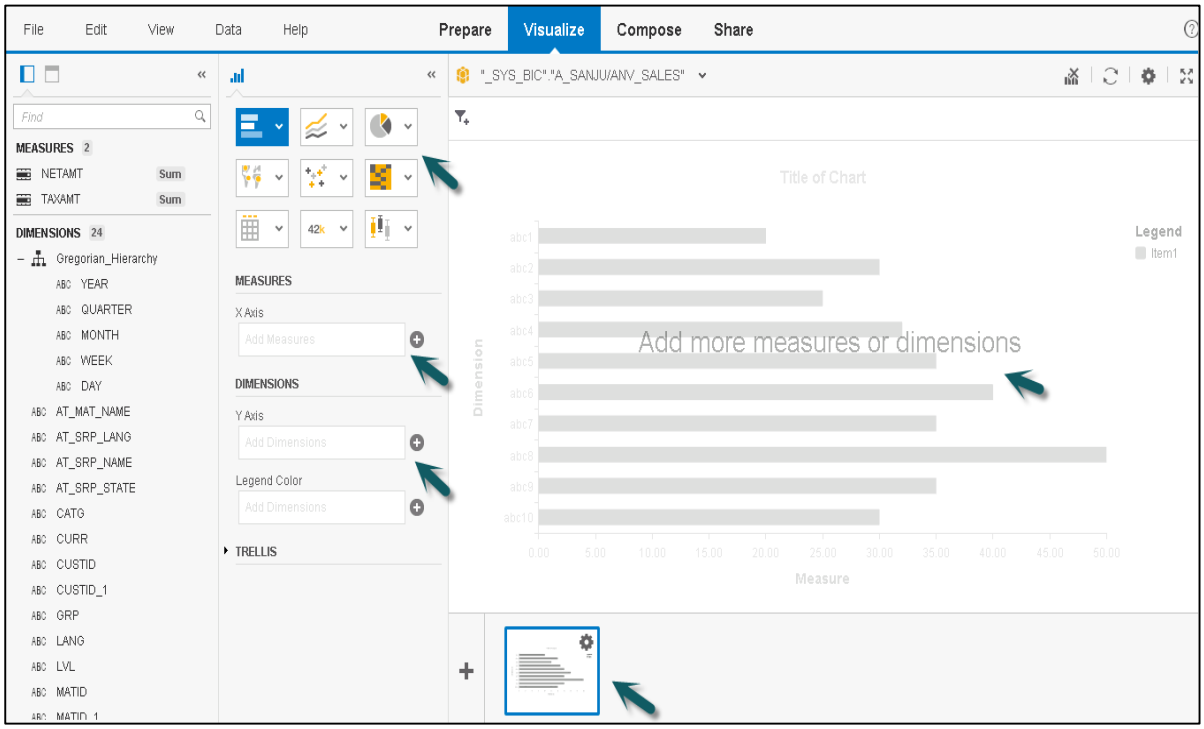
14. Lumira – Visualize Phase

This is used to create different type of charts and visualizations on the dataset available in **Prepare** tab. Main areas under **Visualize** tab are:



Dimensions and Measures Panel

On the left side, you have the dimensions and measures acquired in the dataset and are available to create visualizations.

You can directly drag the objects from this panel to the chart pane to create the charts on X and Y axes. At the top, you have Horizontal and Vertical Orientation to change the display of objects in this panel.

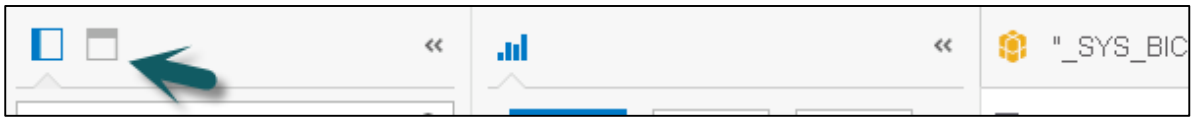


Chart Canvas

This is used to create or modify a visualization. You can directly drag attributes and measures to chart canvas or can add to chart builder.

You can add various tools like:

- Sorted by Dimensions
- Add or Edit a ranking by measures
- Clear Chart
- Fit chart to frame

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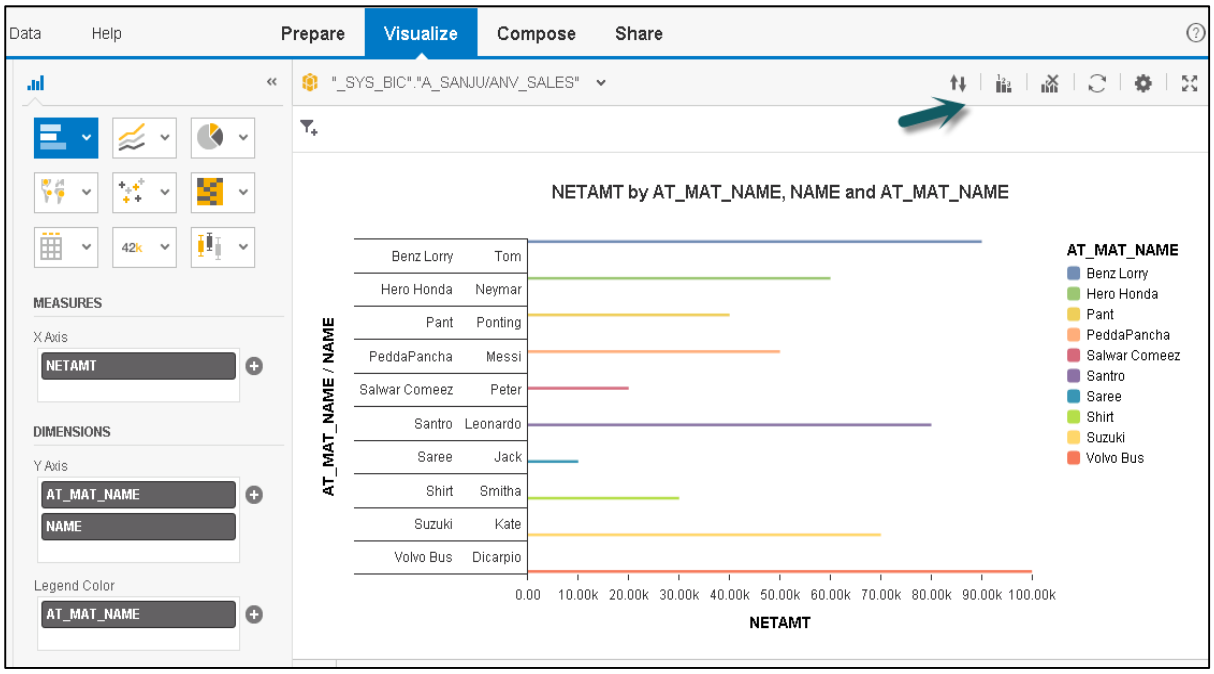
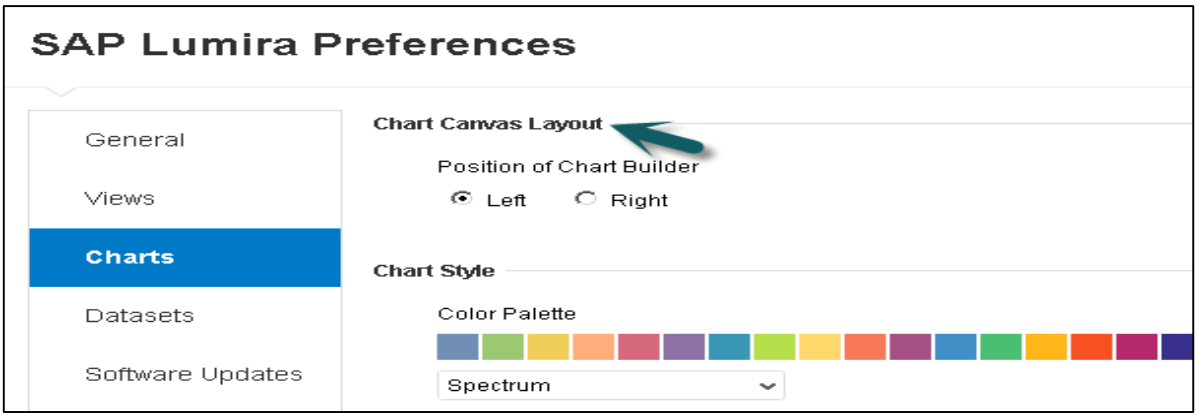
- Reprompt
- Refresh
- Settings
- Maximize
- Undo
- Redo



Visualization Tools

Let us see the various tools used for visualization.

1. Go to **File -> Preferences -> Charts -> Charts Canvas Layout**



2. You can select Chart Style, Template, Font Zoom, etc.

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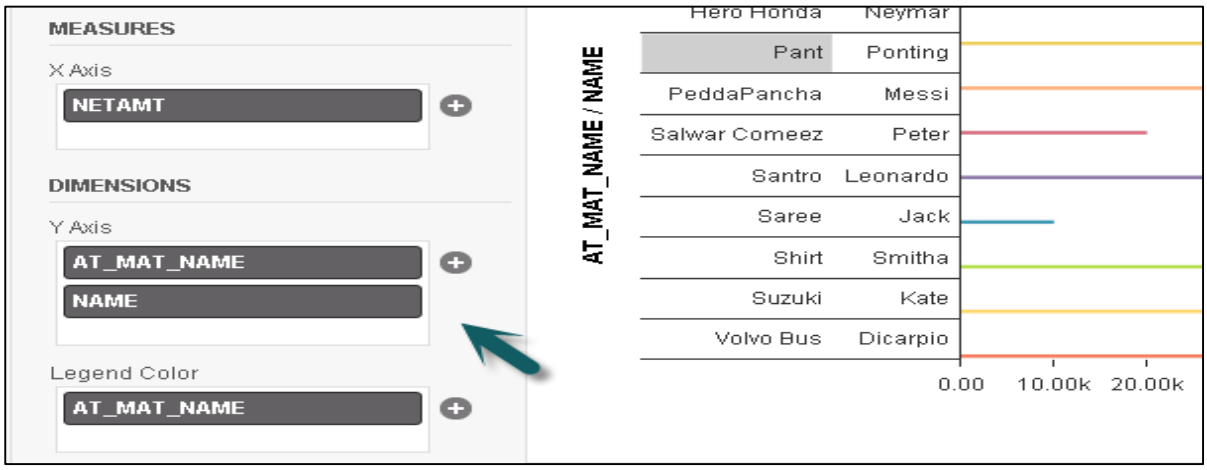
Chart Picker

You can select different types of chart from this panel. You have an option to select various types of charts in Lumira.

Chart Shelves

Chart Shelves are used to add measures and dimensions to a visualization.



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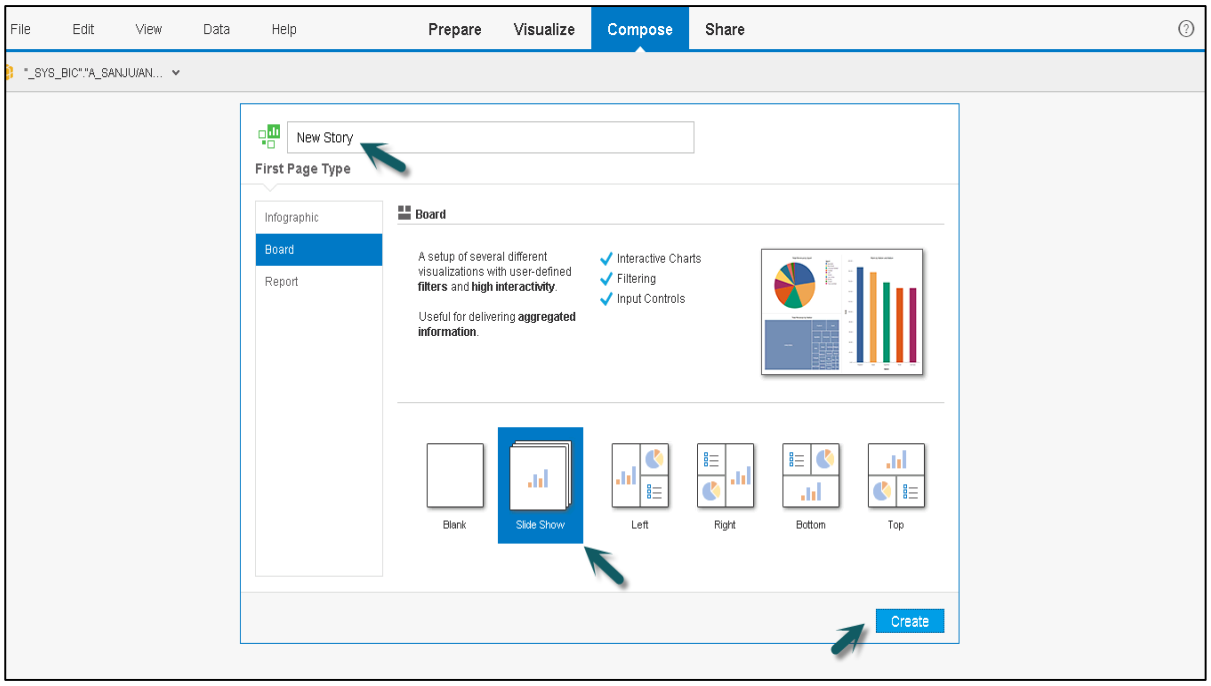
15. Lumira – Compose Phase

You can create different stories in SAP Lumira, in a presentation-style document using visualization, graphics and other customizations that have been applied to the dataset.

You have to customize the compose tab once and you get multiple options to select an Infographic, Board or a Report.

Enter the name of the Story and click **Create**. You have different panels in Compose tab as shown in the screenshot.



Content Panel

The left panel contains different types of content that you can add to the story page. You can select any item and drag it to a section on the story page.

- Dataset Selector
- Story Selector
- Preview
- Filter Bar
- Add Page and Delete Page
- Page Settings, Etc.

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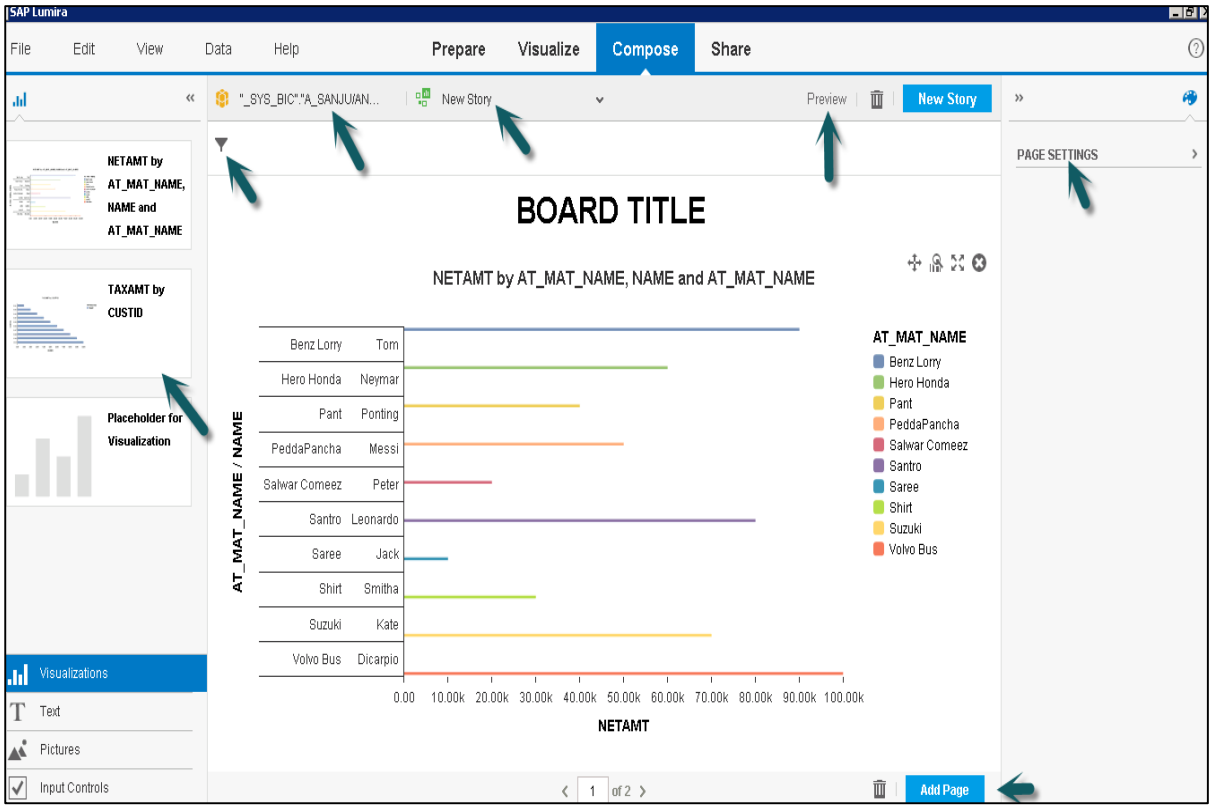

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16. Lumira – Share Phase

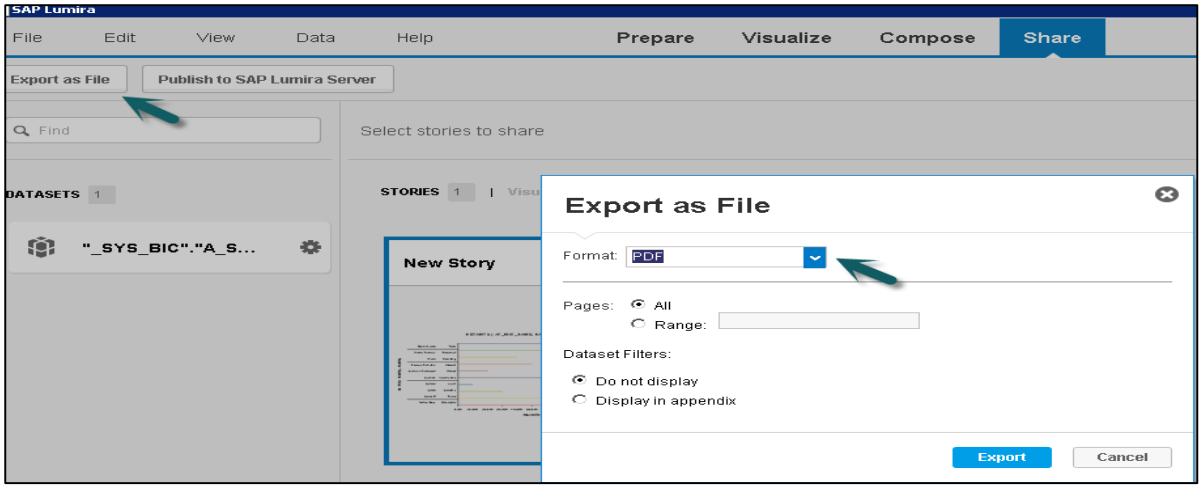
Once you are done with datasets, visualizations and stories, there is an option to export, print or publish them.

You have the following options to export datasets.

- Export as File: you can save dataset as **.csv or. xls** file.
- Publish to SAP HANA.
- Publish to Explorer.
- Publish to BI platform.

Exporting Stories

You can export a story in PDF format.



Exporting Visualizations

You can export to a printer or can also send in an email to a user.

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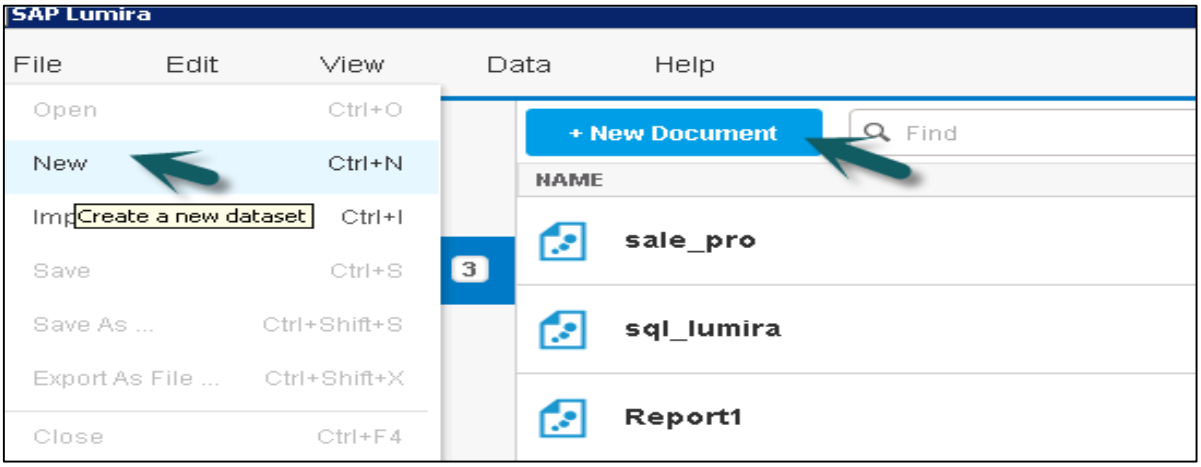
17. SAP Lumira – Creating a New Document

Let us see how a document is created and saved in SAP Lumira.

To create a new document, go to **File -> New.**



Select a Source to acquire the dataset or from recently used and click **Next**.

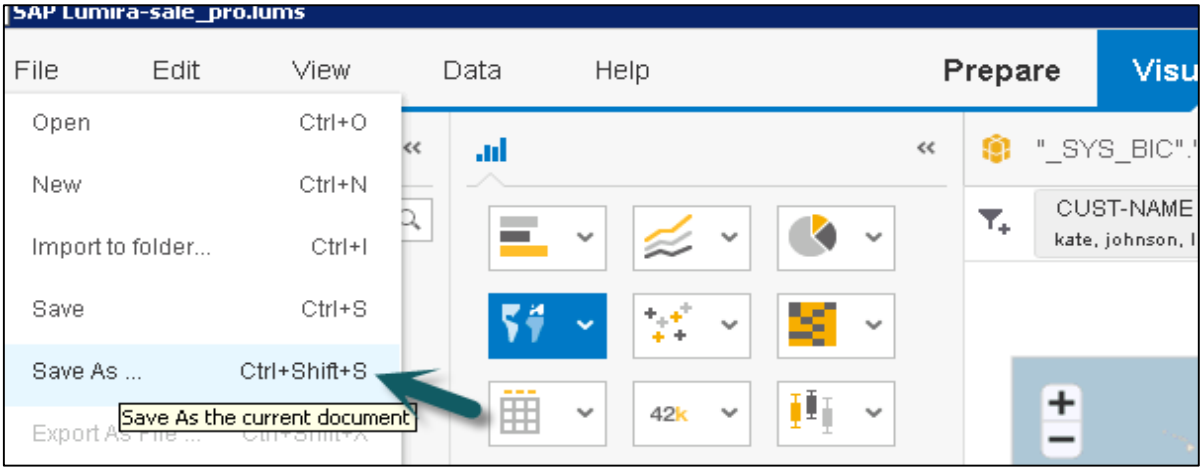
Saving Documents

After creating datasets, visualizations and stories in SAP Lumira, you can save a document locally. When you save a document, all the objects are saved with the document.

You can also save a document to Lumira Cloud, SAP Lumira Edge server or SAP BI platform.

To save a document follow the steps given below.

1. Go to **File -> Save As.**



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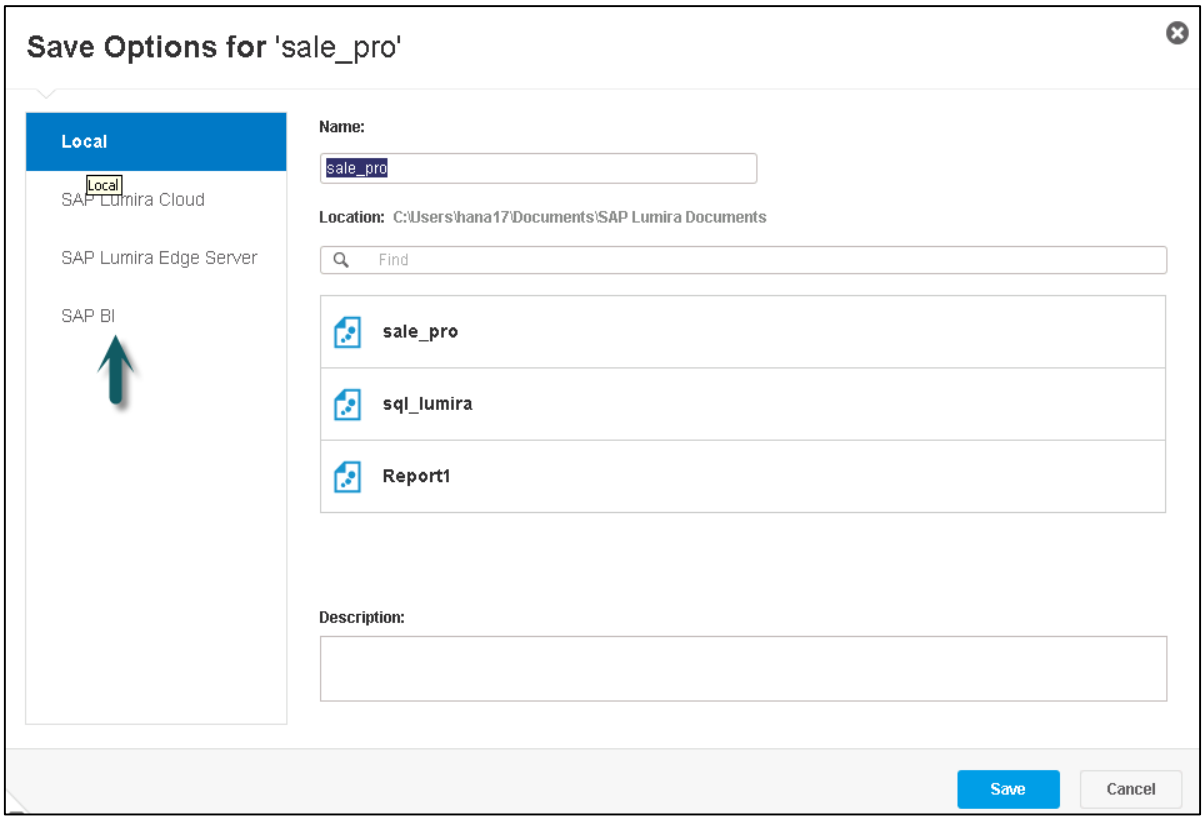

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18. Lumira – Creating Charts

In SAP Lumira, a chart can be created by dragging measures and dimensions to the Chart Canvas in the central area under the Visualize tab.

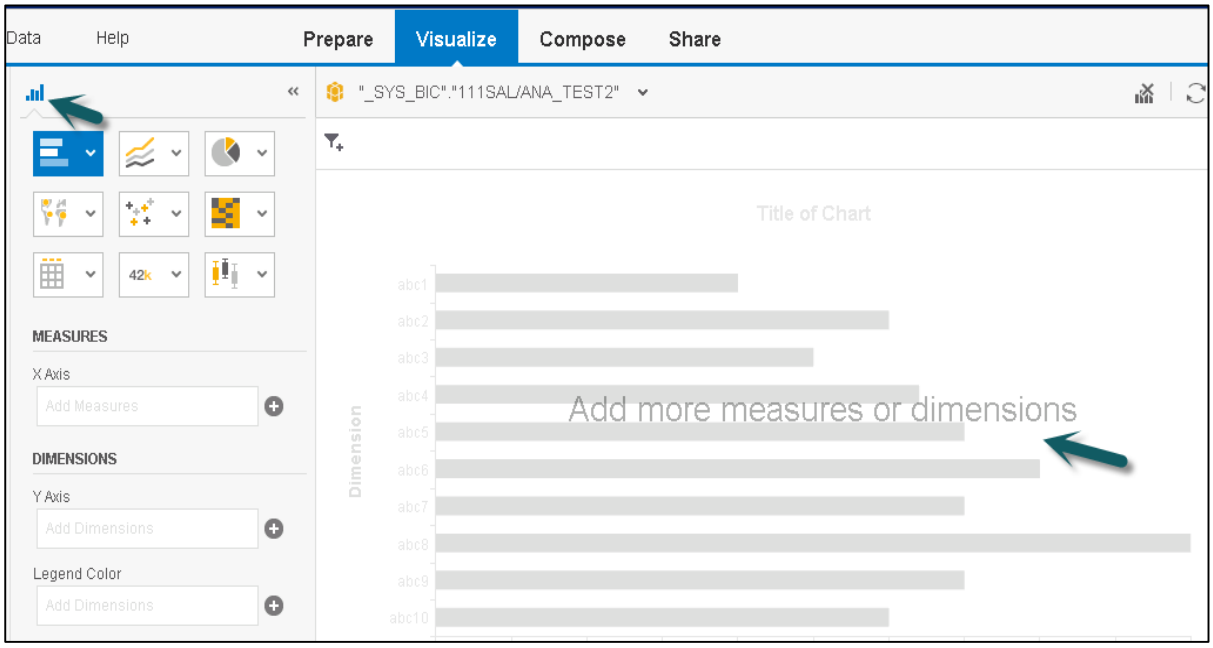
To create a chart, there should be at least one measure. When a dimension is added to the chart, it shows values based on the measures.

Adding a chart in Chart builder

Follow the steps to add a chart.

1. In the **Visualize** tab, go to **Chart Builder**.

2. Select a chart type that you want to use in the Chart Builder. Bar Chart is the default chart type, but you can select any chart from the list.



3. The next step is to choose a measure and drag it to an axis on the Chart Canvas. You can check in chart where to add dimensions and measures.

4. You can click on '+' sign to add a dimension or measure to a chart.

5. Select a dimension and drag it to the Chart Canvas. The text in the chart body guides you to the correct axis for the dimension.

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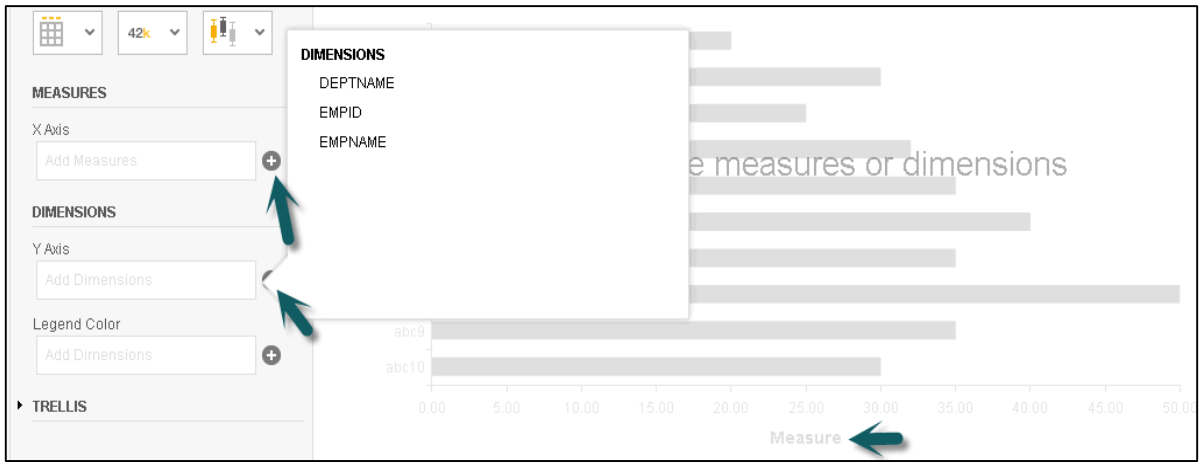
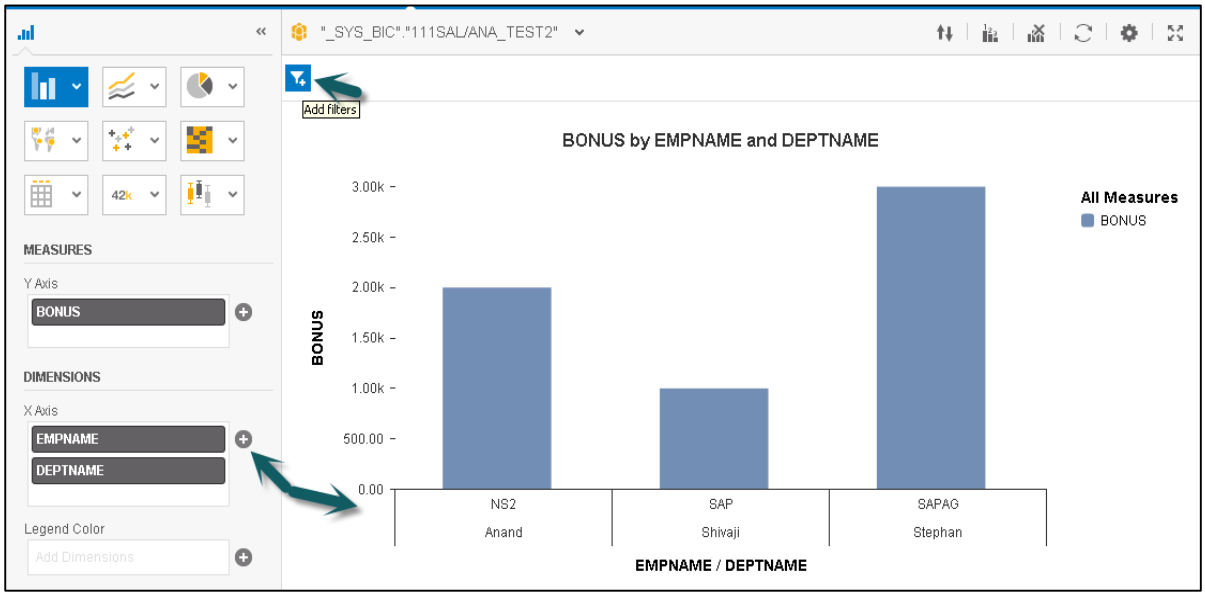
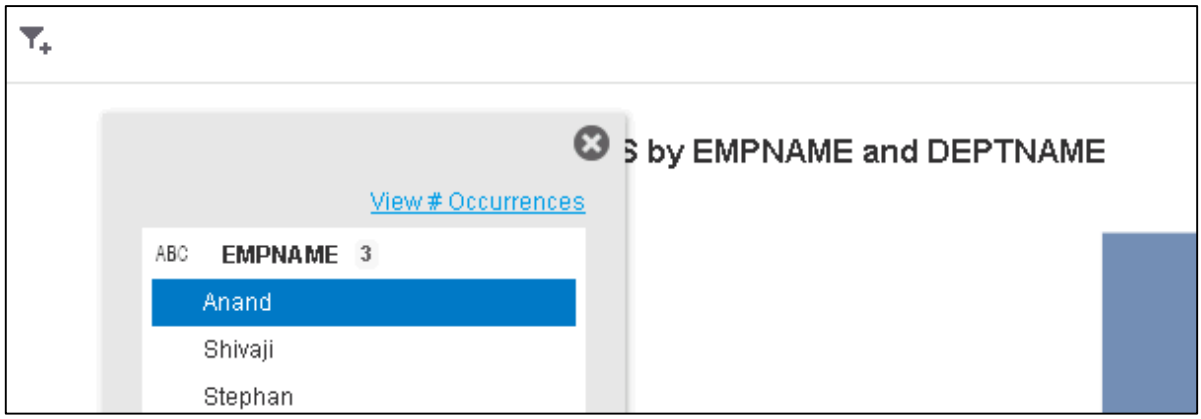


6. You can also add a filter to chart by clicking on filter option at the top.



7. Select the dimension on which you want to apply a filter and click **OK**.



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19. Lumira – Chart Types

There are different types of charts available in Lumira.

Comparison: These chart types are used to compare the difference between values. Common comparison-type charts are:

- Bar Chart
- Column Chart
- Radar Chart
- Area Chart
- Heat map

Percentage: These are used to show percentage of parts in a chart. Common Percentage-type charts are:

- Pie Chart
- Donut Chart
- Tree
- Funnel Chart

Correlation: These are used to show the relationship between different values. Common chart types are:

- Scatter Plot
- Bubble Chart
- Network Chart
- Numeric Point
- Tree

Trend: These are used to show the data patterns or possible patterns. Common chart types are:

- Line Chart
- Waterfall Chart
- Box Plot
- Parallel Coordinates Chart

Geographic: These are used to present the map of a country or globe present in the analysis. Common chart types are:

- Geo Bubble Chart
- Geo Choropleth Chart
- Geo Pie Chart
- Geo Map

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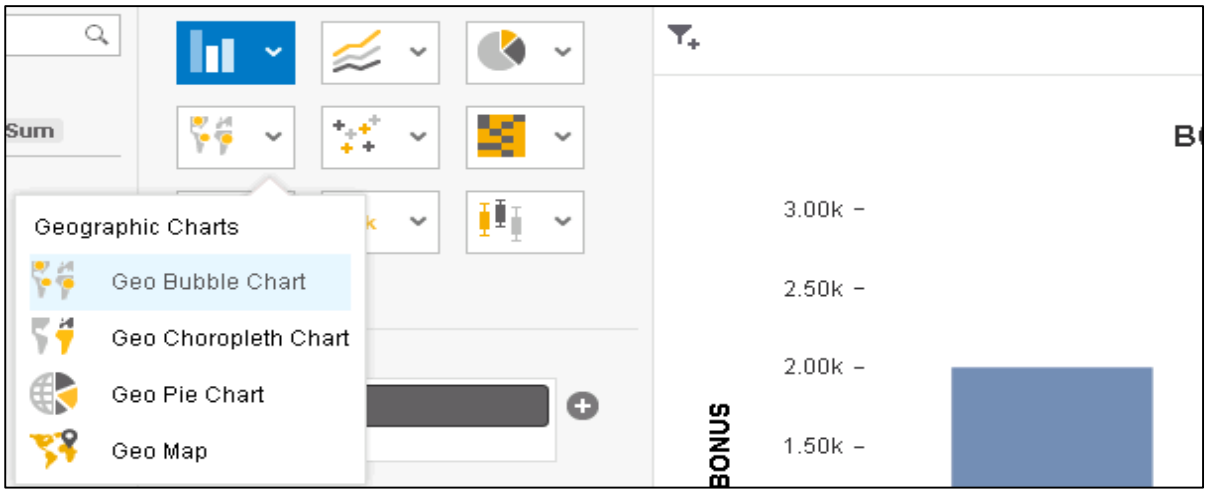

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20. Lumira – Conditional Formatting

It is used to mention the critical data points in a chart by different values meeting certain condition. Multiple conditional formatting rules can be applied on measures or dimensions.

Conditional formatting can be applied on:

- Bar and Column charts (except 3D column charts)
- Pie chart
- Donut chart
- Scatter chart
- Bubble chart
- Cross tab

Creating a Conditional Formatting Rule

To define a conditional formatting in a chart, it should have a measure value added to it.

The procedure is given below.

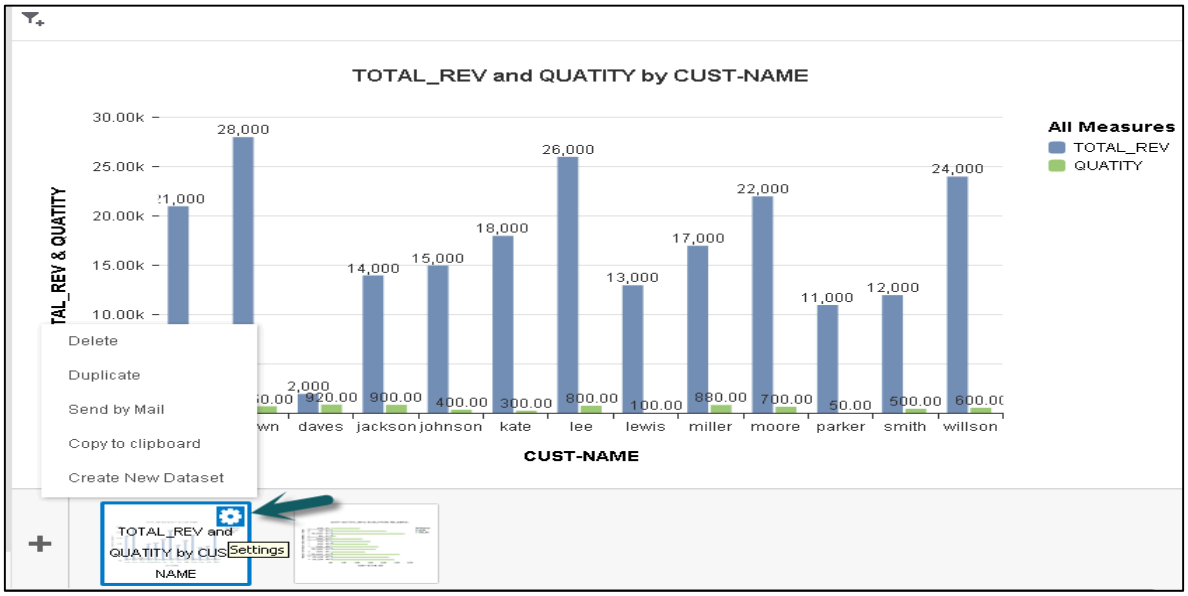
1. Click the new **Conditional formatting** icon. It will open the **rule editor** box. Enter the name of rule editor.

2. Select **Based on list** to add a measure or a dimension. You can set multiple conditional formatting rules on a single measure or dimension.

3. The next step is to select an operator and add one or more values for condition.

Saving Charts

You can save a chart by clicking the **Settings** button. The available options are displayed.



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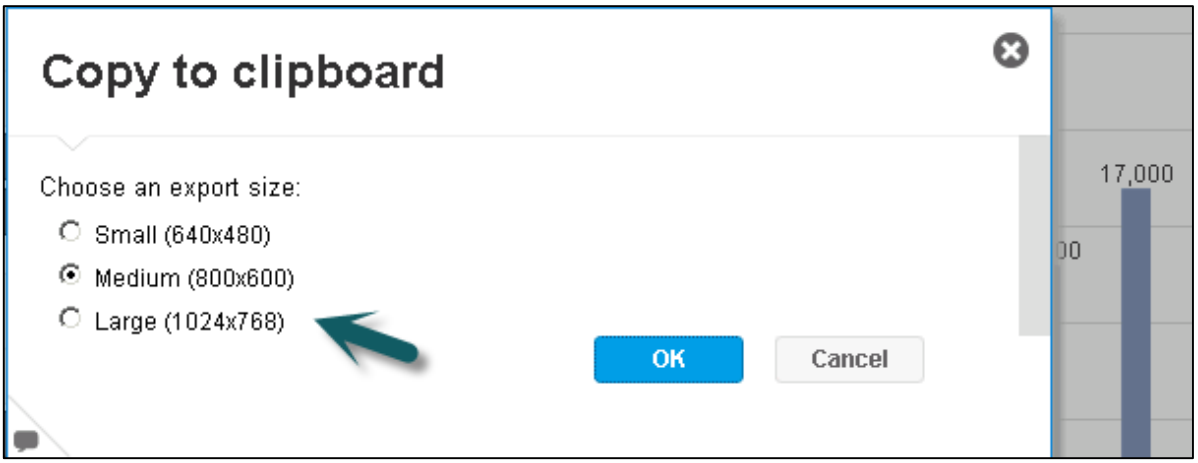
The various options available are:

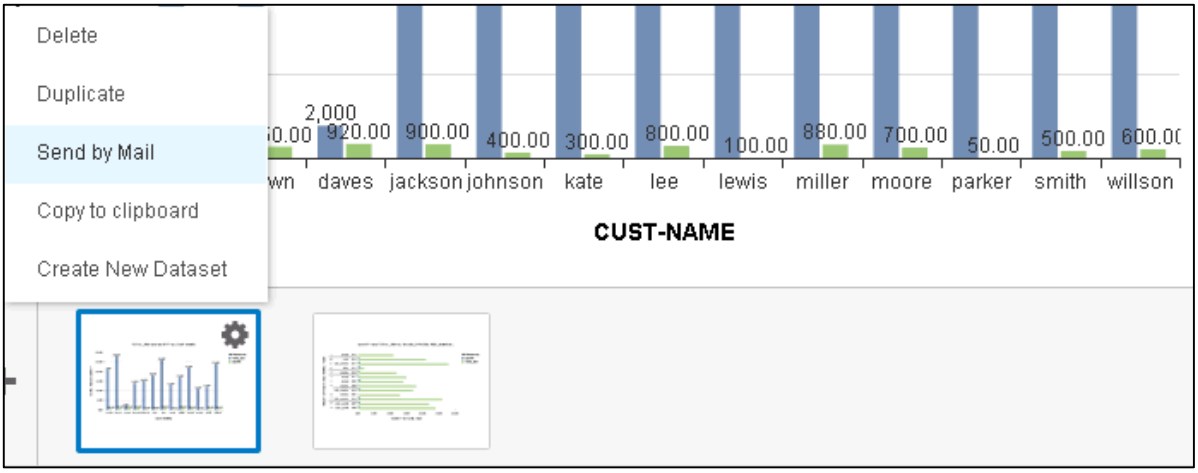
- Copy to Clipboard
- Send by Mail
- Duplicate

1. **Copy to Clipboard:** You can use the **copy to clipboard** option. Select the **Export size** and click **OK**.



You can paste this chart in any Document file, Paint, etc.

2. Send by mail: Select an **Export size -> OK.** It will attach the chart in the mail and you have to enter the recipient email id.



Duplicate option will create a copy of the chart in same Visualization tab.

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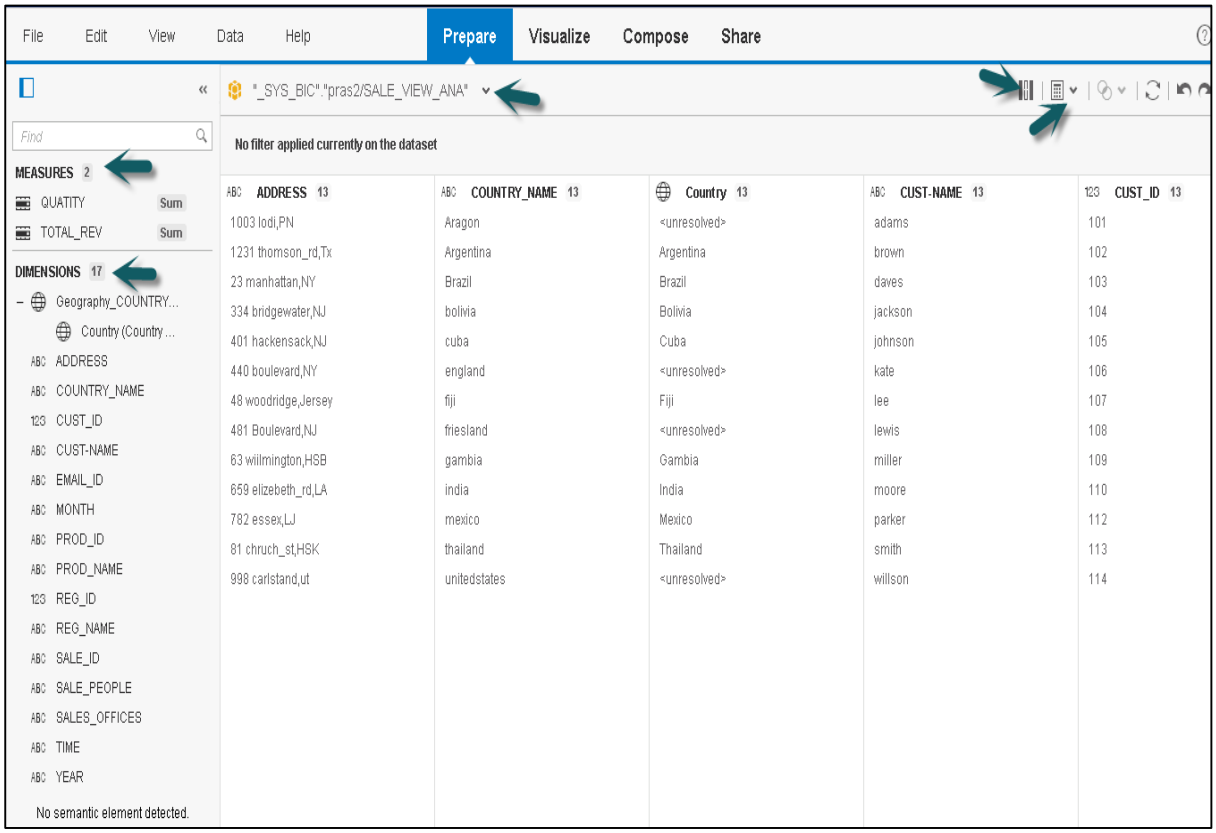
21. Lumira – Preparing Data in Prepare Tab

Once data set is acquired, it appears in **Prepare** tab. This data needs to be formatted before charting and visualizations. Different types of formatting can be done on acquired data set:

- Data Cleansing
- Create New Measures
- Create Formula
- Add New Dataset

Prepare tab has different panels that can be used to perform these functions:



Dimension and Measure Panel

It contains a list of all the dimensions and measures acquired in the data set. The number in front of each object represents its data type.

You can use different tools in this panel to edit the data objects and to add hierarchies.

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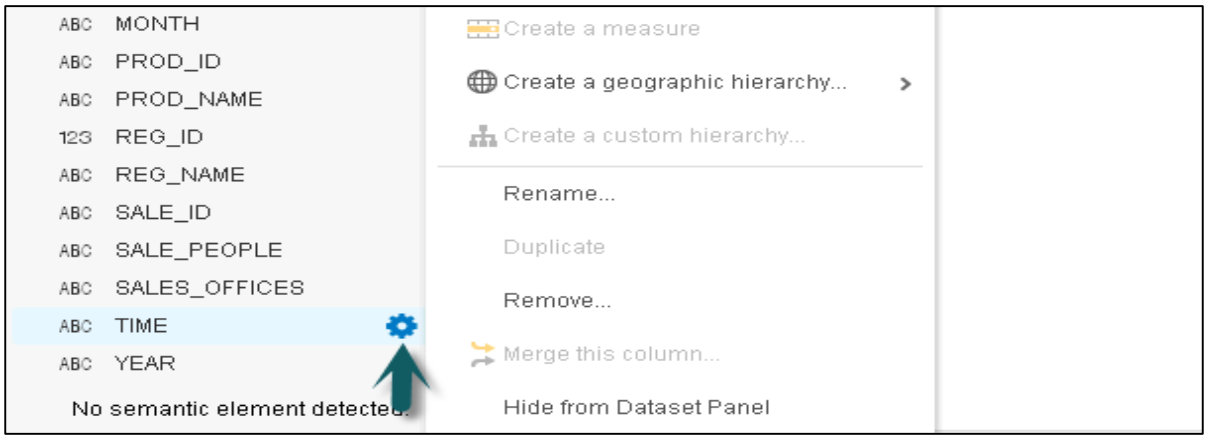
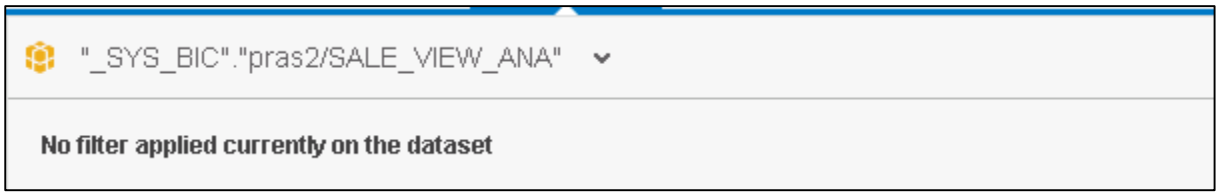


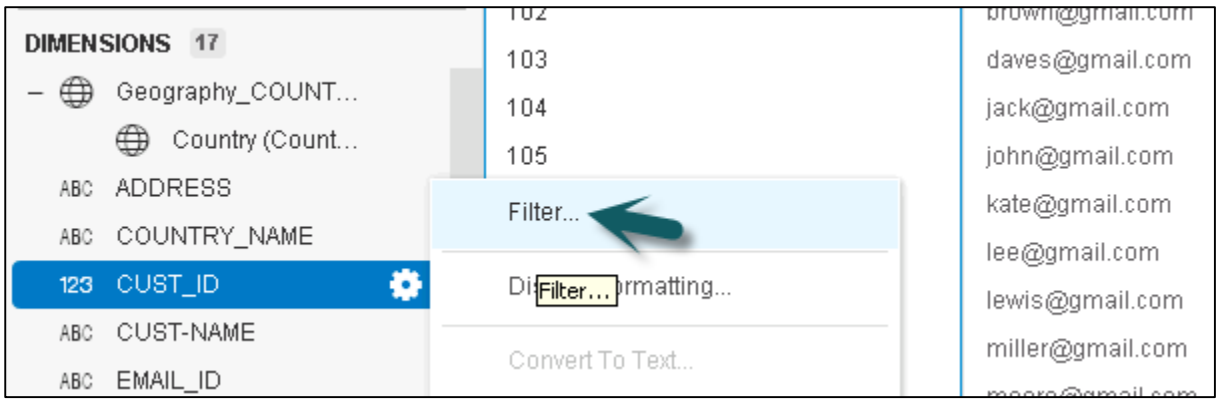
Dataset Selector

You can select between multiple datasets or you can also acquire a new dataset using this option.



Filter Bar

This represents a filter applied to any dimension in dataset. To add a filter, click the icon in front of the dataset and select the option **Filter**.



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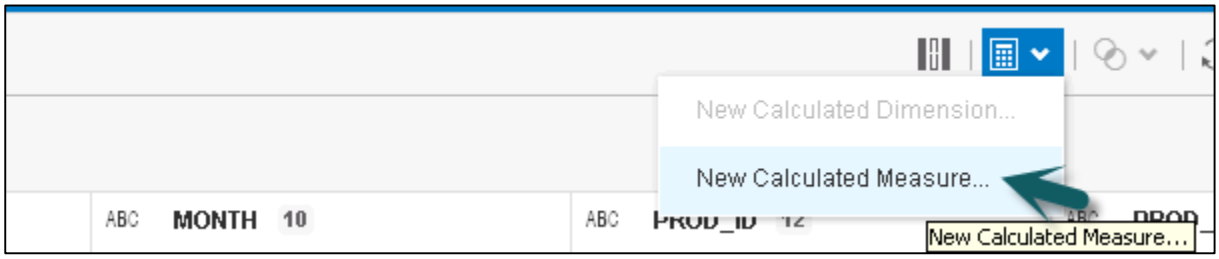
How to add new Calculated Measure?

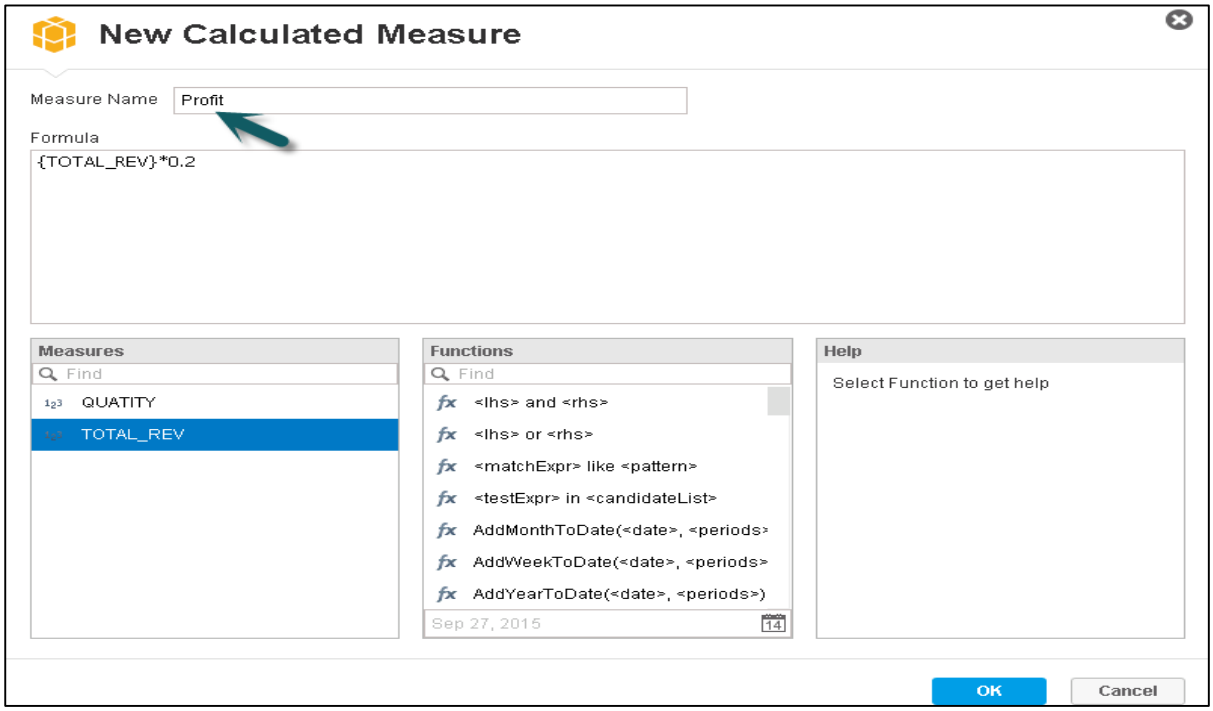
1. To add a new Calculated Measure, Select **New Calculated Measure.**



2. Enter the new Measure name.

3. Enter the formula.

4. Use a function if required and click **OK**.



A new **Calculated Measure** will be added under the **measures** tab in dimension and measure panel.

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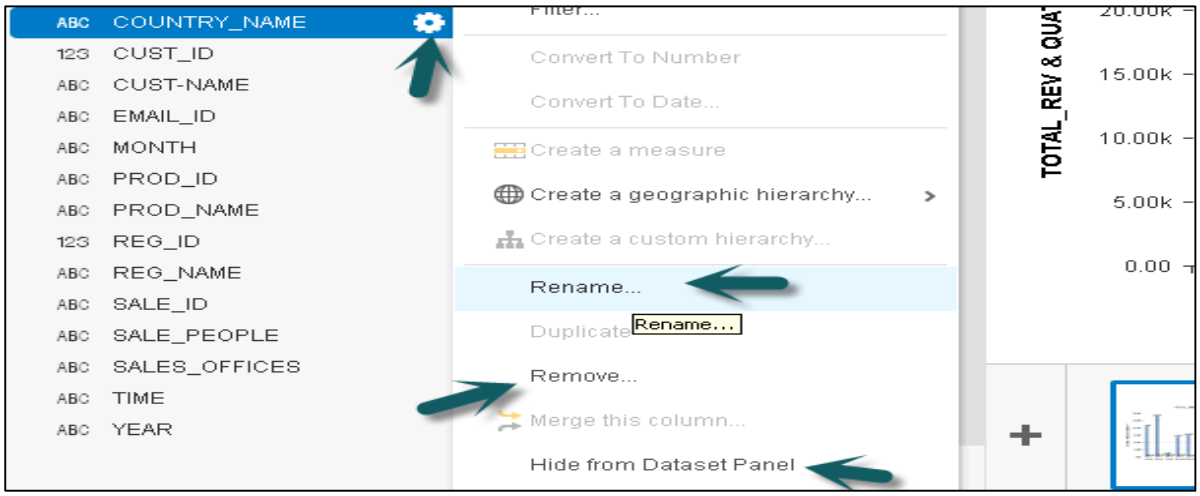
22. Lumira – Editing Data

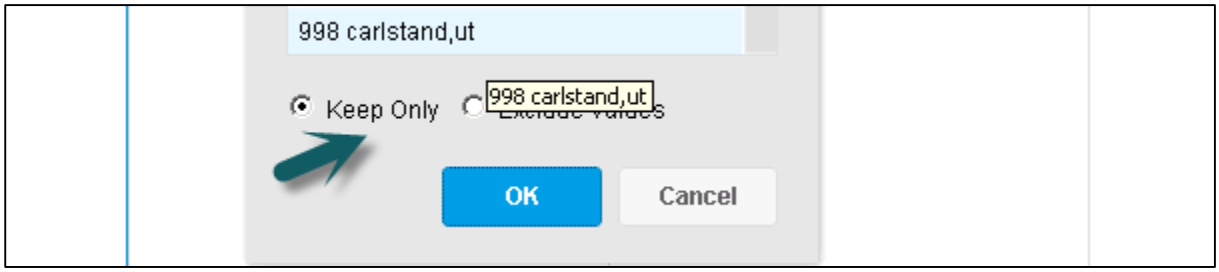
Go to the options tab in front of each object and select the **Edit** option you want to perform.



Filtering Data in Columns and Charts

To filter a value in the **Prepare** tab, you can click the **Options** tab in front of any object.
1. Go to Filter.

2. In the filter option, you can select **keep only** or **Exclude values** for a particular value.



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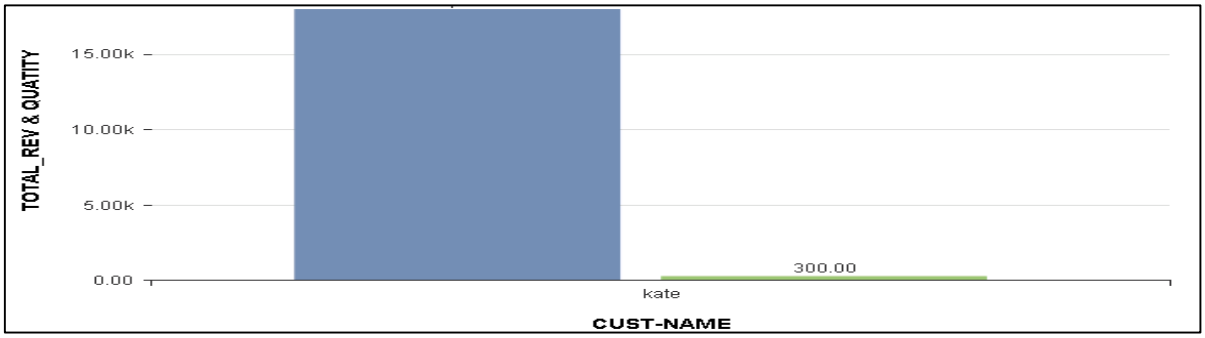
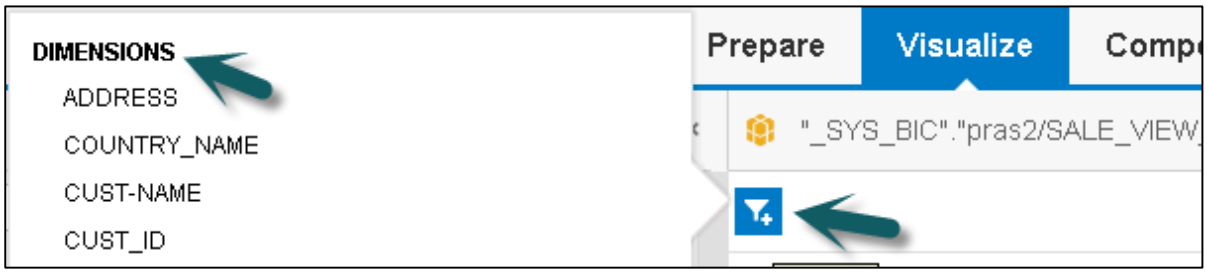
3. Here, only one value is selected. Accordingly, the visualization changes under the Visualize tab.



4. Once filter is applied, it will come in filter panel in the **Prepare** tab.

5. It can be removed by clicking the x button in front of the filter. In a similar way, you can apply filter on a chart in **Visualize** tab.

6. Click **Add filter** and select a dimension or a measure to add a filter to the chart. (No keep only or Exclude values option while applying filters in a chart).



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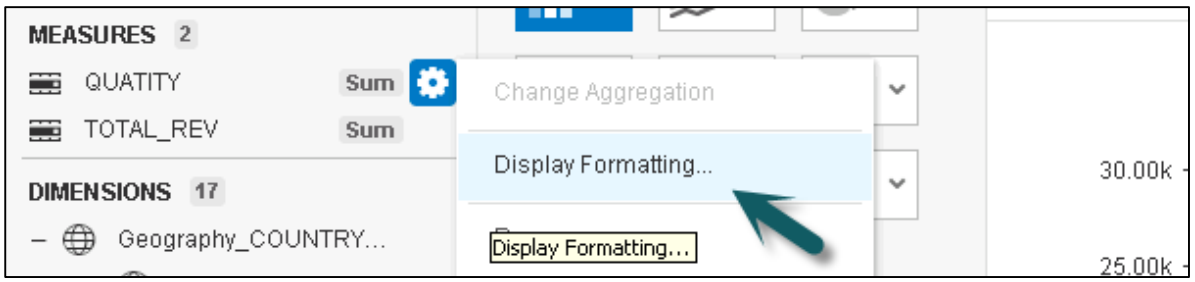
23. Lumira – Formatting Numbers and Dates

You can display numbers, date, time and different data types in multiple formats in SAP Lumira. You can also add a custom symbol as prefix or suffix to any object.

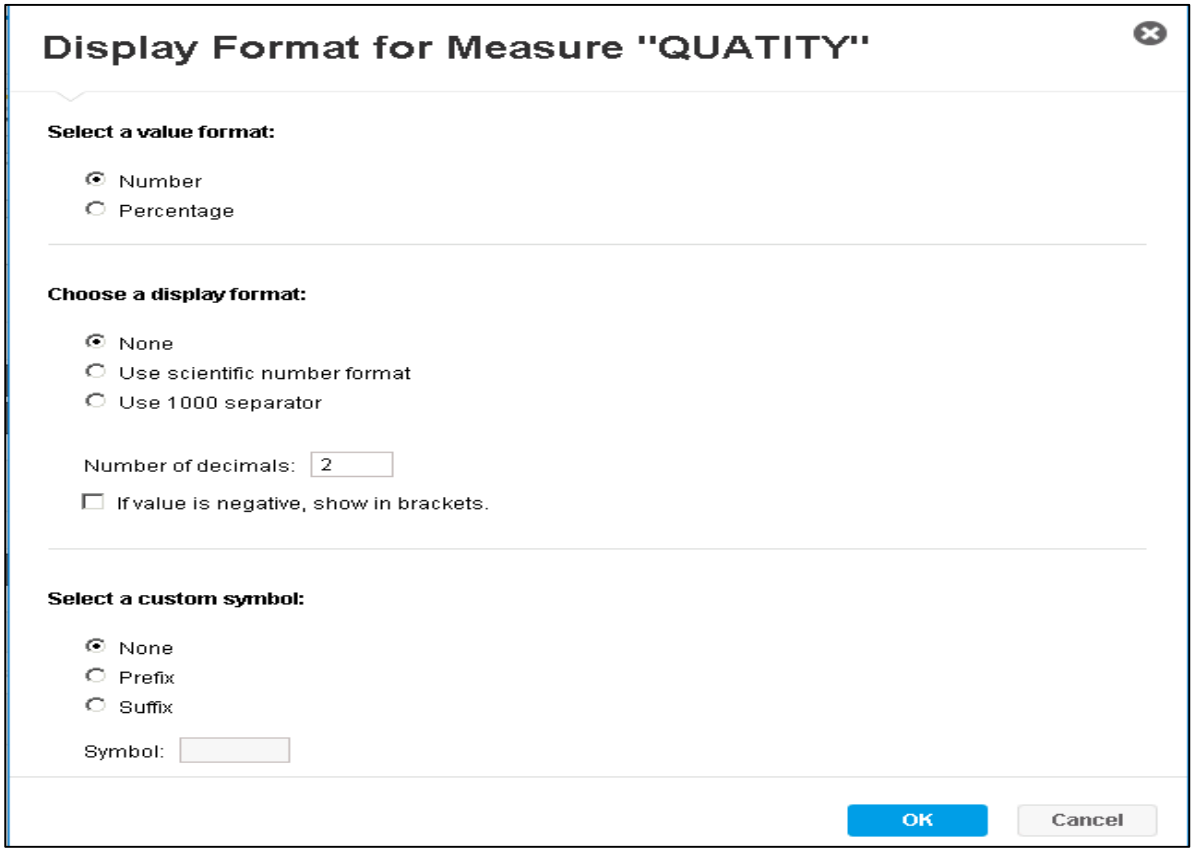
To set the numbers and date follow the steps given below:

1. Go to **Prepare tab -> Dimension and Measure Panel -> Options -> Display formatting**



You have multiple options:

- Select a Value format
- Choose a Display format
- Select a Custom Symbol



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2. In case of prefix or suffix, maximum number of characters is 256. You can also convert data type into another.

3. In **Prepare tab -> Go to column heading -> Options.**

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24. Lumira – Enriching Data

Creating Hierarchies

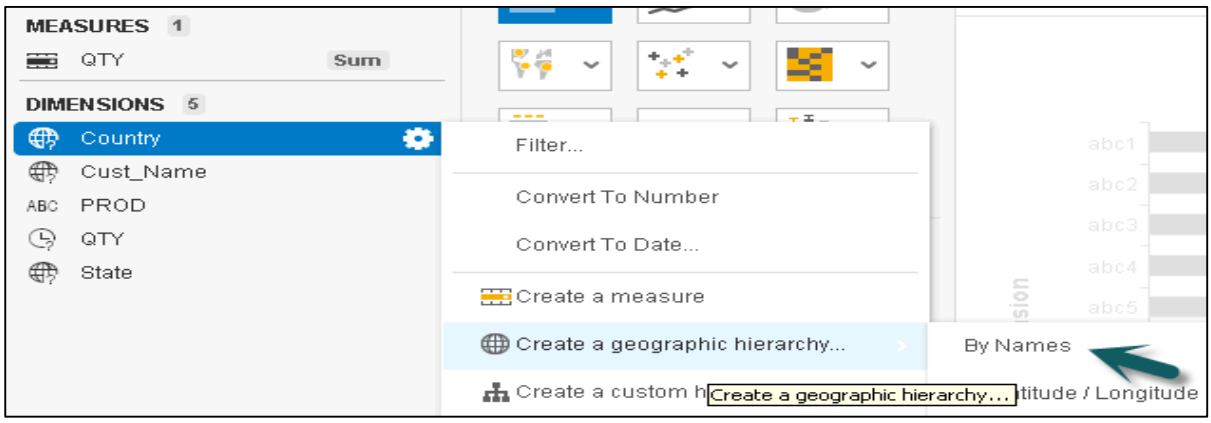
This option can be used if the acquired dataset contains data that can be converted to hierarchies like **Time** hierarchy or **Region** hierarchy.

Hierarchies are used to display data at different granularity level and you can drill up/down at different levels for better understanding of relationship between objects.

Creating a Geography hierarchy

When the data is acquired, the application looks for dimension containing location and present with an icon.

1. Click the icon in front of a dimension. From the available options, select **Create a Geographic hierarchy -> By Names** (this option is available only for string dimensions).



2. A new window will open with the name **Geographical data -> select the dimension to map to hierarchy**. Click **Confirm**.

Example:

Country	Cust_Name	QTY	PROD	State
India	Jack	1	Phone	Haryana
England	Jone	3	Tab	Durham
India	Andy	5	Phone	Punjab
India	Ana	2	Watch	Chennai
England	Tim	6	Tab	Kent

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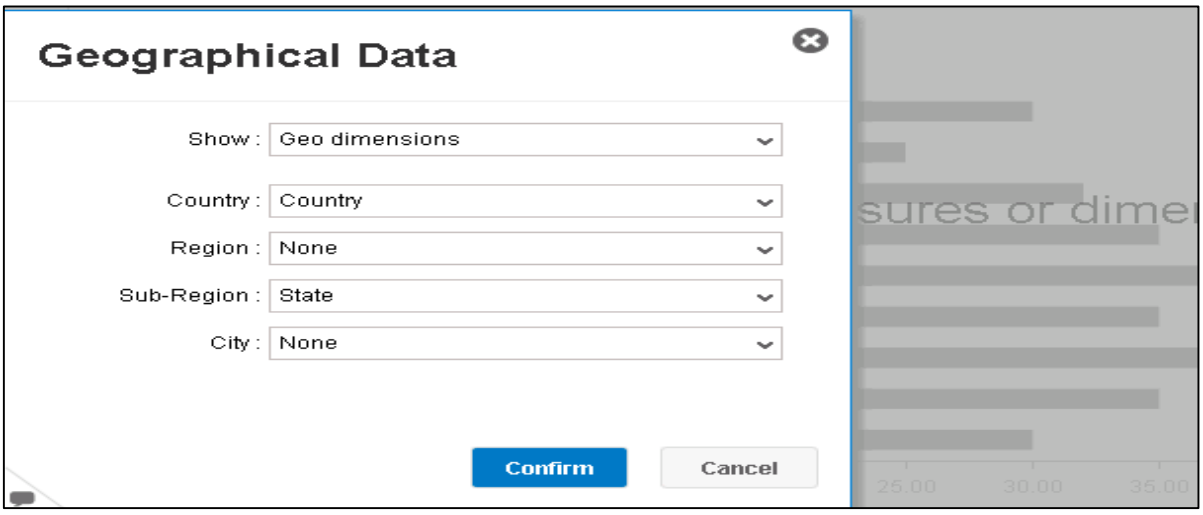
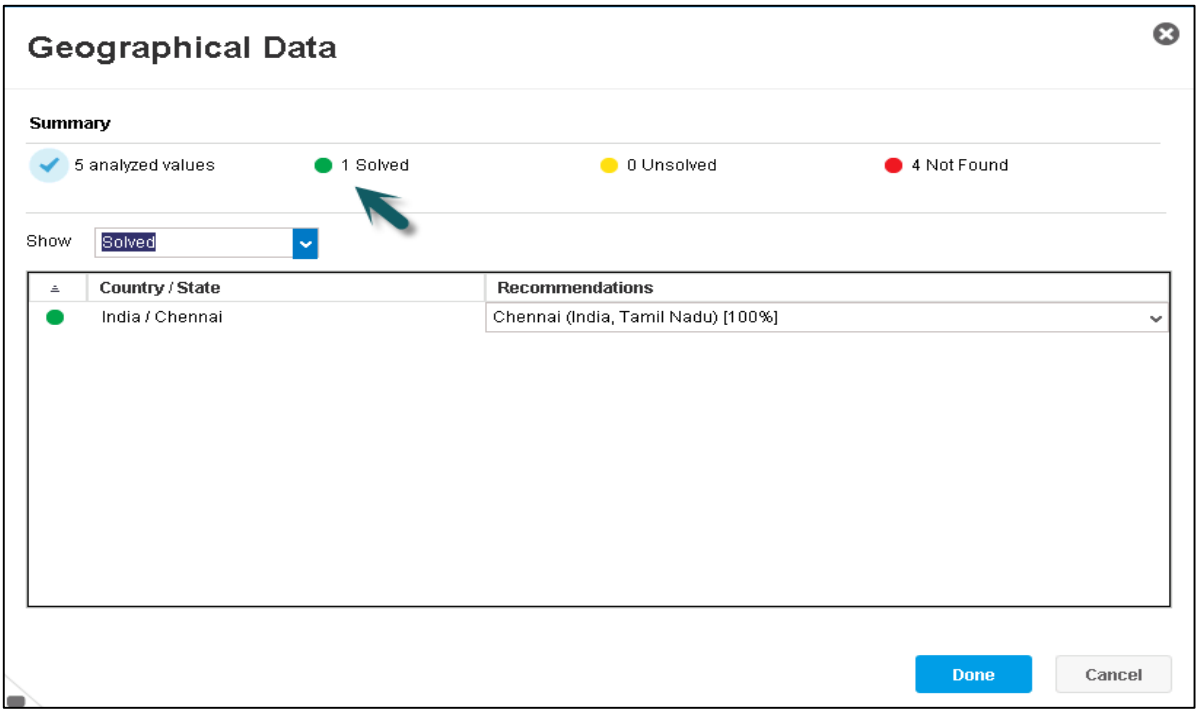
3. If **Region** does not apply to the dataset, select **None** from the list.



4. It will show you, a list of all the analyzed values, **Solved** and **Not Found**. For all the solved values, it will create a hierarchy. Click **Done**.



You will observe the following:

- Locations mapped exactly are marked with **green**.
- Locations with more than one possible match (for example, if more than one city named London was found) are marked with **yellow**.
- Locations not found in the geographic database are marked with **Red**.
- Hierarchy will be added under Geographical data.

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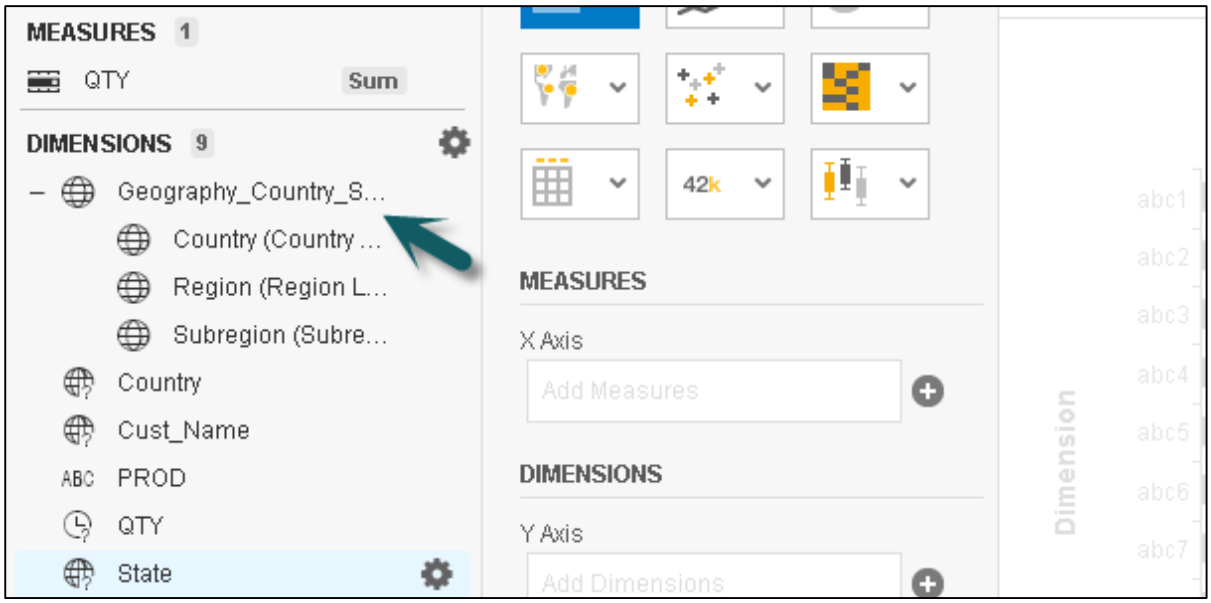
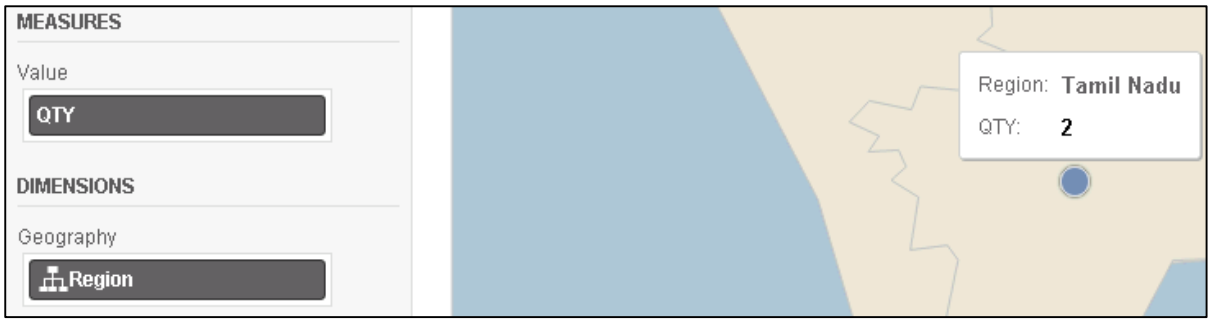


5. To use this chart, select any Geo chart like **Geo Bubble chart**.

6. Add **Country** to **Geography** and **Measure** to the chart. Select the value in the chart and you will get a **drill** option to the next level.

7. If you click the **Drill** option, you will go to the next level and so on.



In a similar way, you can apply **Time hierarchy**.

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Creating a Custom Hierarchy

You can create hierarchies using any available combination of dimensions in acquired dataset.

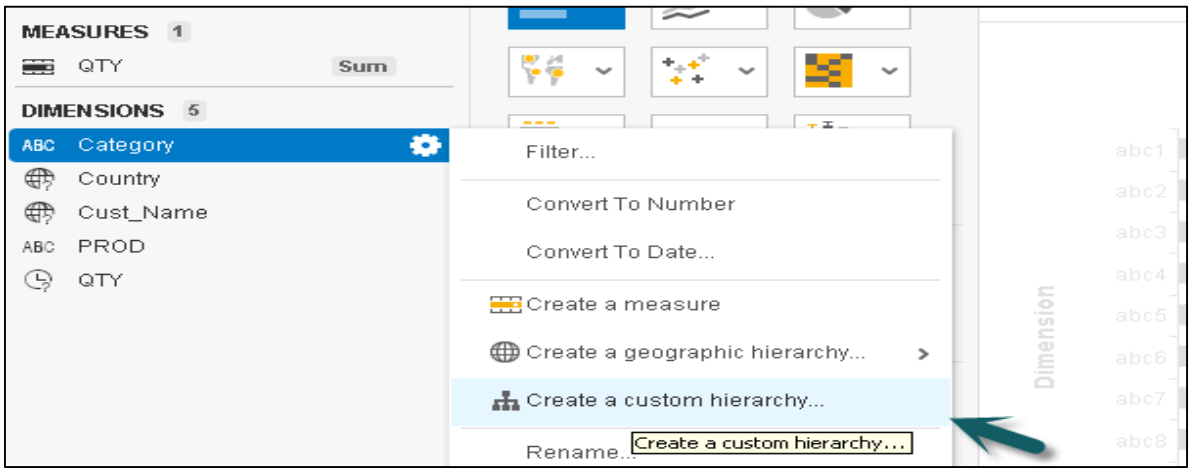
Example

Category -> Product Line –> Product

Country	Cust_Name	QTY	PROD	Category
India	Jack	1	Samsung Note 4	Phone
England	Jone	3	XOLOQC800	Tab
India	Andy	5	Apple6s	Phone
India	Ana	2	Titan	Watch
England	Tim	6	Lenovo A1000	Tab

Follow the steps given below:

1. Select **Category -> Options -> Create a Custom hierarchy**



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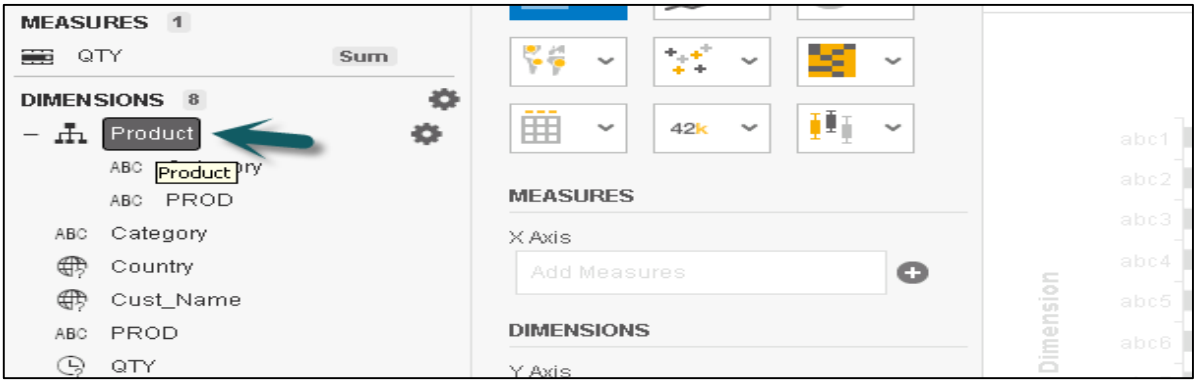
2. A new window will open. Enter the name of the **hierarchy** and select the other dimensions to add to the next levels. Click **Create**. The arrows can be used to change the level.

3. The **Product hierarchy** will be added under the **Dimensions** tab.



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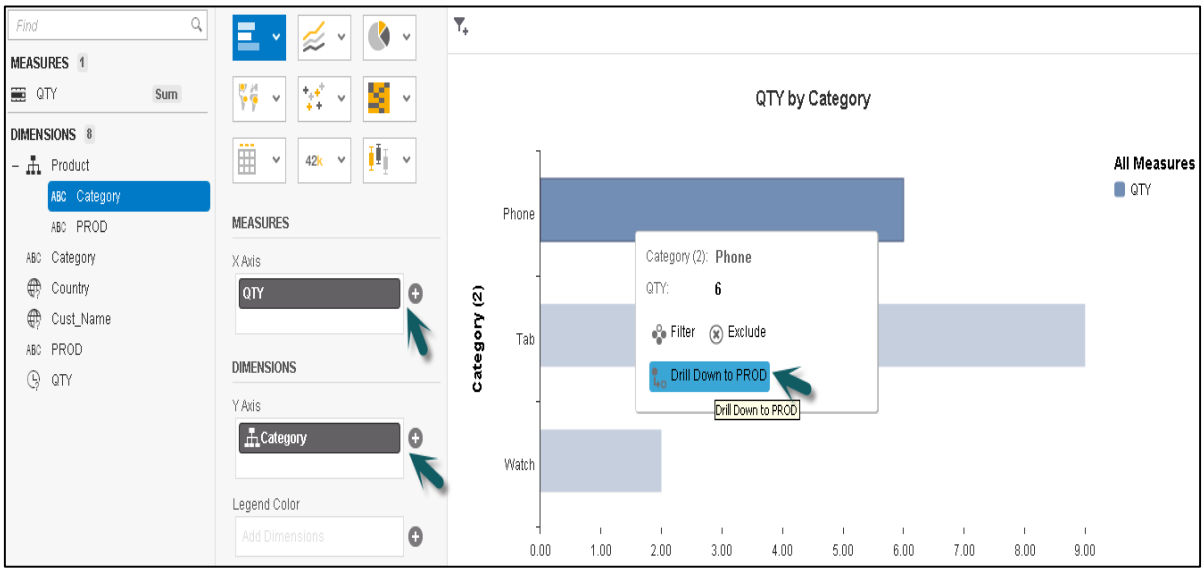
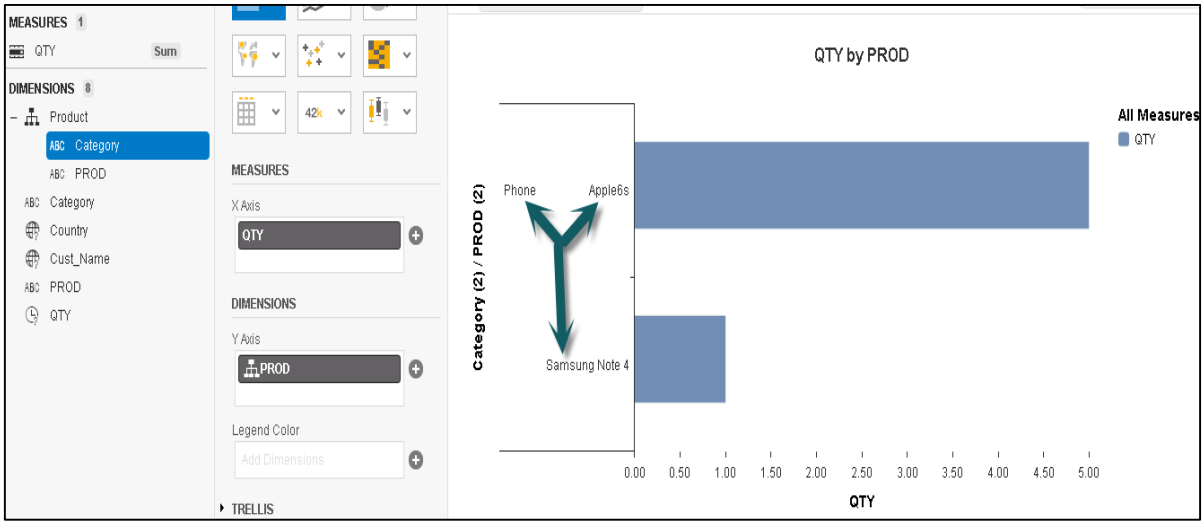
4. Add a **Bar chart** and then **Add Category and QTY** to measures.



Once you click the **Category** option, you will get an option to drill down to the next level (PROD).



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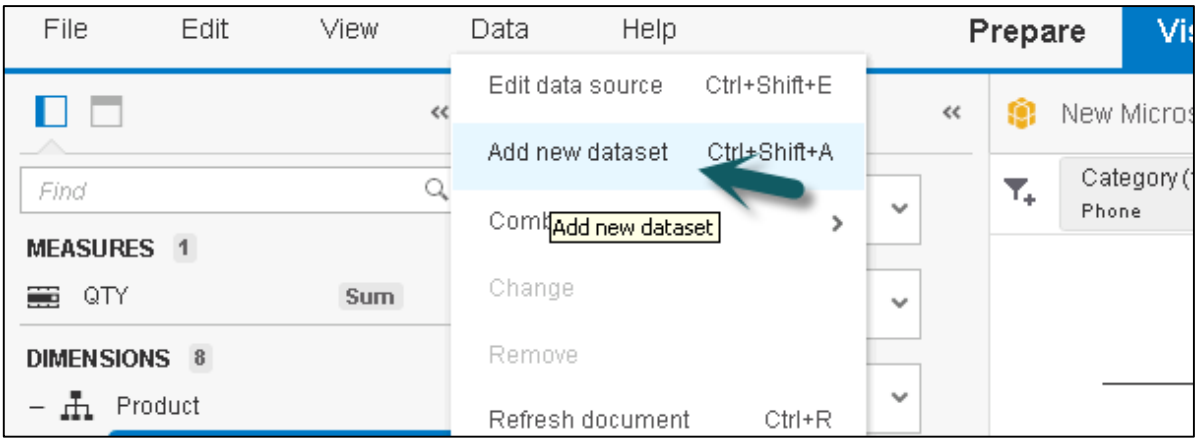
25. Lumira – Working with Datasets

Adding Datasets

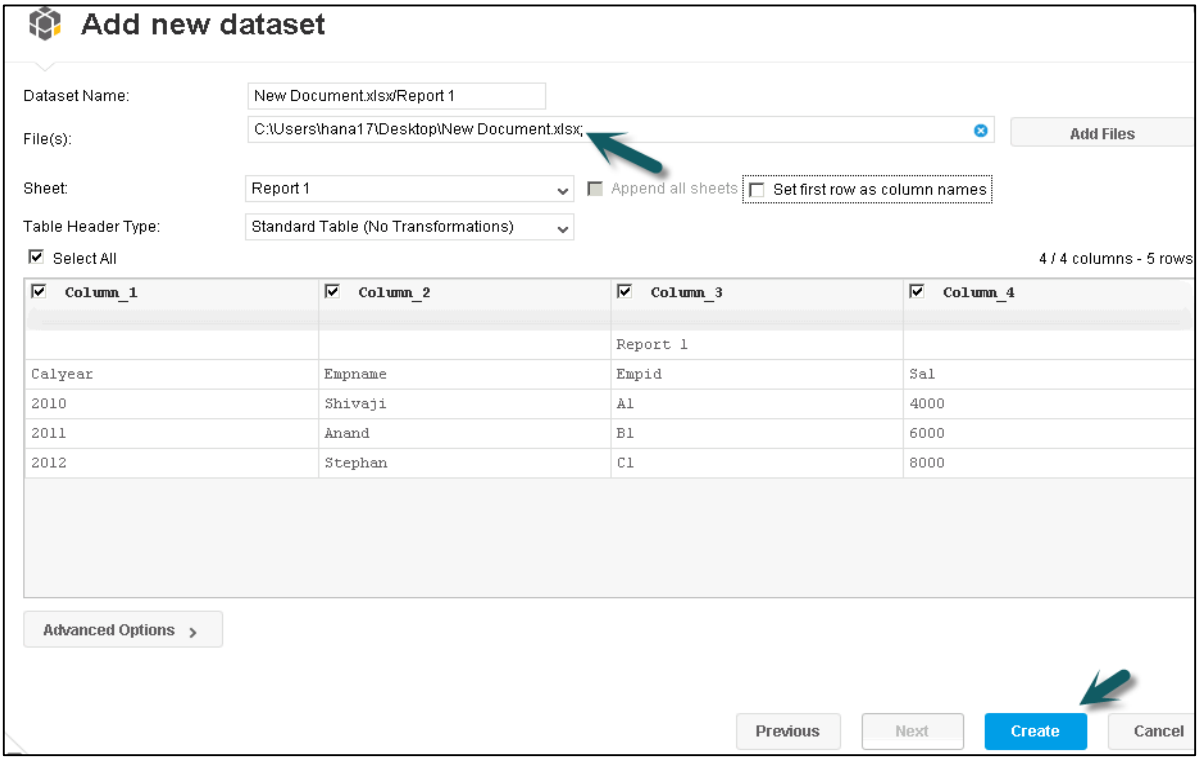
You can open multiple datasets in a single document and add dataset to a document.

The following steps will explain you how to add a data set.

1. Go to the **Data pane** at the top and select **Add new Dataset.**



2. A new **Dataset** window will open. Select a Source and click **Next**.



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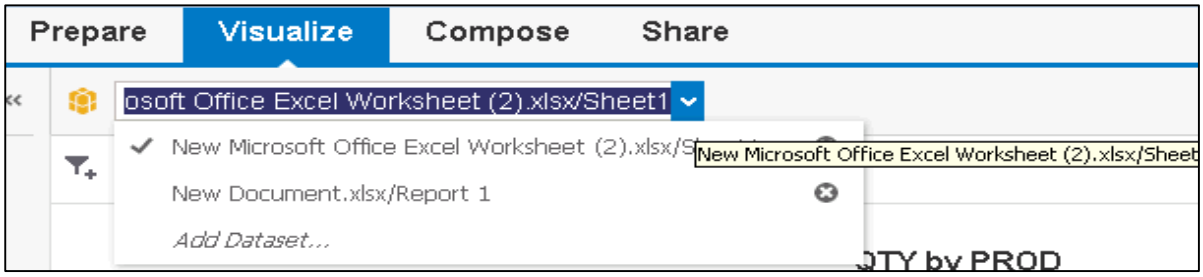
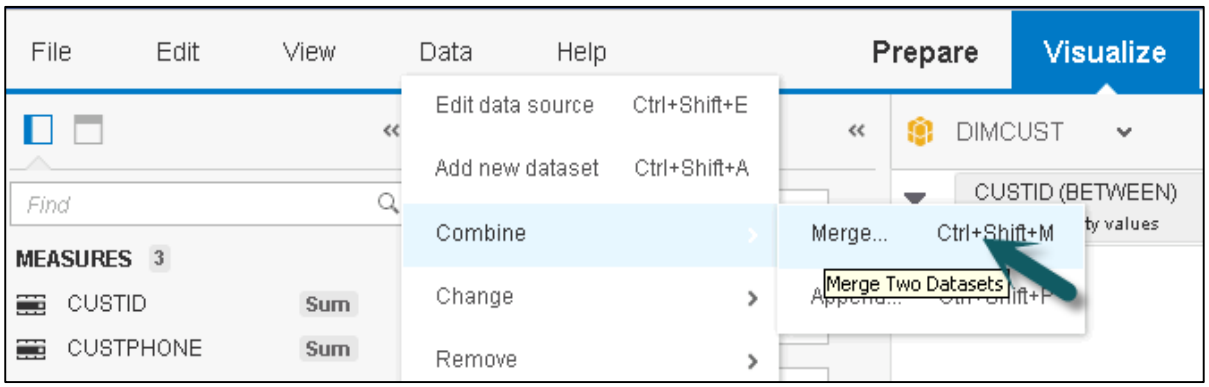
3. Click the **Create** button to add the dataset. To switch between the dataset, Click the drop down button and select the dataset you want to work on.



Merging Dataset

You can also merge two datasets by using the **Join** operator.

1. Go to the Data pane at the top **-> Combine -> Merge.**



To merge, note that:

- They should have the same key column.
- Column with the same data type can be merged.
- All columns can be merged.

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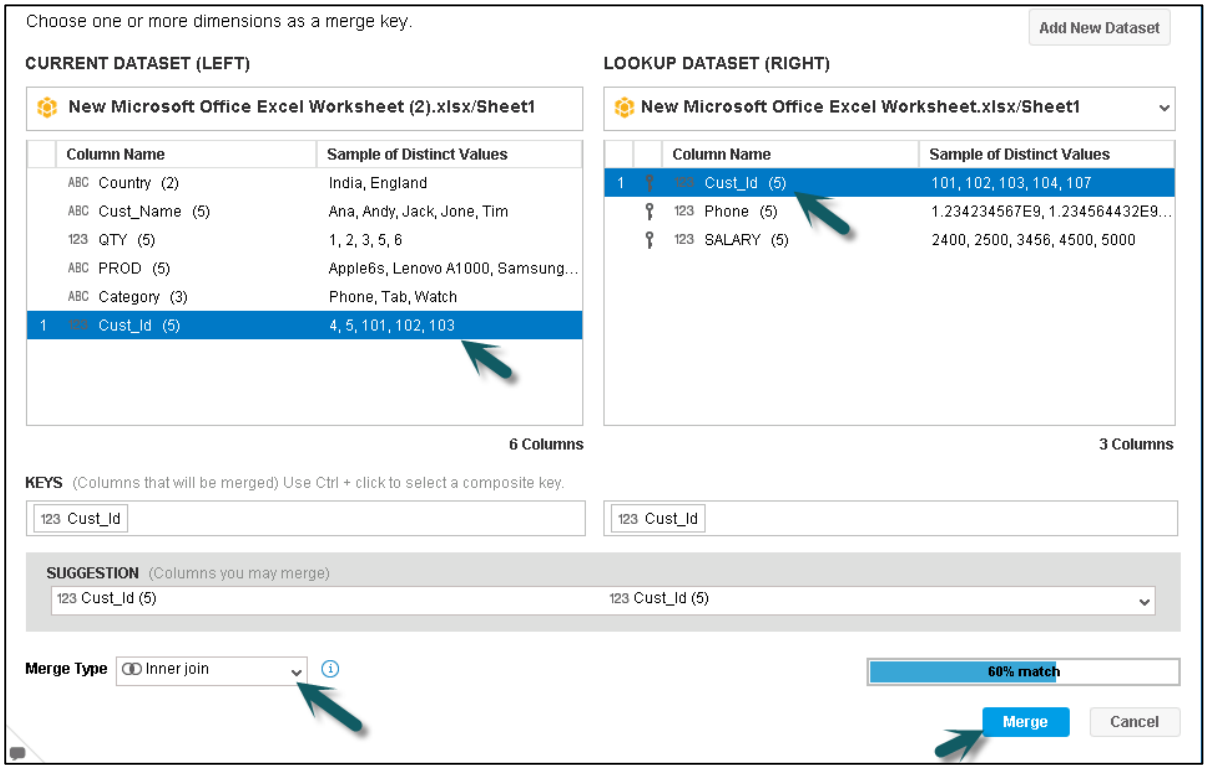
2. Once you click on **Merge,** it will show new window and compatible data type. Select Merge type and click **Merge**.

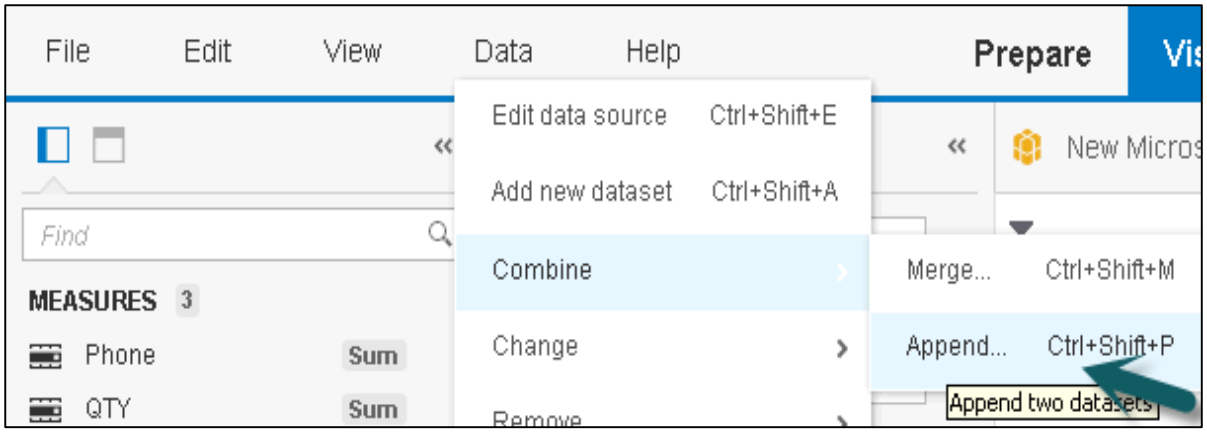


All the columns will be merged and added to the **measure and dimension** panel.

SAP Lumira – Appending Datasets using Union Operator

You can use a **Union** operator to append two datasets.

1. Go to **Data -> Combine -> Append.**



2. A new window will open with **Append data**. To use append, both the tables should contain the same number of columns and compatible data types. Only compatible data types can be appended.

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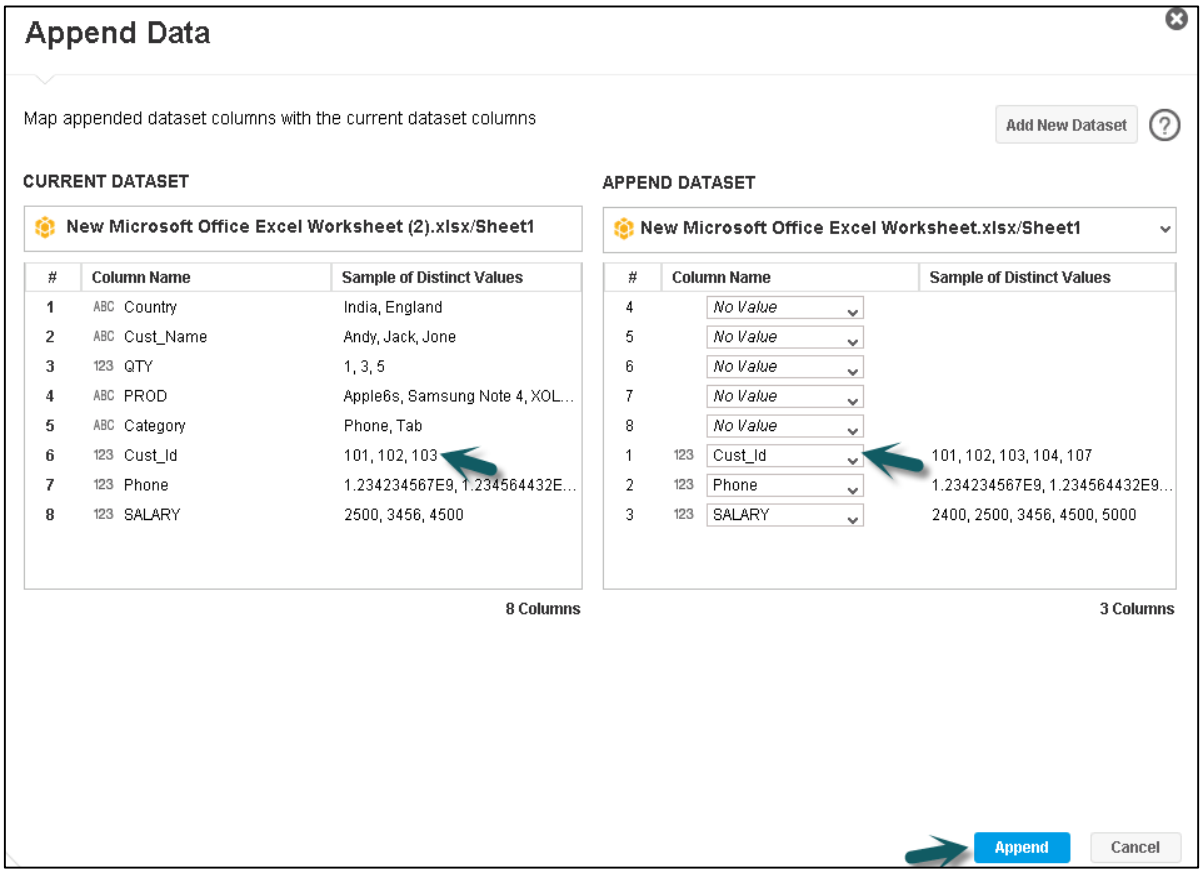
3. Select different source dimension to apply a Union with target dimension.



If the selected dimension contains compatible data type, the dimension can be appended. If both, the source and the target dimensions are different, a message appears, "**Union cannot happen**".

4. Once you click **Append**, both the datasets are combined and this combined dataset contains the name of the original dataset.

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26. Lumira – Visualizing Data

Creating Charts

In SAP Lumira, a chart can be created by dragging measures and dimensions to the **Chart Canvas** in the central area in **Visualize** tab.

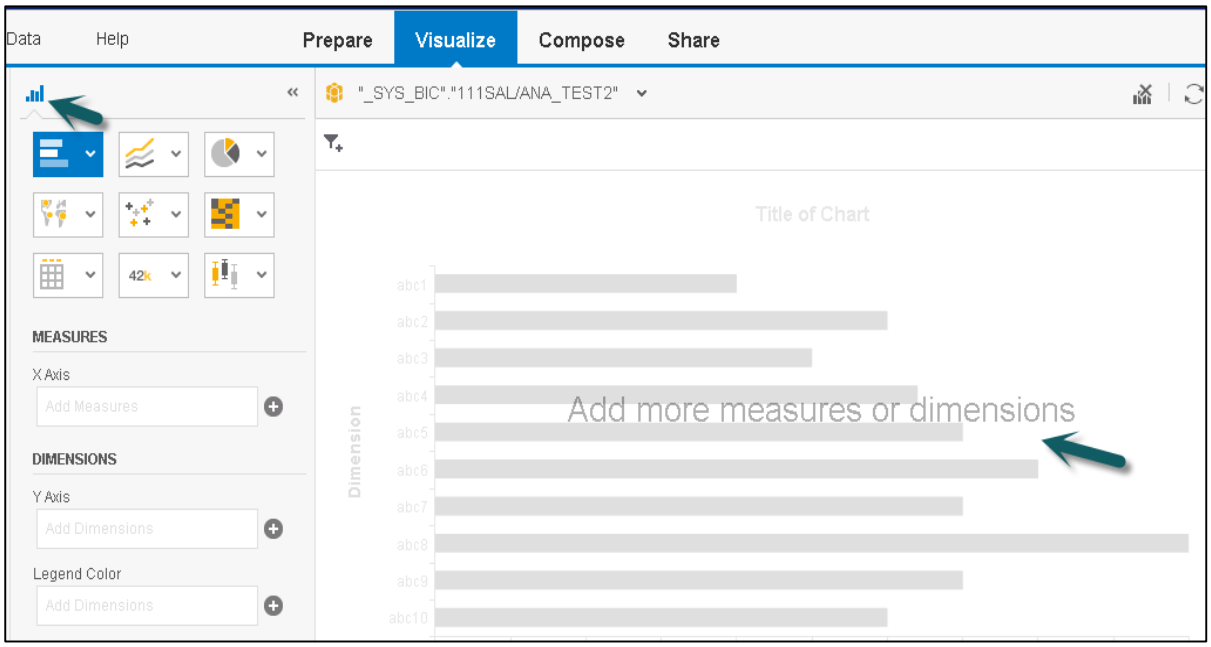
To create a chart, there should be at least one measure. When a dimension is added to the chart, it shows values based on the measures.

Adding a chart in Chart builder

To add a chart follow the steps given below.

1. In the **Visualize** tab, go to **Chart Builder**.

2. Select a chart type that you want to use in the Chart Builder. Bar Chart is the default chart type, but you can select any chart from the list.



3. The next step is to choose a measure and drag it to an axis on the Chart Canvas. You can check in chart where to add dimensions and measures. You can click on '+' sign to add a dimension or measure to a chart.

4. Select a dimension and drag it to the Chart Canvas. Text in the chart body guides you to the correct axis for the dimension.

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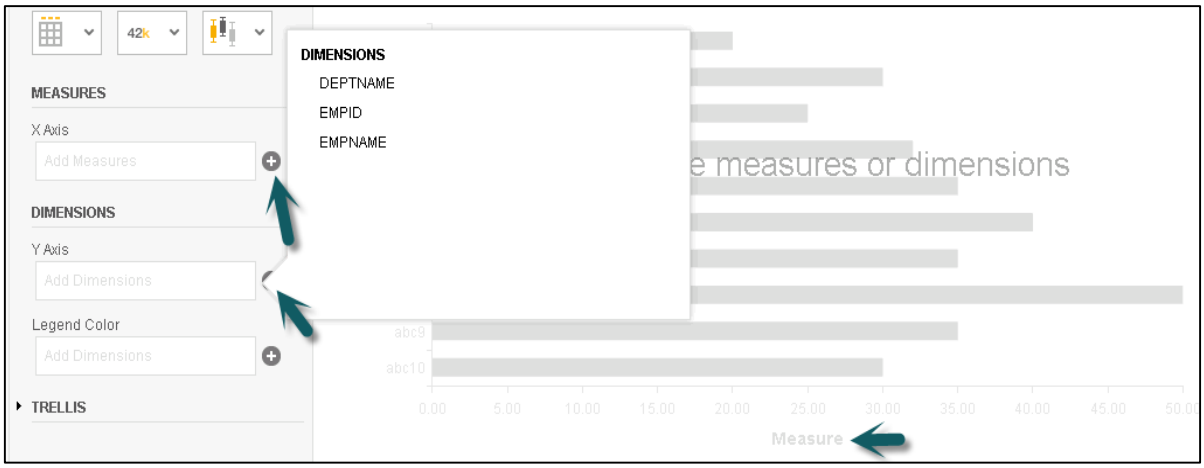
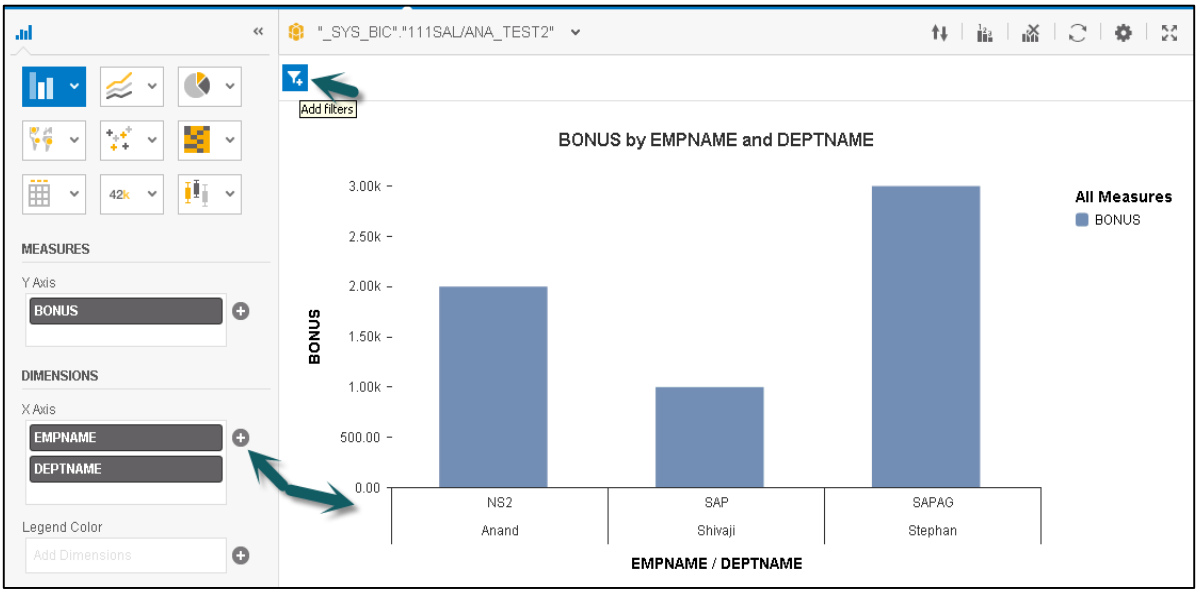
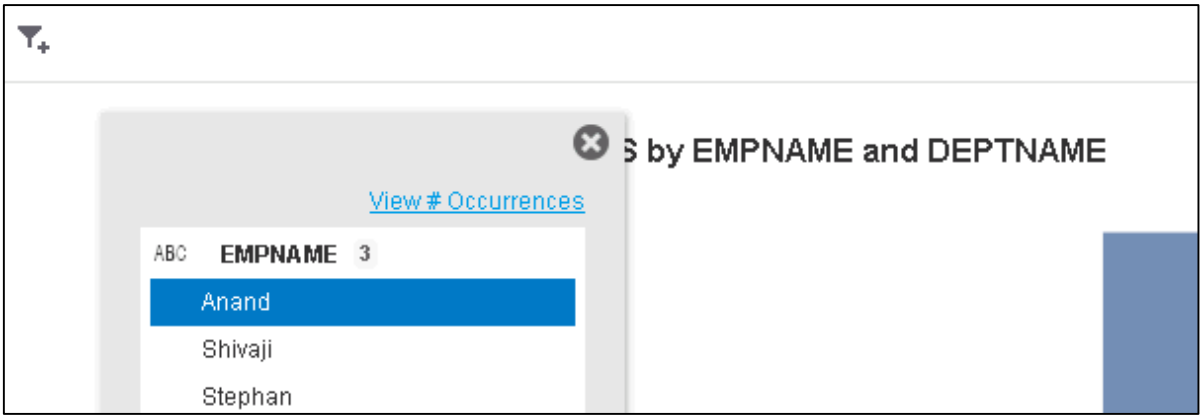


5. You can also add a filter to the chart by clicking the **Filter** option at the top.



6. Select the dimension to which you want to apply a filter and click **OK**.



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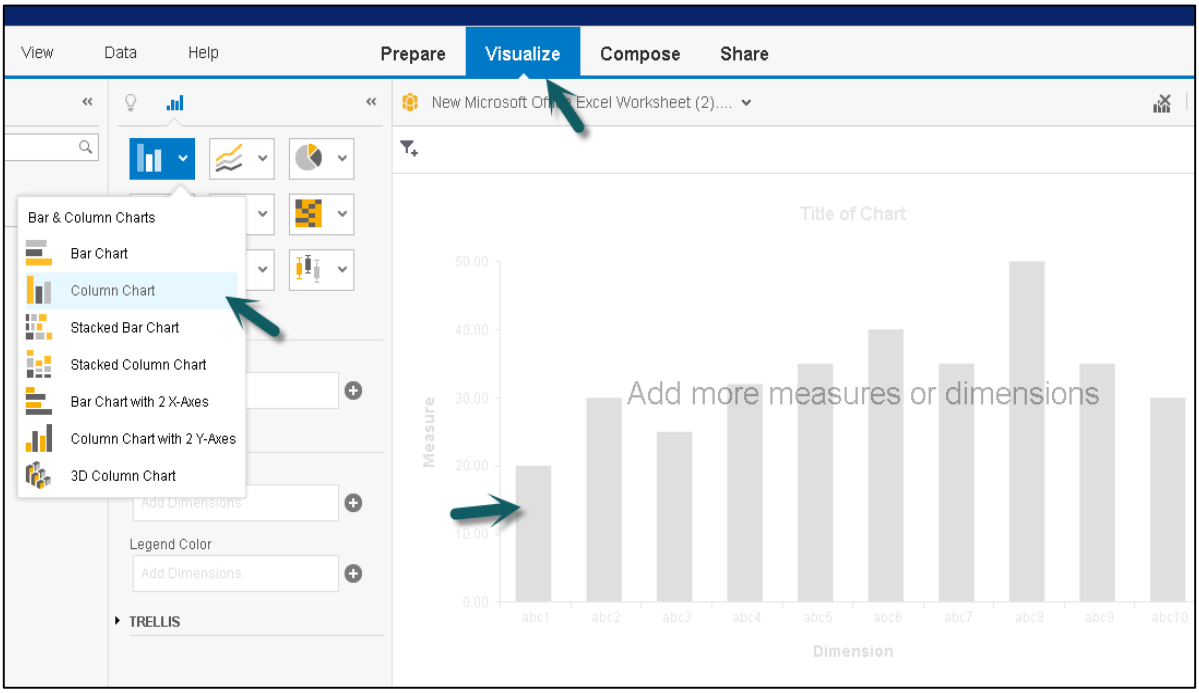
Creating a Chart Directly using Chart Builder

In Lumira, you can quickly create a chart by dragging the objects directly to chart area. To create a chart, the dataset should contain at least one measure value.

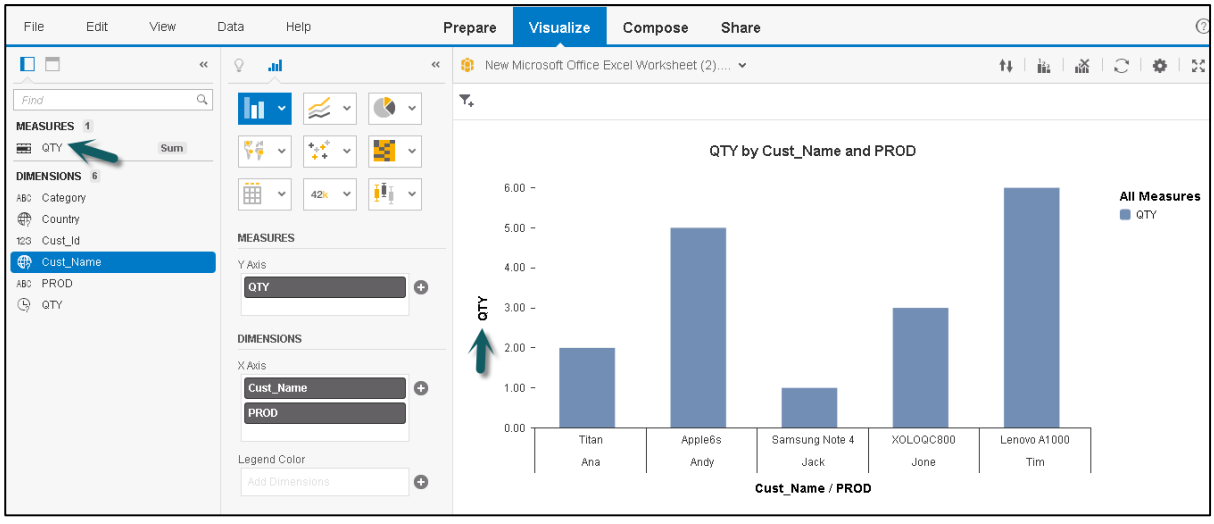
When you create a chart in SAP Lumira, it can be used in compose and Share tab for the current session.

1. If you want to save the chart as document to use it permanently you have to go to **File -> Save**.

2. Go to **Visualize tab -> Select a chart type** from the list of available charts and add to chart builder.



3. Drag the **Measures and Dimensions** on axis of the chart. The text written in the chart helps you to find out which object is to be dragged to which axis.



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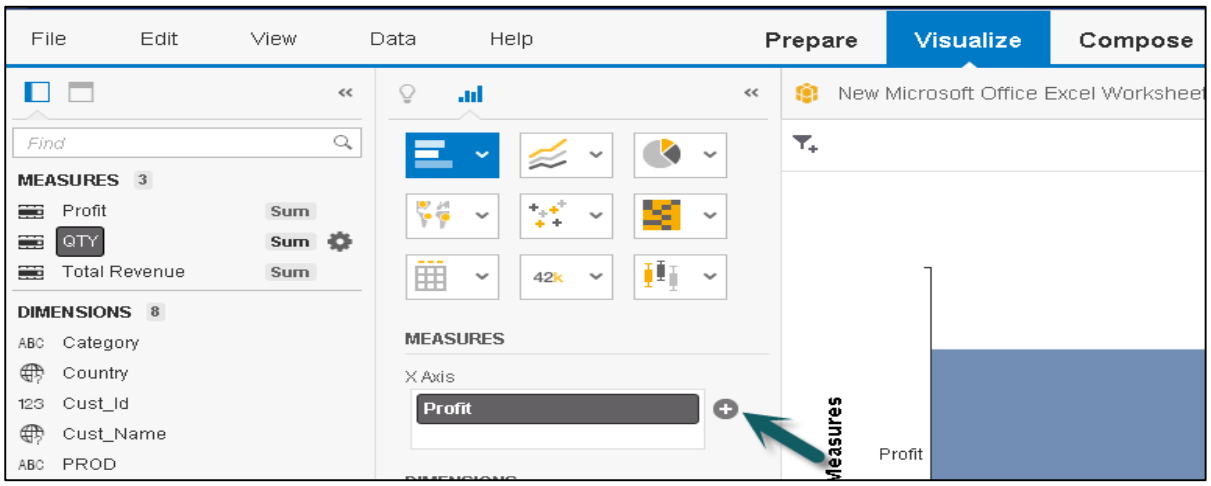
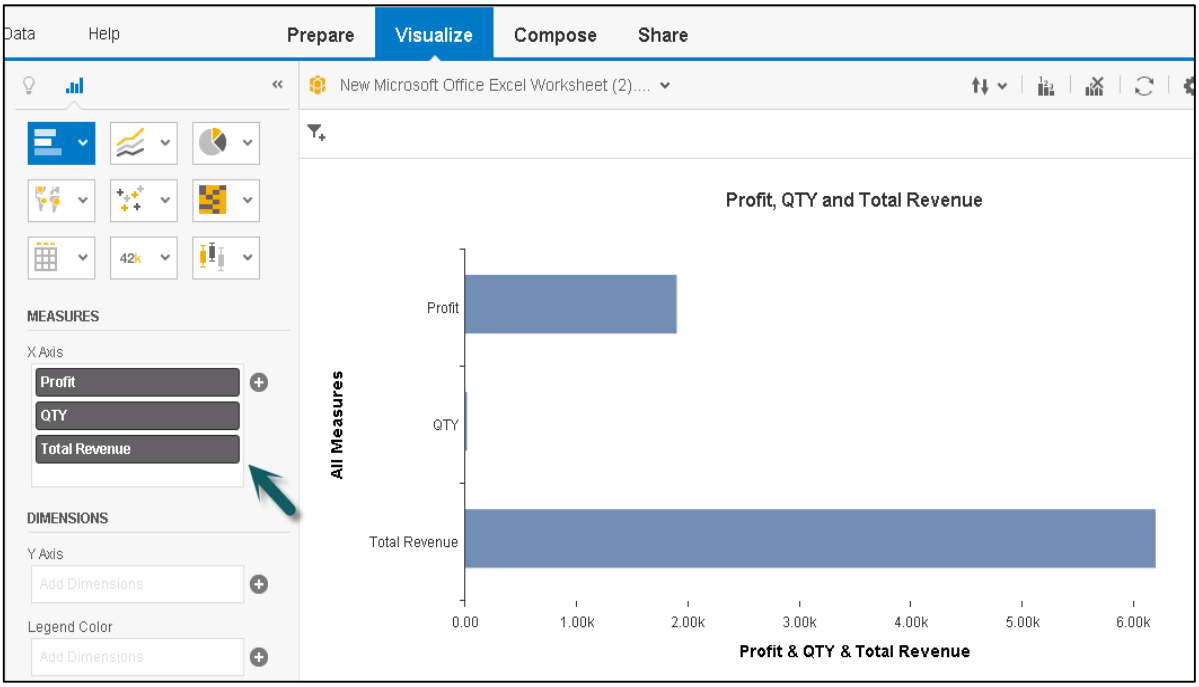
Plotting Measures as a Dimension in a Chart

You can also add measures as a dimension in SAP Lumira. To do this, add two or more measures as dimensions in the chart. This can be used to check how data is spread over multiple axis in a single chart.

1. Go to **Visualize** tab -> drag **measure to measure** panel.



2. Go to **Settings** and click **use Measures as dimensions** option.



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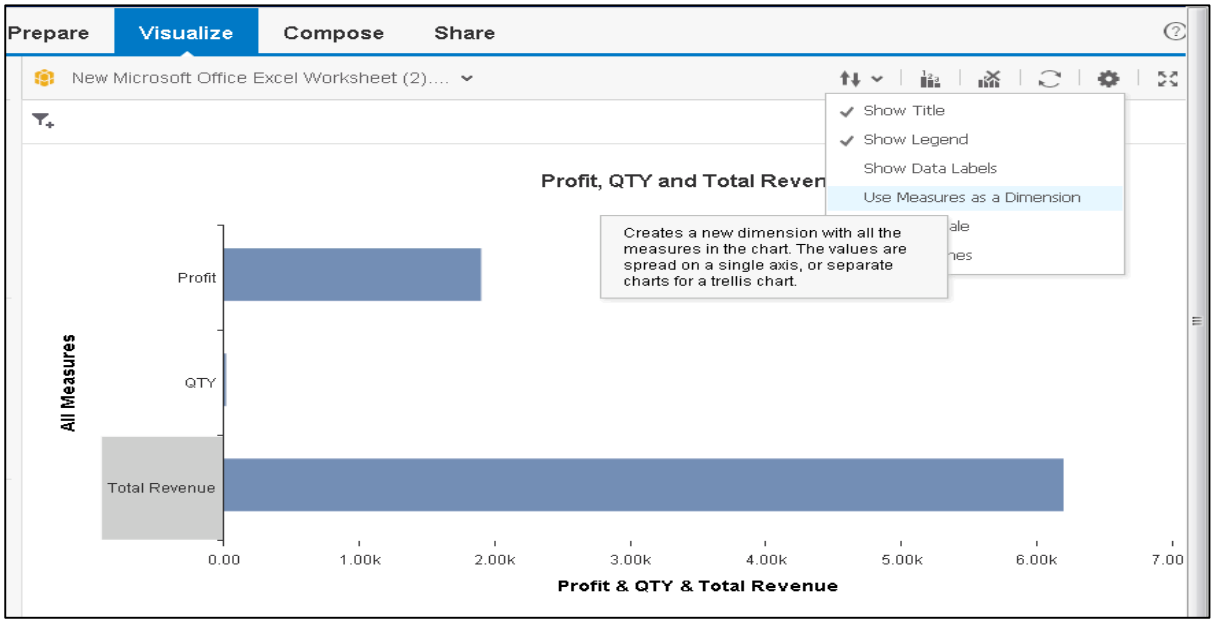
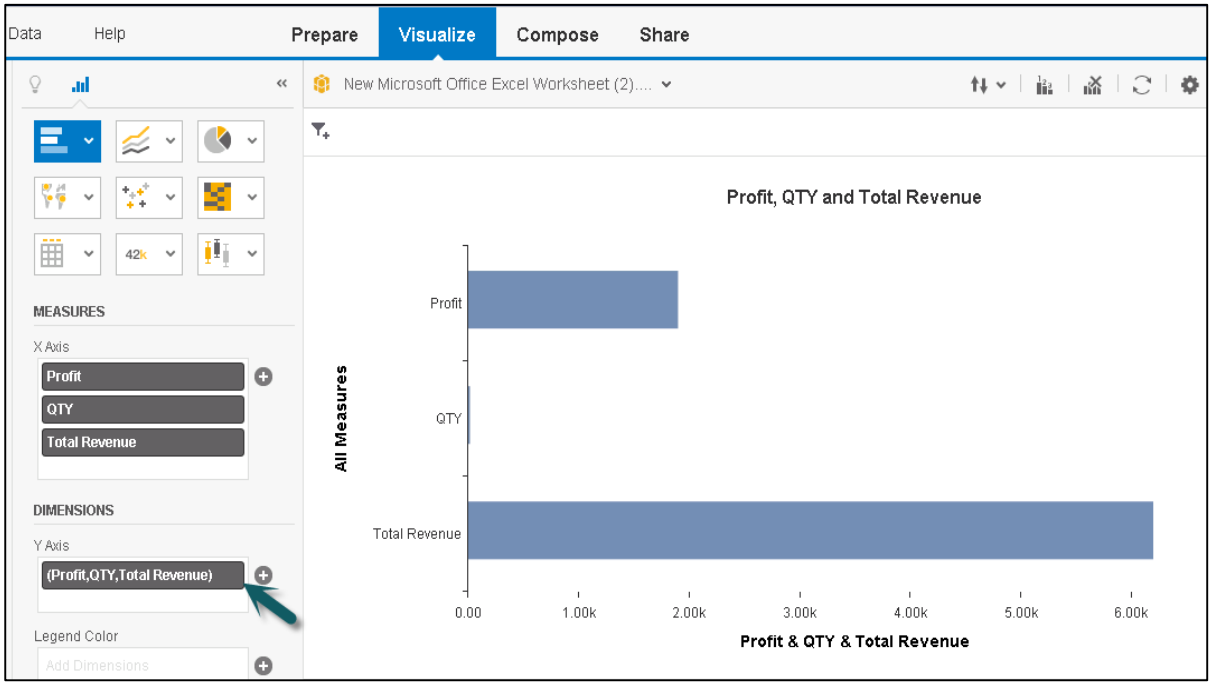
Once you select this option, measures are displayed as new measure dimension in Dimension panel.



3. Now you see the Dimension axis, measures will be added to the dimensions panel.



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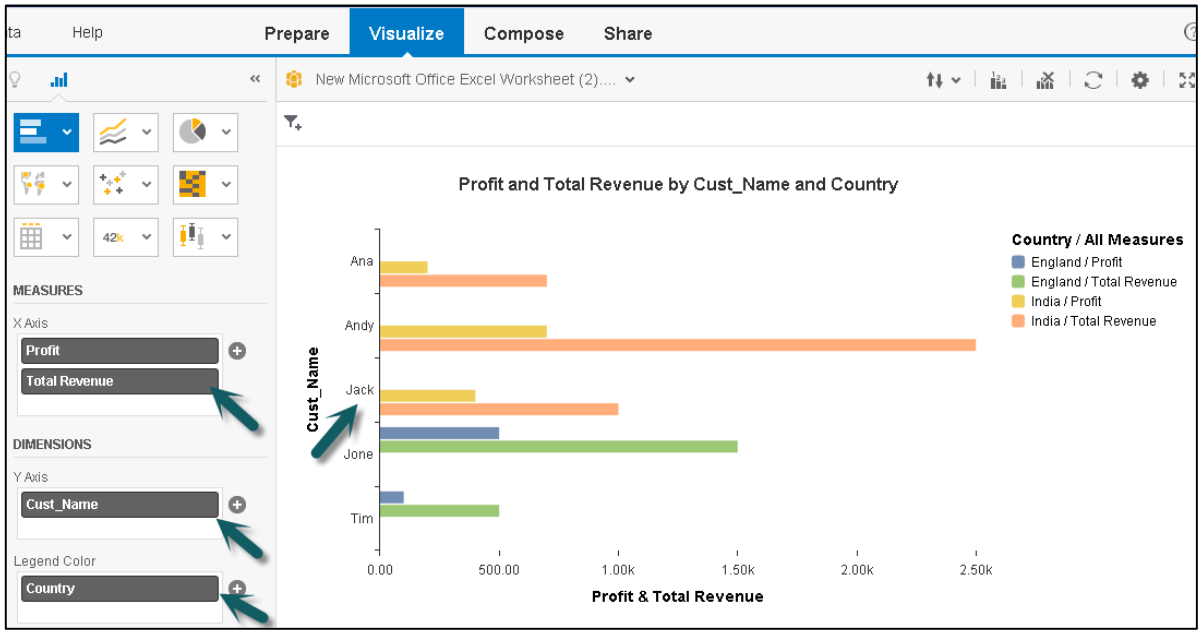
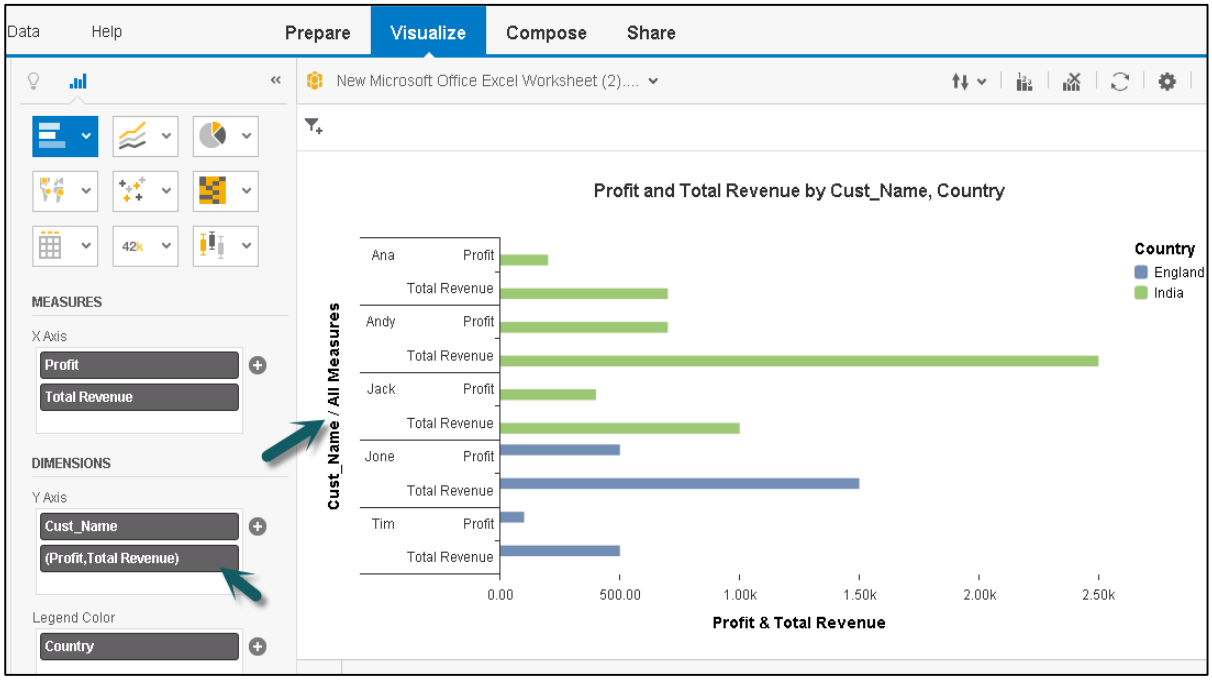
Example

Let us add a dimension to this chart and see how it works.



Now, if you go to **settings** and select **measures as dimension** option as mentioned above, it will divide the measures as per dimensions in separate charts.



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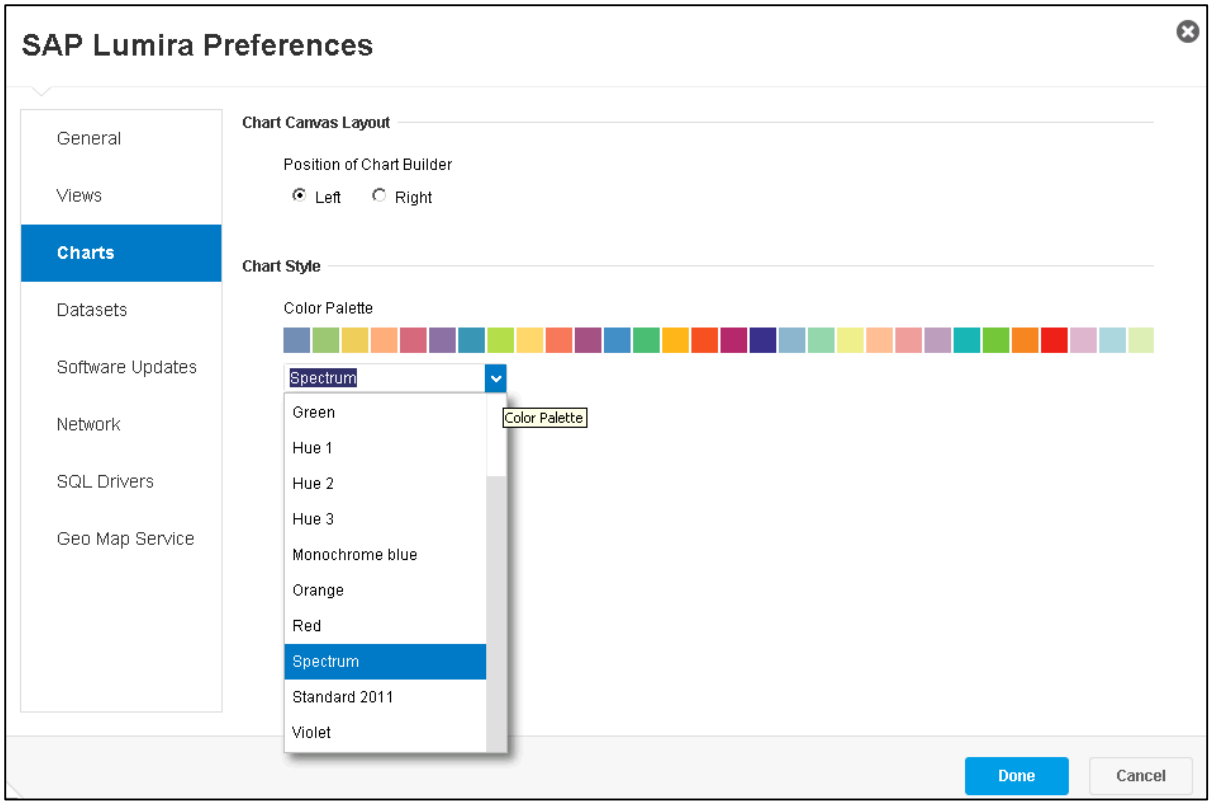
27. Lumira – Legend Colors

You can change the color of charts in SAP Lumira. Follow the steps given below.

1. To change the colors, **Go to File -> Preferences.**

2. A new window will open. Go to charts and you can select different colors as per the requirement.



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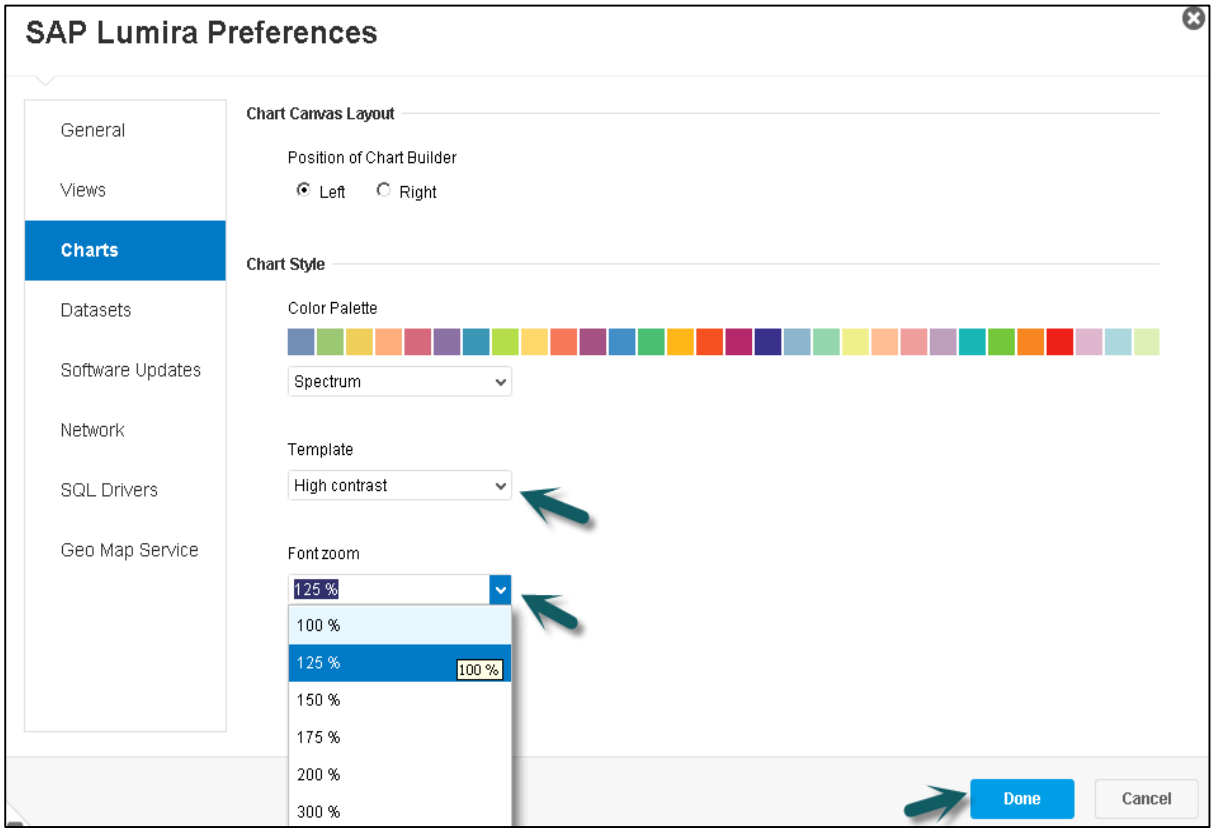
3. You can also change the font zoom and template attribute as shown in the screenshot below. Once you complete all the settings, click **Done** and the relevant changes will be applied to the chart in **Chart builder**.



Adding Custom Charts

To add custom charts in SAP Lumira, you can use SAP Lumira software development kit SDK. You can add custom charts in SAP Lumira using VizPacker and these charts will be added to list of available charts in canvas.

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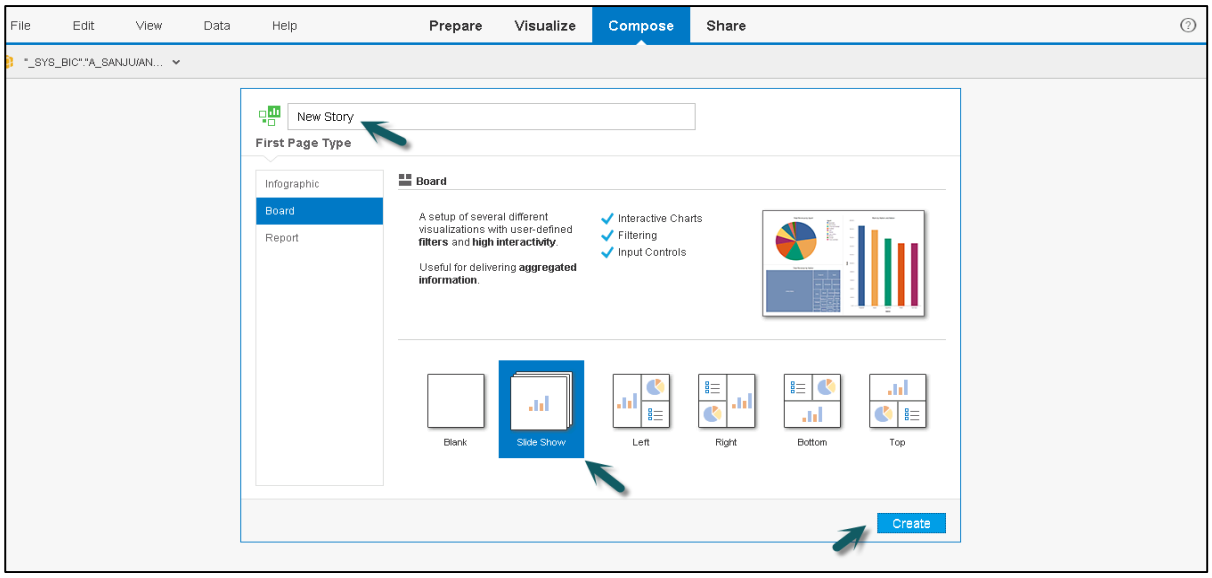
28. Lumira – Creating Stories

You can create different stories in SAP Lumira in presentation-style document using visualization, graphics and other customizations that have been applied to the dataset.

You have to customize the compose tab once and you get multiple options to select an Infographic, Board or a Report.

Enter the name of the Story and click **Create**. You have different panels in Compose tab as shown in the screenshot.



Content Panel

The left panel contains different types of content that you can add to the story page. You can select any item and drag it to a section on the story page.

- Dataset Selector
- Story Selector
- Preview
- Filter Bar
- Add Page and Delete Page
- Page Settings, Etc.

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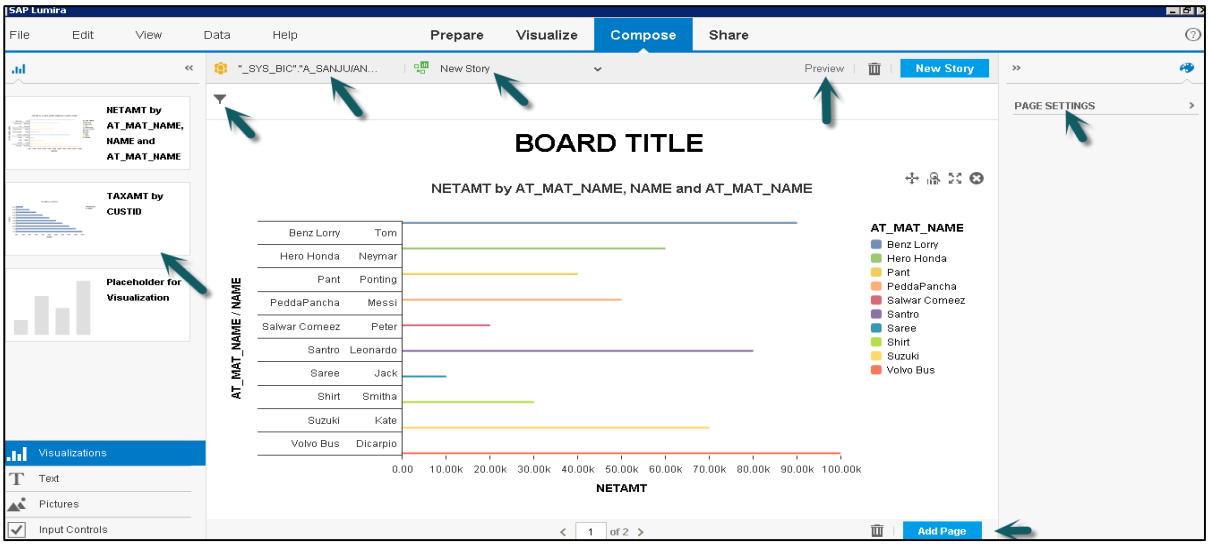
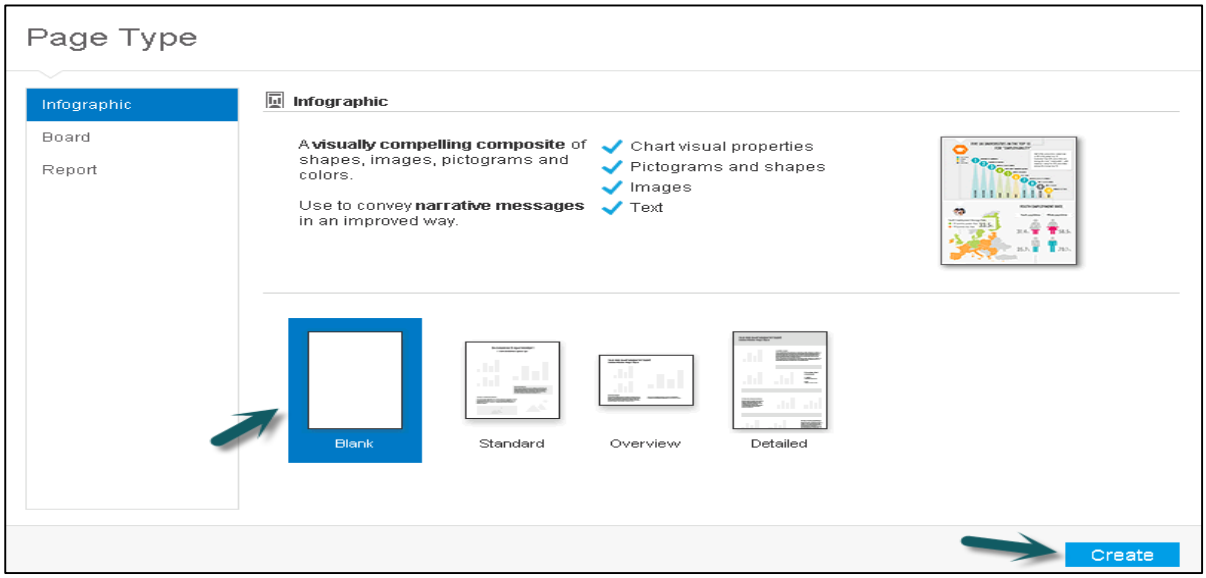


Creating Stories with Charts and Data

1. To create stories using chart, go to **Compose** and select a **Blank Infographic**. Click the **Create** button as shown in the screenshot below.



In the left panel, you will get options to add Visualizations, Text, pictures, pictograms, etc.
2. To add multiple visualizations in a story, just click on the **+ sign** at the bottom pane.

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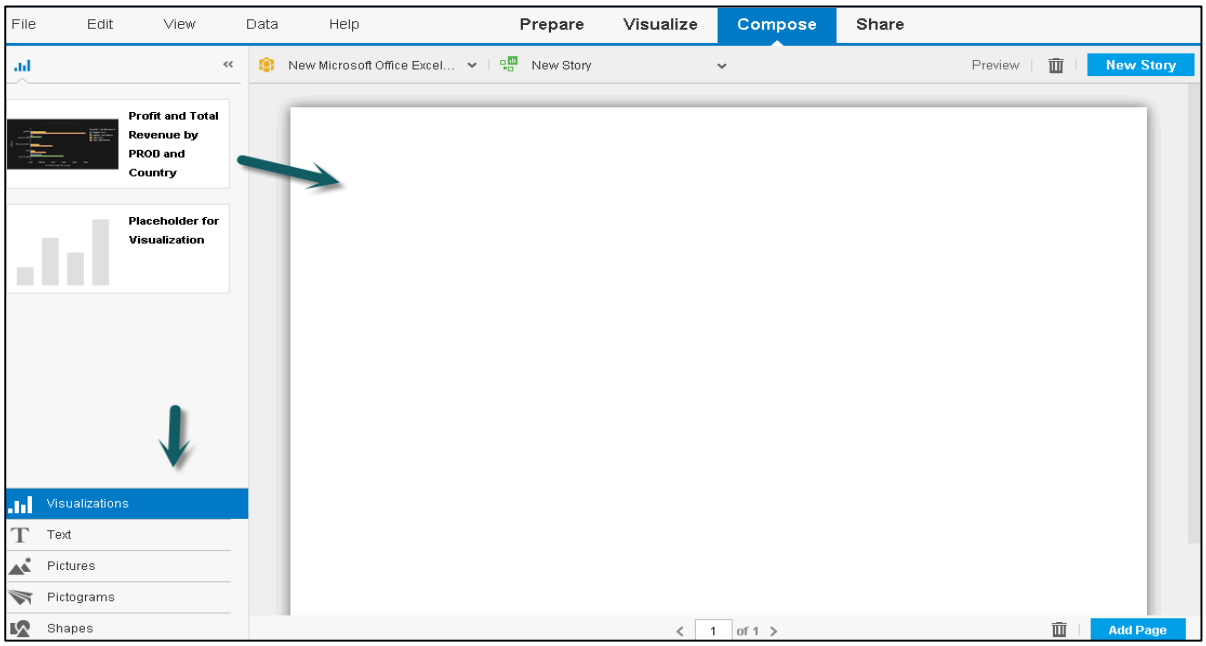
3. Drag a chart you want to add, to the story.

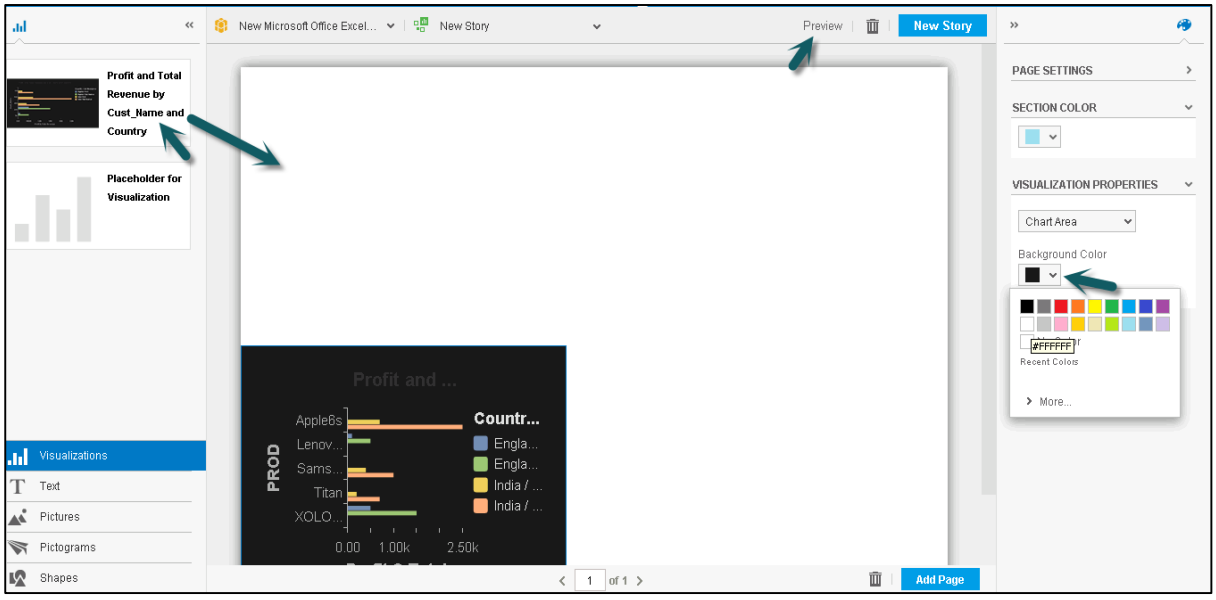


4. Suppose you want to add two charts in your Lumira story. One by the Customer and other by the product. Drag one chart to Story area.

5. You can also do page settings, Back ground color, etc.

6. To add another chart, go back to the **Visualize** tab and make changes to the **Chart** Dimension and measure panel.

7. Go to **Compose** tab and select the next chart to be added. All Visualizations in Visualize tab will be shown under the left panel. You can create multiple visualizations to create stories.



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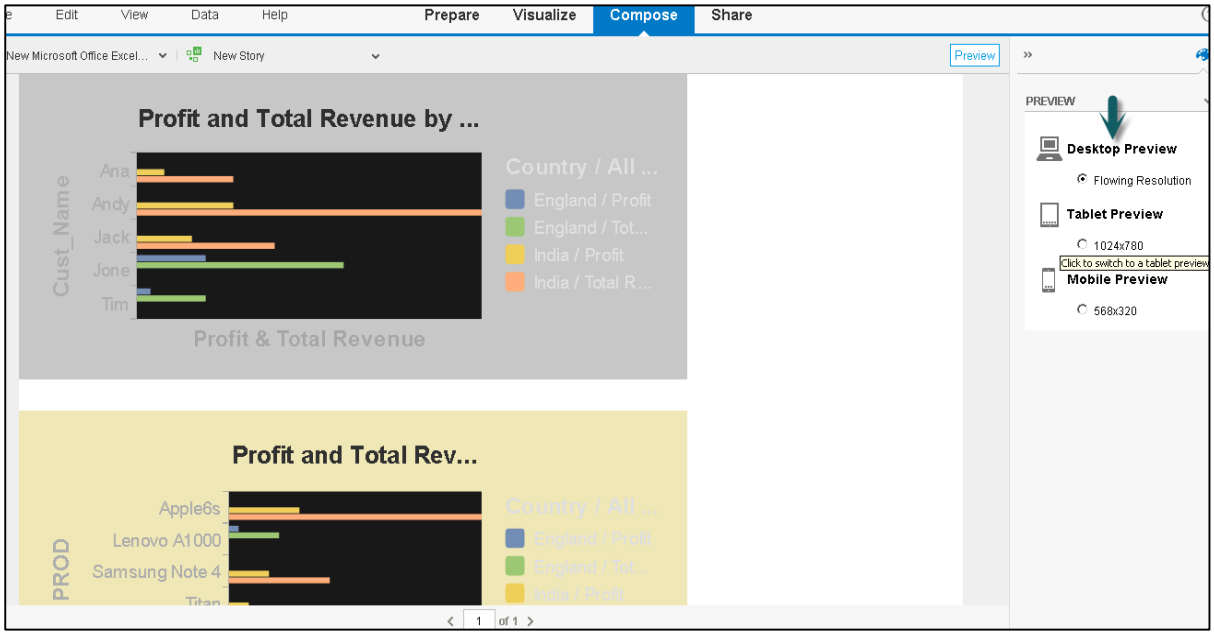
8. At the top, you have an option to preview the story in desktop preview, tablet preview and mobile device. Click the **Preview** icon. To go back, click the **Preview** icon again.



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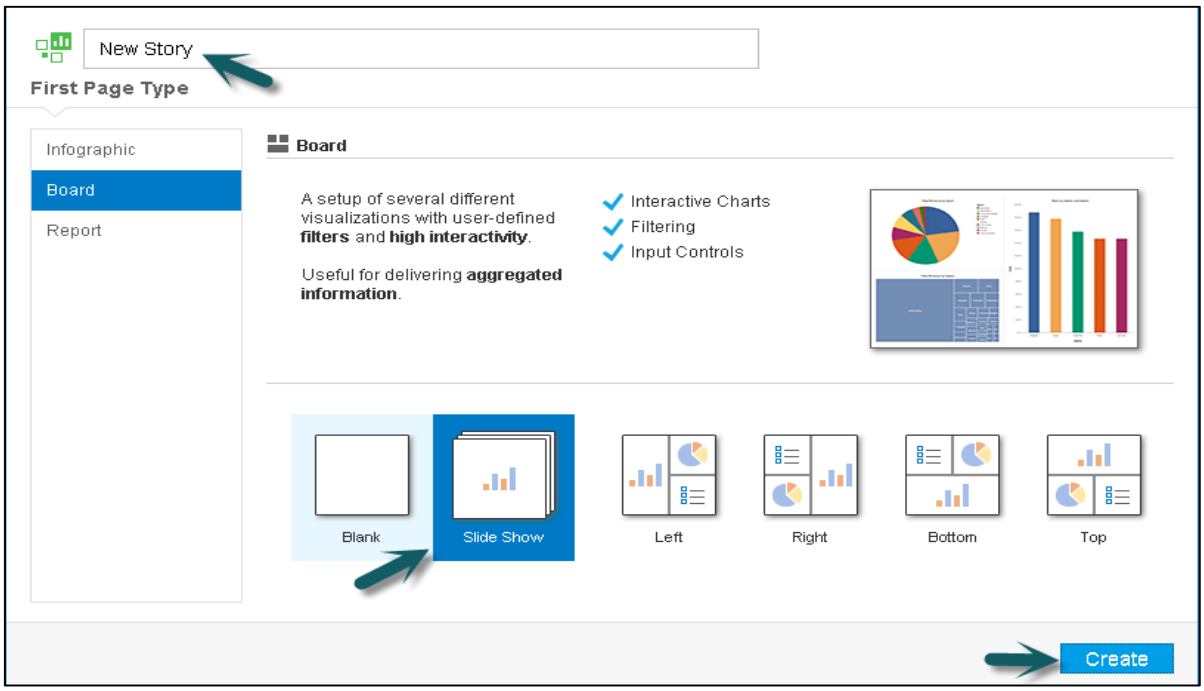
29. Lumira – Slideshows

You can also create slideshows in SAP Lumira. To create a slide show follow the steps given below.

1. Go to **Compose -> Slide Show -> Create.** You can select different types of charts Left, Right, Bottom, Top, etc.



2. Once you select the Slide show, it will add all the Visualizations in slide show automatically. You can also drag the Visualization from left panel and add to the slide show.

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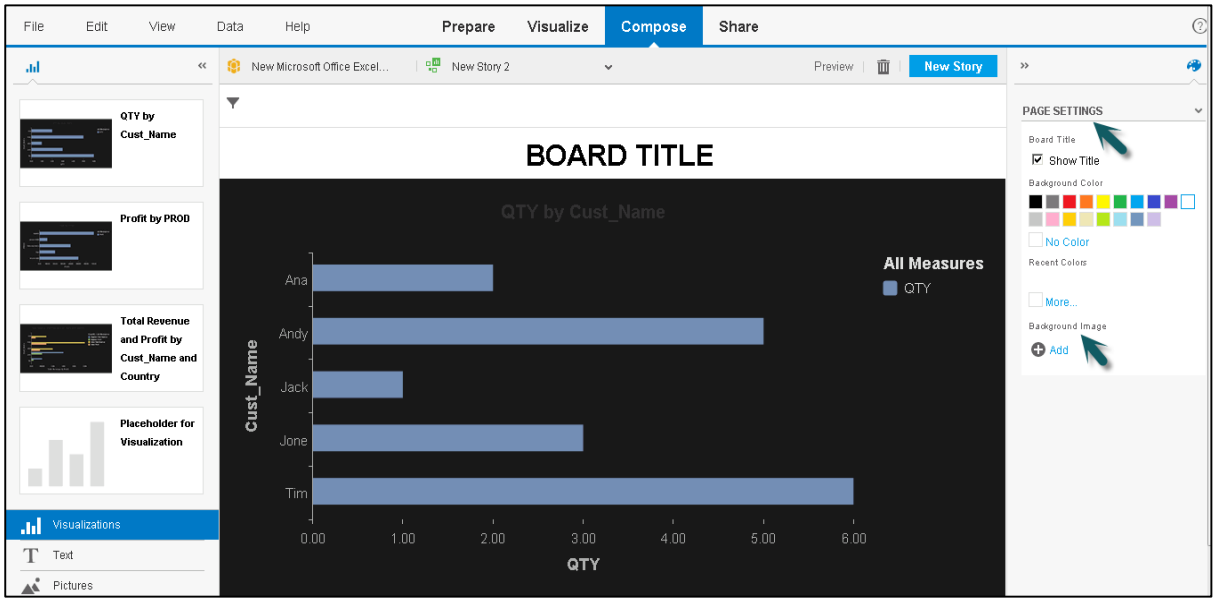
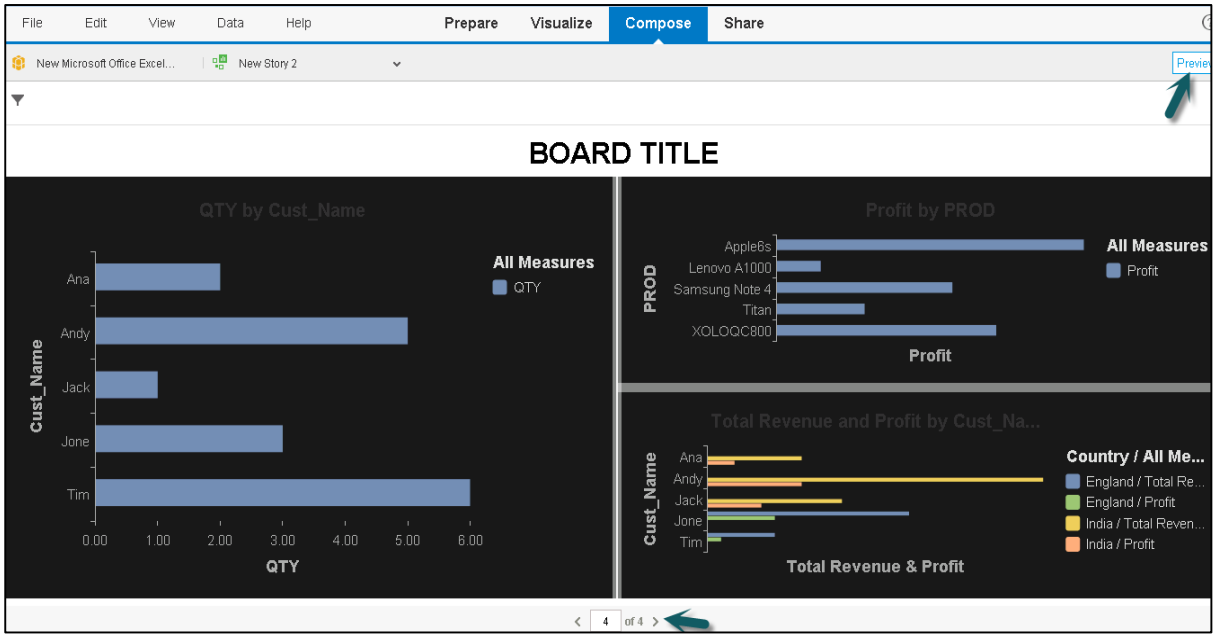
3. On the right side, you can do **Page settings** like background color, background Image, etc.



4. You can click the **Preview** tab to see the preview or **Add Page** to add a page to this story.



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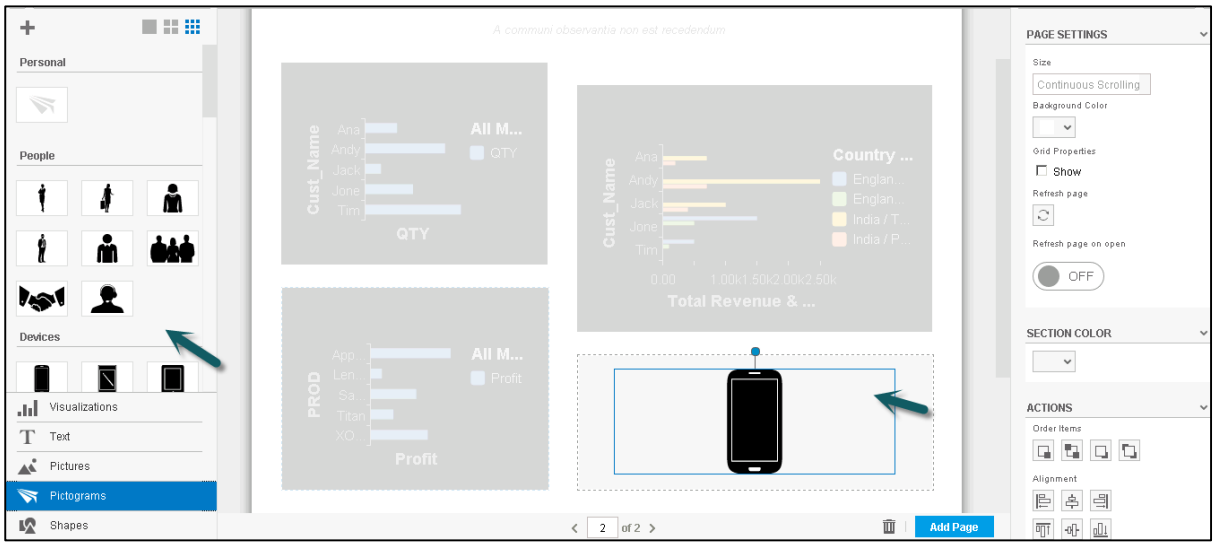
30. Lumira – Customizing Stories

You can also create customized stories in SAP Lumira. To create customized stories, you can add different types of pages in a story.

1. To add a page click **Add Page** and select a page you want to add to story.

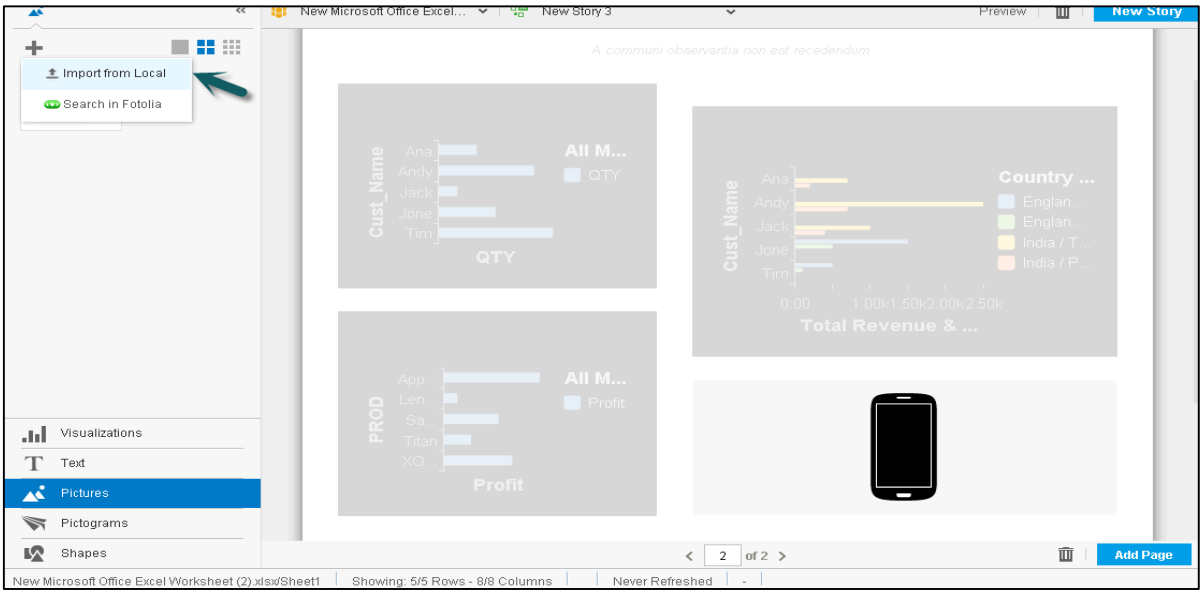
2. Drag the Visualization from left panel to the story. There are inbuilt images that can be used in a story.

3. Go to Pictogram on the left side and it will show you all the available pictograms that can be used in a story.



4. You can also add images from local machine. Go to **Pictures** and click the + sign.

5. Select **Import from local.** Add the path of the image you want to import and click **Open**.



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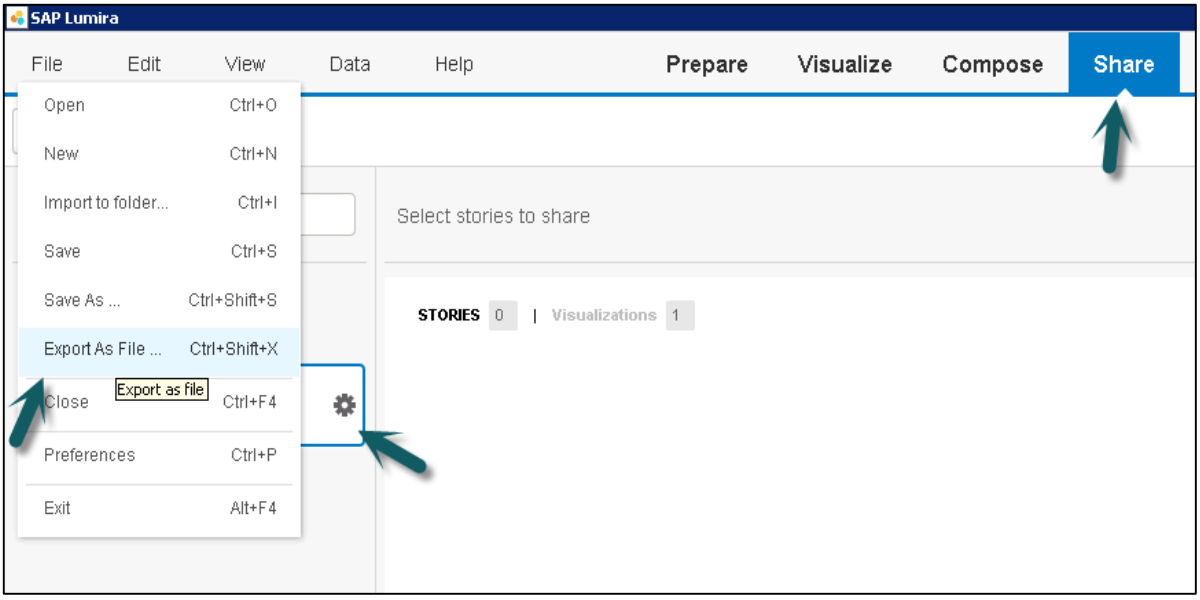
31. Lumira – Sharing Charts, Stories & Datasets

Once you are done with the datasets, visualizations and stories, there is an option to export, print or publish them.

Export Dataset as File

1. You can save dataset as **.csv or. xls** file.

2. To do this, go to the **Share** tab and select the dataset from the left panel. Go to **File - > Export As.**



You will get an option to save it as a **.xls or .csv** file.

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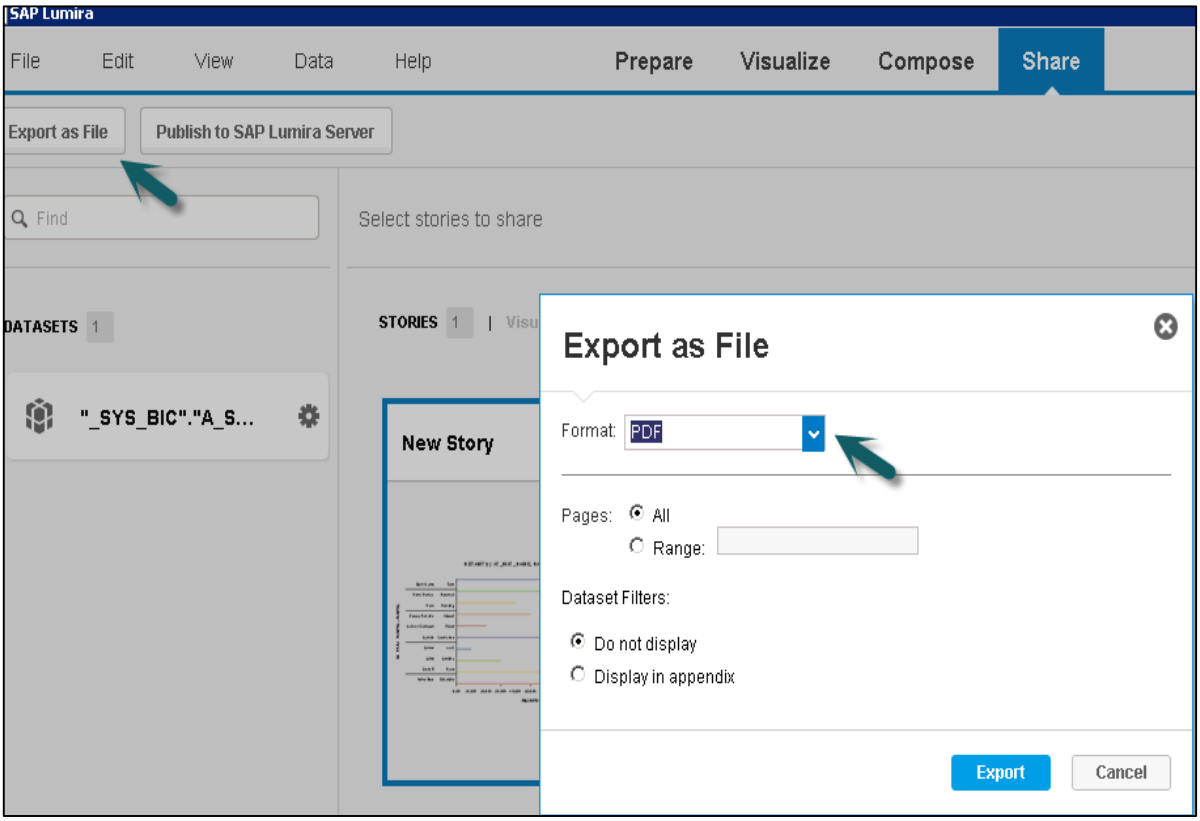
Exporting Stories

You can export a story in PDF format. You can also select all pages to export or number of pages in range option.



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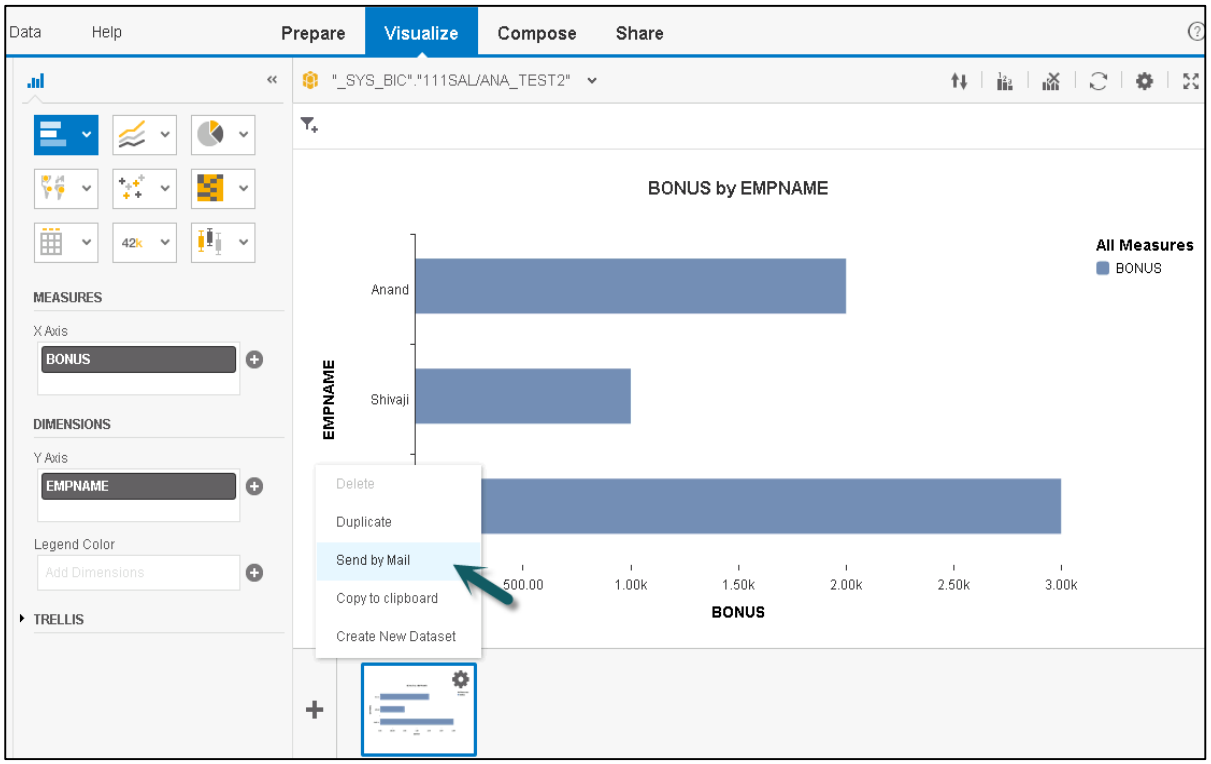
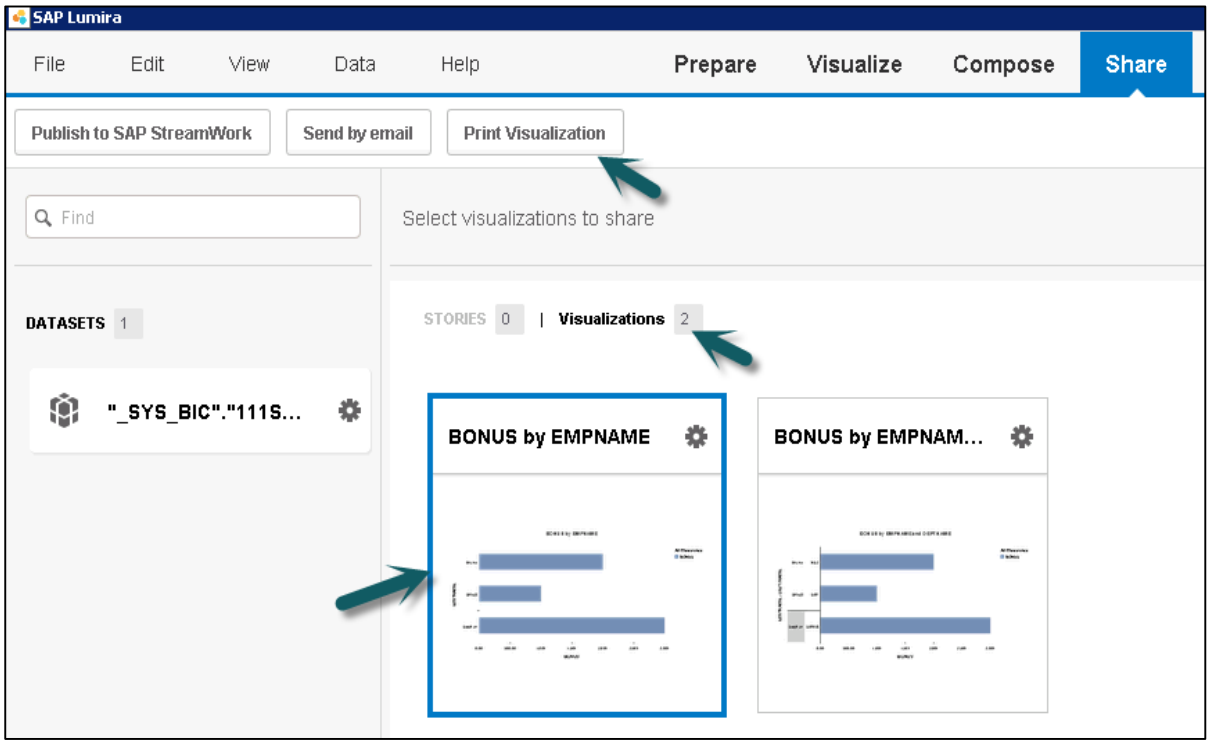
Exporting Visualizations in Email or Print

You can export to a printer or can also send in an email to a user.

1. Go to options in a Visualization and click on Send by mail.



2. Choose an Export Size, Small, Medium or Large and Click **OK**.



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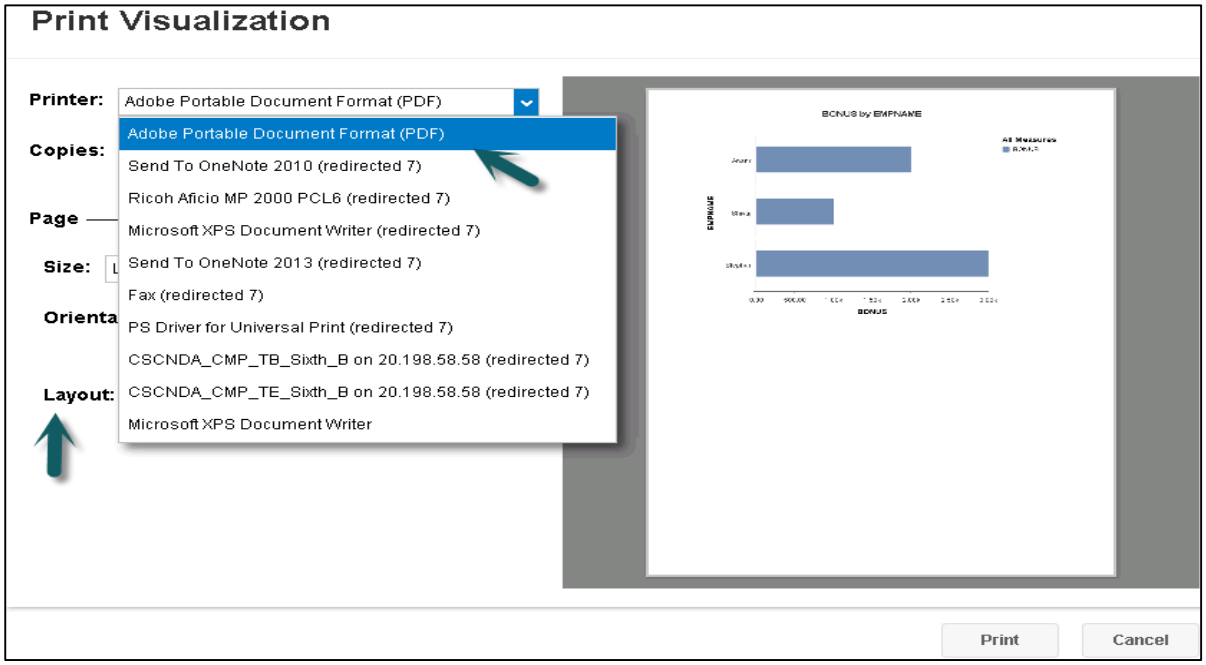
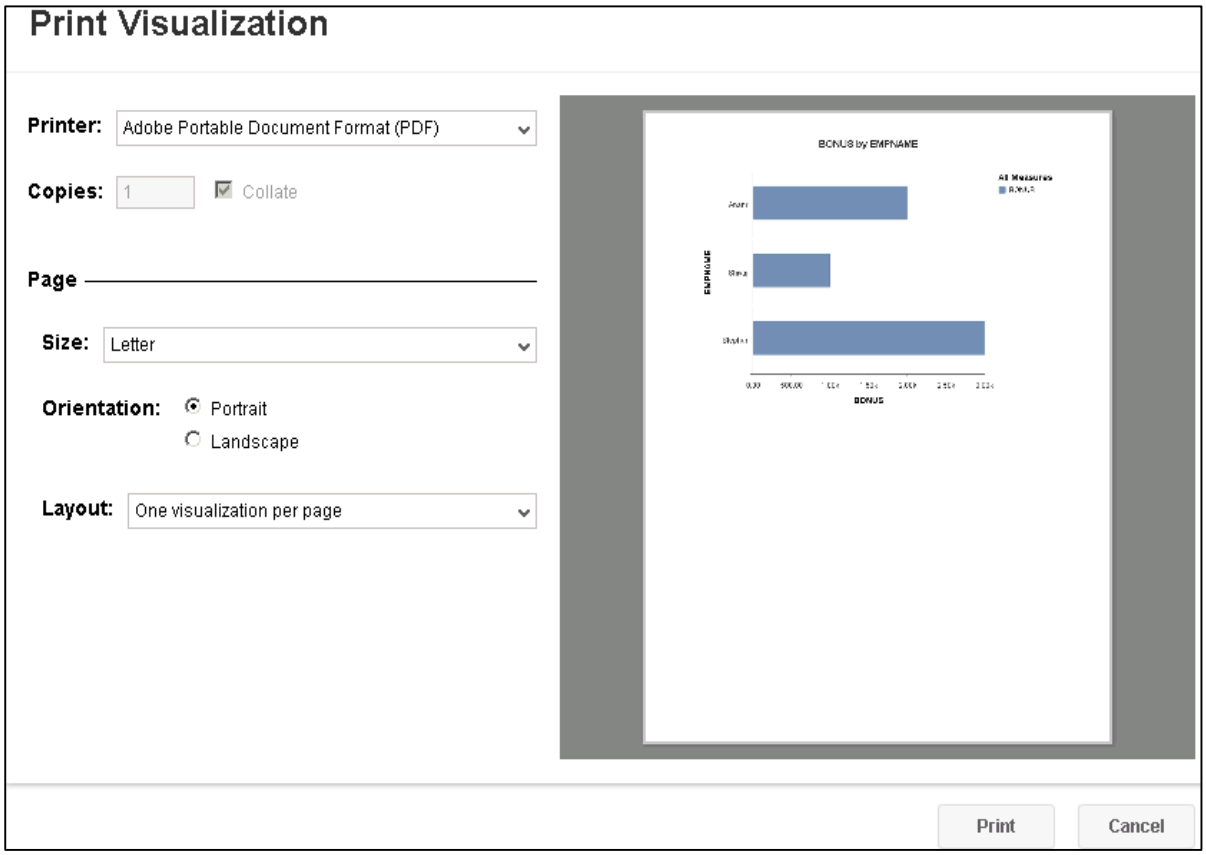
3. To Print a Visualization, go to the **Share** tab -> Select Visualizations and you will get an option to Print Visualization at the top.



4. You will get options under Printer like PDF, Send to One Note, etc.

5. You can also select the Copies, Page, Size, Orientation and Layout under Print Visualization.



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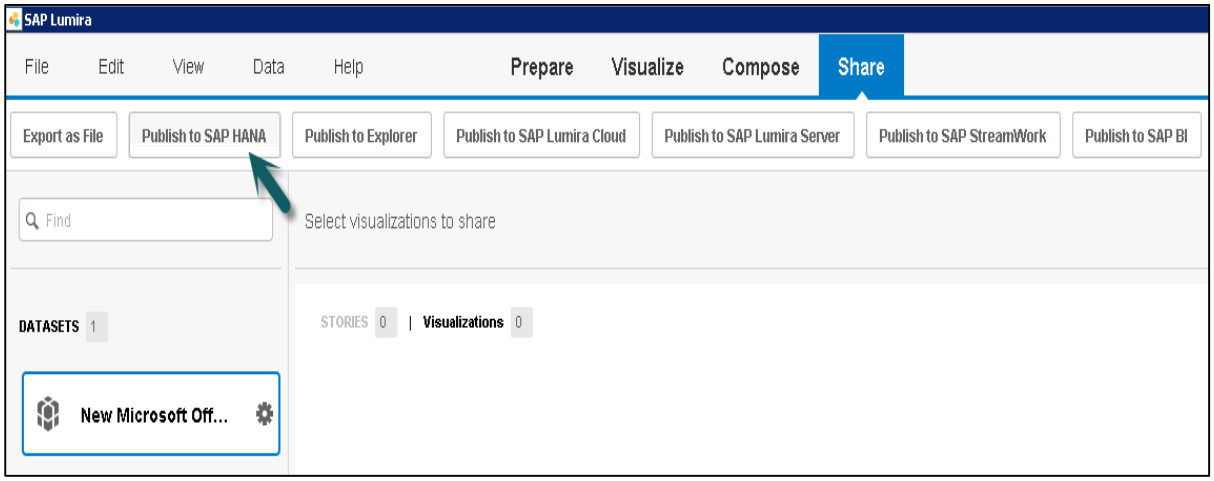
32. Lumira – Publishing Datasets to HANA

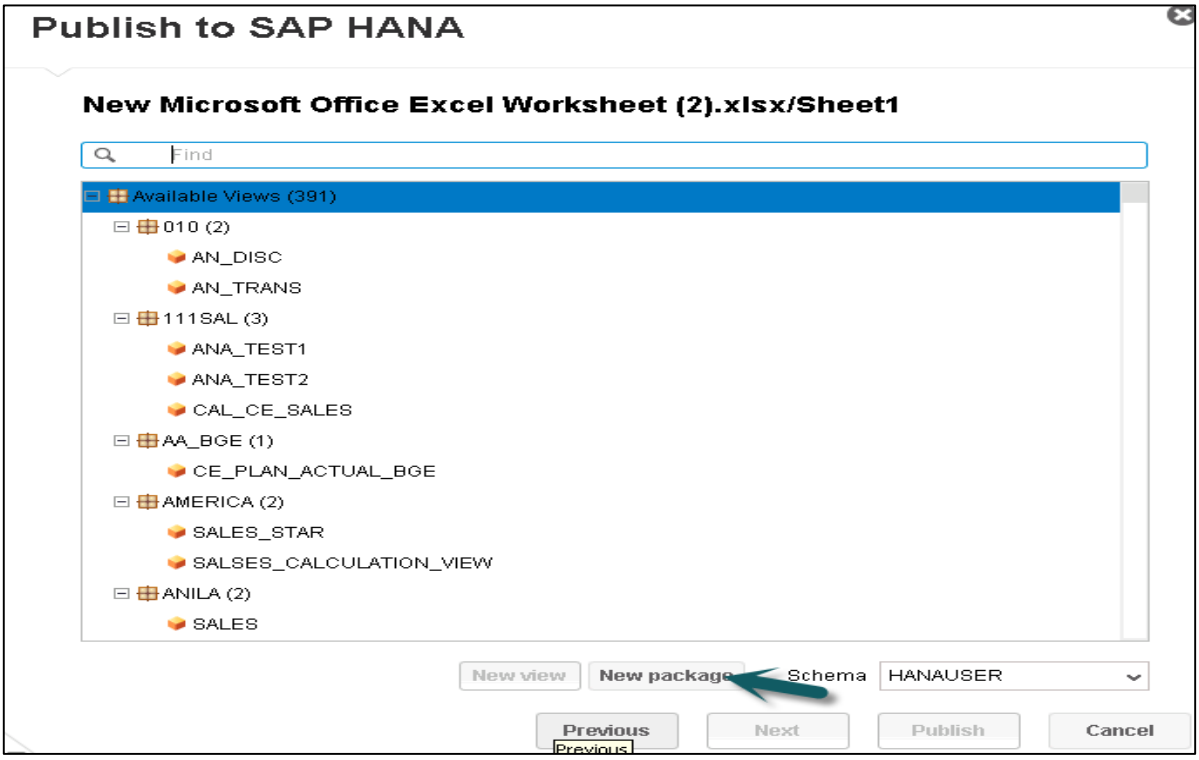
To publish datasets to SAP HANA follow the procedure given below.

1. Go to the Share tab and select the dataset to be published. Once you select the dataset, you will see all the options as shown in the screenshot given below.



2. To publish to HANA, you have to note that the only dataset is published to HANA server and not visualizations. Enter the details of HANA system i.e. Server, Instance, User Password and click **Connect**.

You have an option to select a new **Package** and a **View**.



The dataset is published as new Analytic view.

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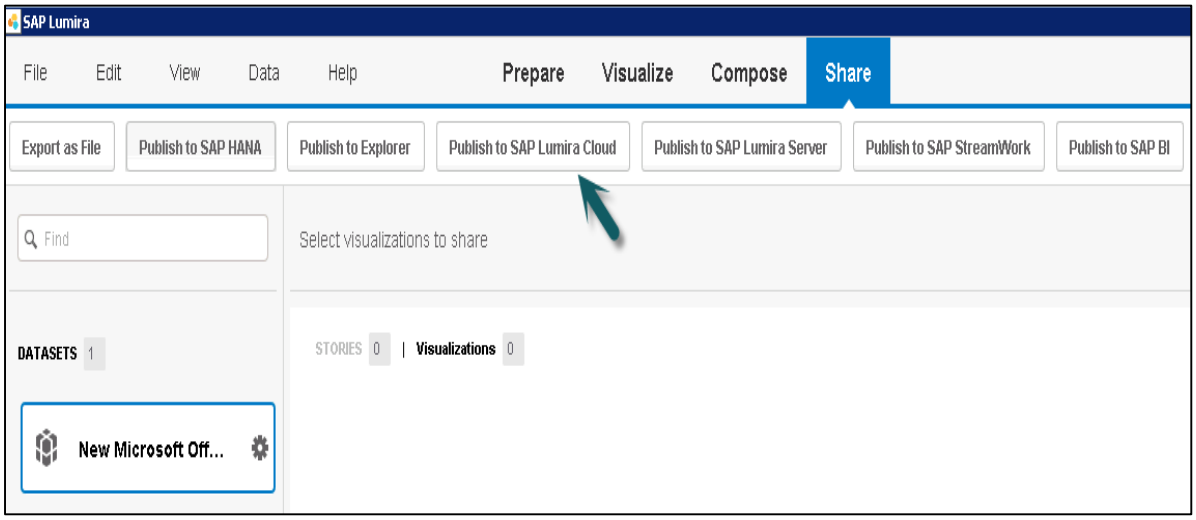
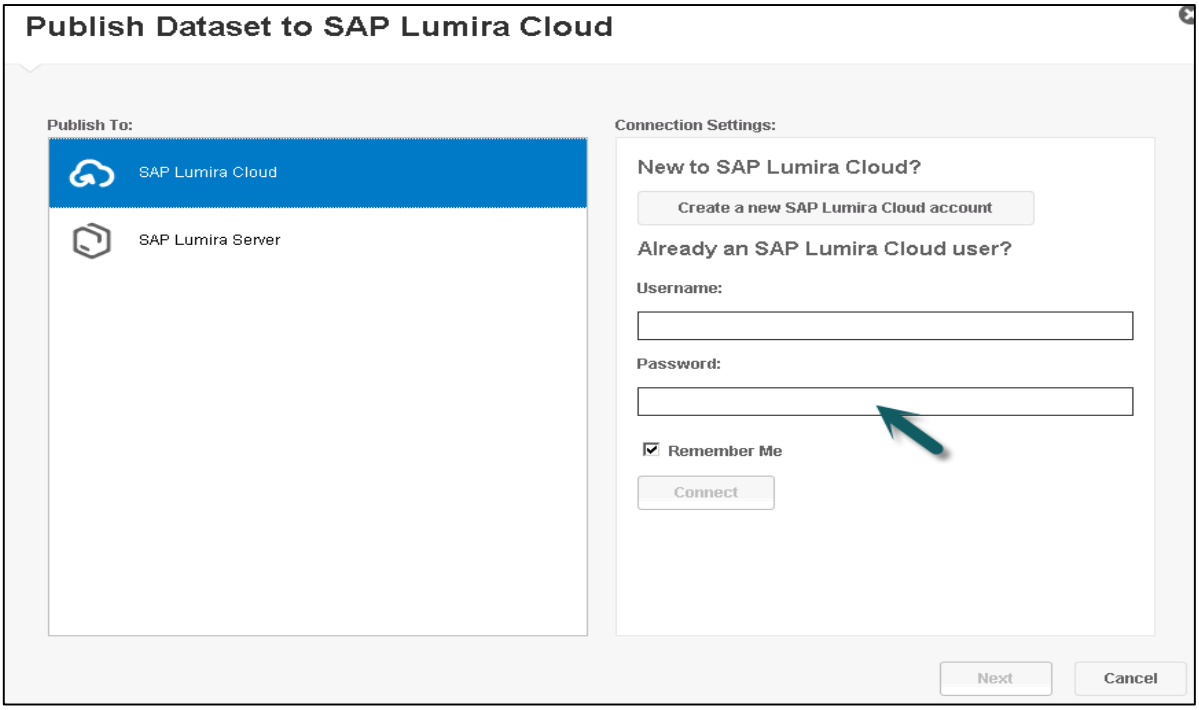
Publishing to the SAP Lumira Cloud

1. Go to **Compose -> Select the Dataset -> Publish to SAP Lumira Cloud.**



2. Enter the user name and password and click **Next**.



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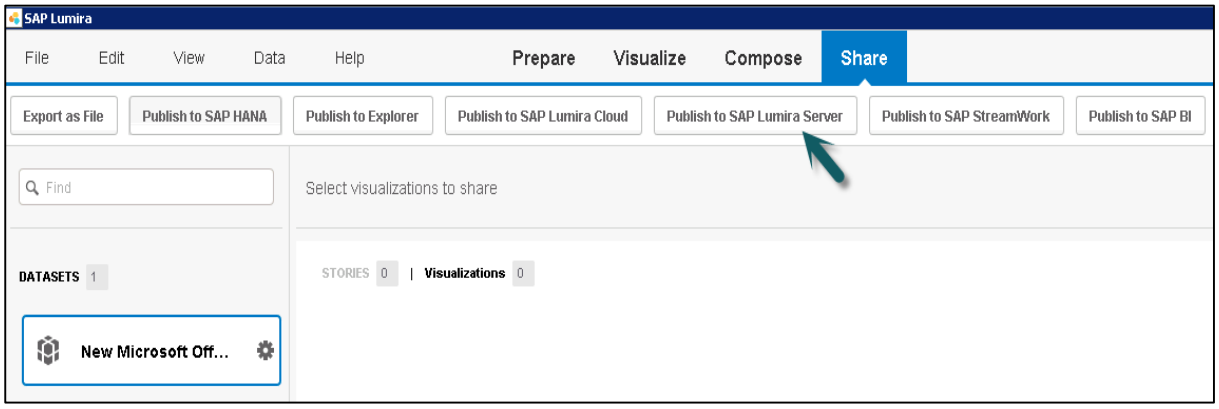
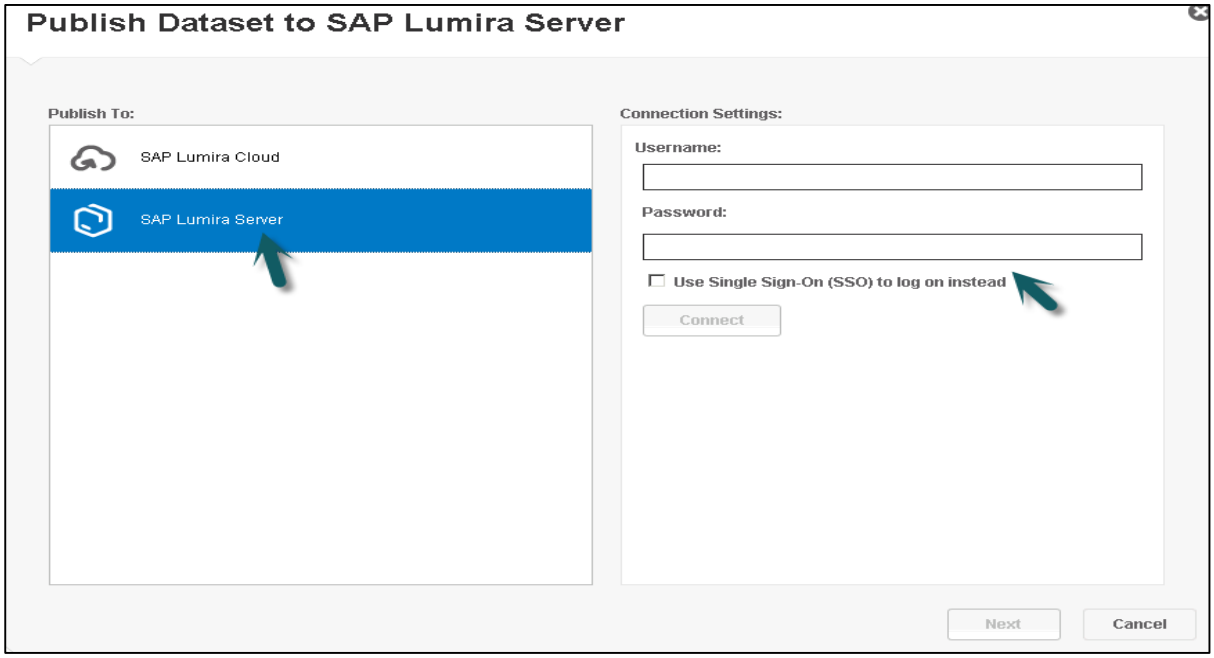
Publishing to the SAP Lumira Server

1. Go to **Compose -> Select the Dataset -> Publish to SAP Lumira Server**.



2. Enter the Lumira Server Details i.e. User name and password and click **Next**.



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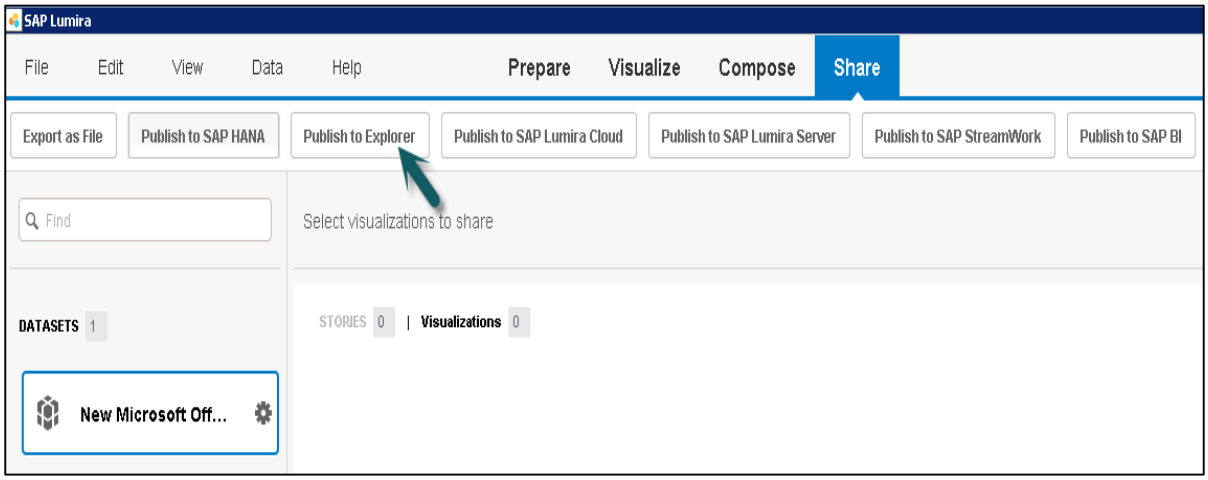
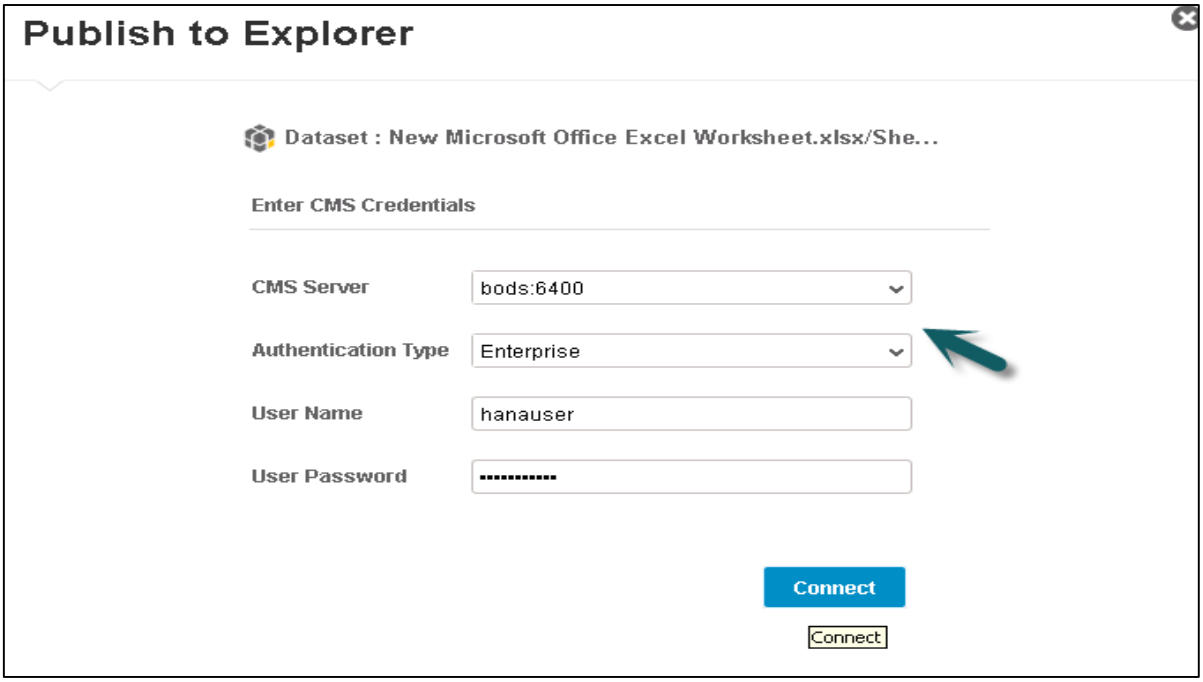
Publishing Datasets to Explorer

1. Go to **Compose -> Select Dataset from Left panel -> Publish to Explorer.**



2. Enter the details such as CMS server, User name and password and click **Connect**.



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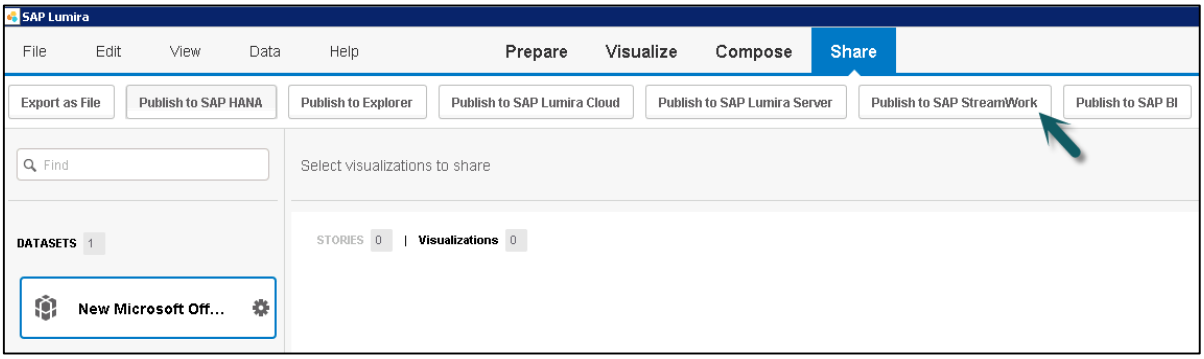
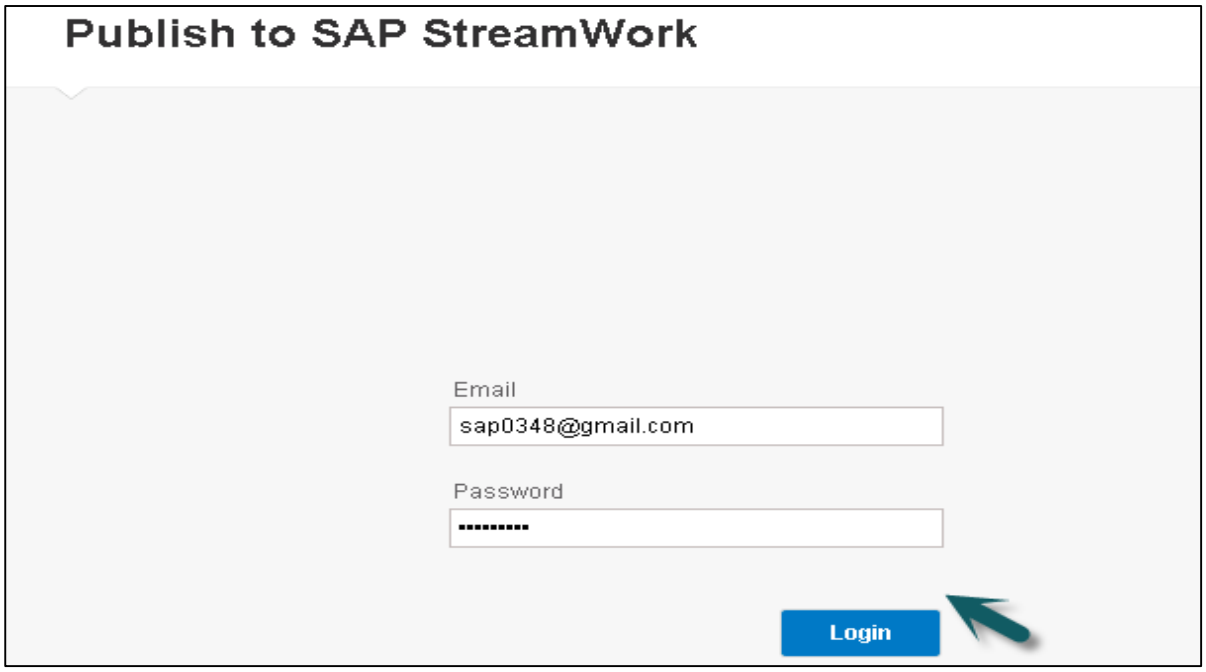
Publish to SAP Stream work

1. Go to **Compose -> Select Dataset from Left Panel -> Publish to SAP Stream work.**



2. Enter email and password and Click the login button.



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