Qlik® Sense

Build Your First Application Qlik Sense Application

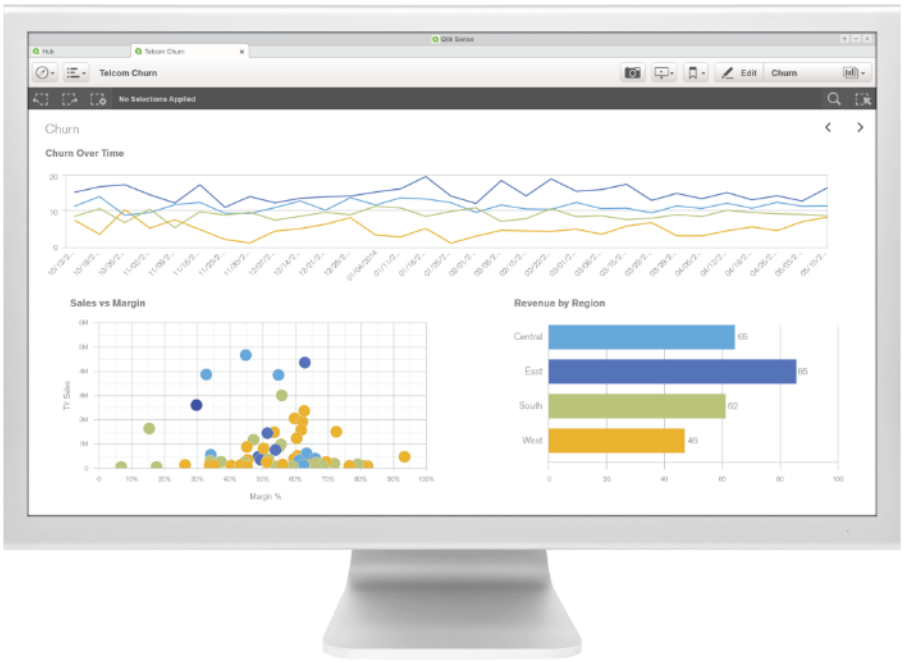


Table of Contents

Introduction **3**

Workshop Pre-Requisites and Setup **5**

Extract the Data 5

Register for QlikCloud 5

Upload Data 7

1. Using Qlik Sense **8**

Open the Application 8

Filter Your Data 8

Interact With Your Data 8

Search for Data 10

2. Connect and Load Your Data **11**

Create a New Qlik Sense Application 11

Load in Data 11

Add Additional Data 15

View the Data Model 17

3. Visualize Your Data **18**

Create Your First Visual 18

Create a Scatter Plot 24

Interact with the Application 28

Create a Line Chart 28

Create a Tree Map 30

Add a Title to the Sheet 31

4. Enhance Your Application **31**

Create Master Items for Reusability 31

Add a Drill Down Group 32

Create Time and Date Based Functions 33

Create New Measures 33

Using The Master Items on Visuals 34

Add KPIs 35

Add Filters 36

Add Alternative Dimensions / Measures 37

5. Working with Maps **38**

Point Maps 38
Area Maps 39
6. Share and Collaborate 42
Create a Story 42
7. Additional Topics 46
Data Load Editor 46
Data Market: Third-Party Data 49
Extending Your Application with Custom Visuals 51
Next Steps: Training and Support 52

Introduction

Workshop Objectives

This workshop is designed to introduce you to Qlik Sense and provide step-by-step introductions on how to build your first Qlik Sense application. The application that we will be building within this workshop will look like the below image and it will help answer questions around specific KPI's such as but not limited to:

- How many customers do we have in various countries?
- What do our sales look like across all the cities/countries we sell our product into?
- What does our sales performance look like over time?
- What are our most profitable products?
- Which geographic locations have the highest concentration of sales?

Qlik® Sense – The Next Generation of Visual Analytics

Qlik Sense is a next-generation self-service data visualization application that empowers people to easily create a range of flexible, interactive visualizations that drive exploration and discovery using one's intuition. With the proven QIX Associative Data Indexing engine at its core, Qlik Sense delivers:

- A cutting-edge self-service visualization and discovery experience
- Associative exploration and smart search
- Advanced data visualization
- User-driven, drag-and-drop creation
- Collaboration and storytelling
- Unsurpassed mobility
- Best-of-breed custom development
- Powerful data integration
- Governed enterprise capabilities and performance

Qlik Sense Product Editions

Qlik Sense Desktop	Qlik Cloud	Qlik Sense
• Installed, standalone Windows version of Qlik Sense • Includes all user experience capabilities for consumption and creation of visualizations • Local file sharing • Export to Qlik Sense Cloud, • Free download, no limits on apps or sharing restrictions	• Qlik's new platform for multiple cloud services • Create and share applications directly in Qlik Cloud • Fully interactive search and exploration, currently no creation capabilities in the cloud • Web-based, supports access on any device including mobile devices	• Full version of Qlik Sense • On premise and private cloud deployment • All user experience capabilities in a single unified client • Collaboration and mobility capabilities • Best-of-breed API developer experience • Robust set of enterprise capabilities • Token based license model

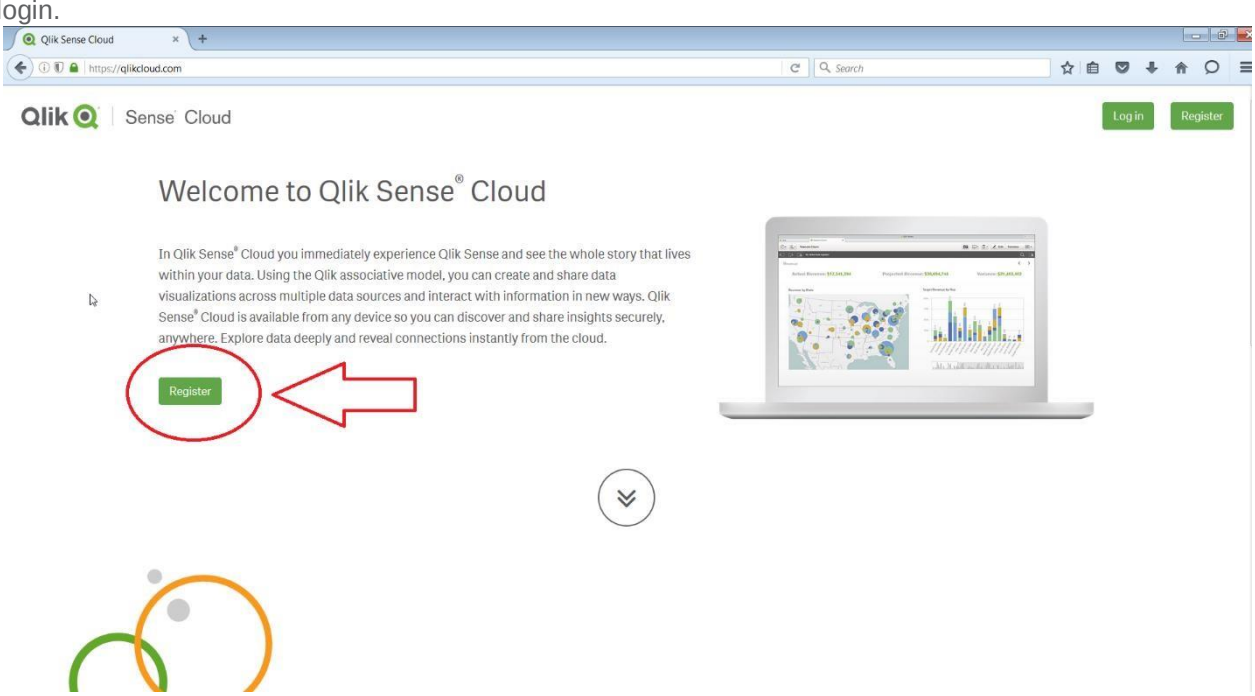
Workshop Pre-Requisites and Setup

Extract the Data

1. To get started, copy and extract the **Qlik Cloud Workshop 3.0.zip** folder into a folder on your machine. Within the zip file, you will see the following materials: ***\app*** and ***\data***
2. Navigate to the **extract folder on your local machine** and view the contents. Some of these folders are where you will copy the workshop files. You will be using these files during the workshop.

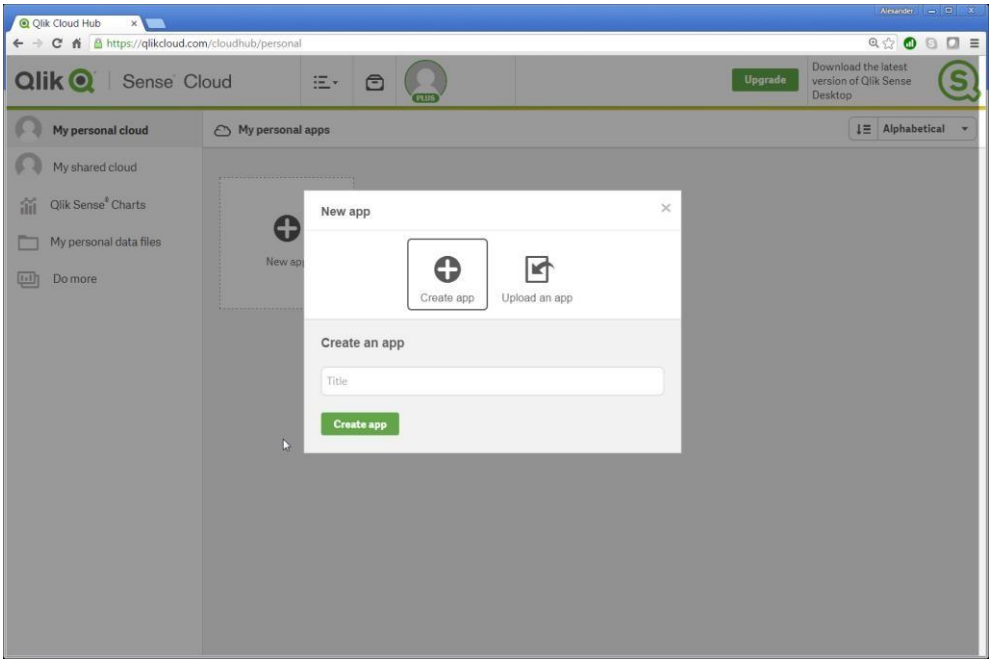
Register for QlikCloud

3. Go to: https://qlikcloud.com to create a Qlik Cloud login. Follow the instructions on screen to create a login.

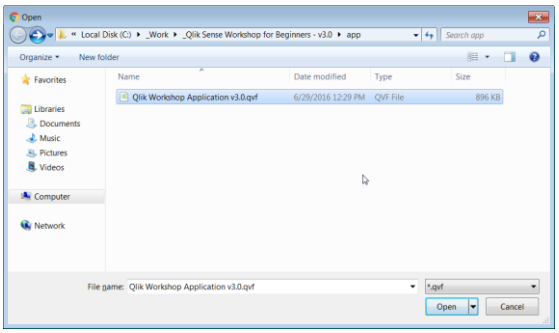


4. You will receive a confirmation email in the inbox of the address you used to register.
    - Once you have confirmed your account will become active and you can log in.

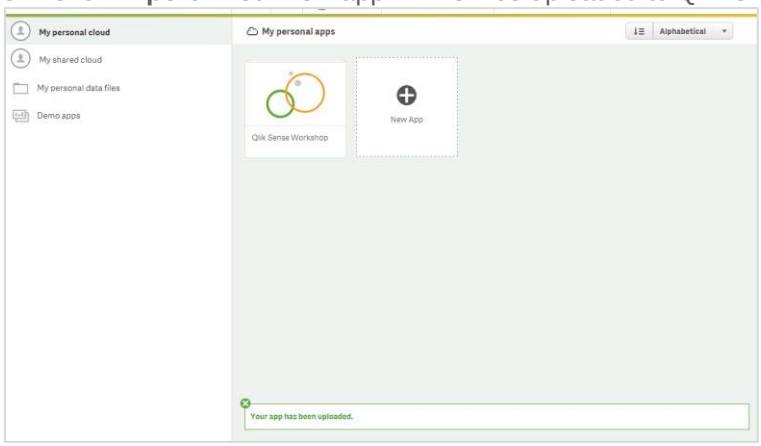
5. From your Personal Cloud workspace, click on **New App.**



6. Choose file from **Upload an app** option
7. Navigate to where you extracted the ZIP file, and Select the file **Qlik Workshop Application v3.0.qvf**.

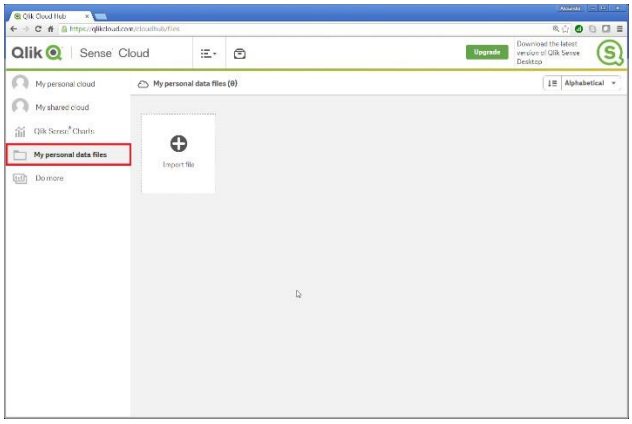


8. Click **Import**. Your new app will now be uploaded to Qlik Cloud.

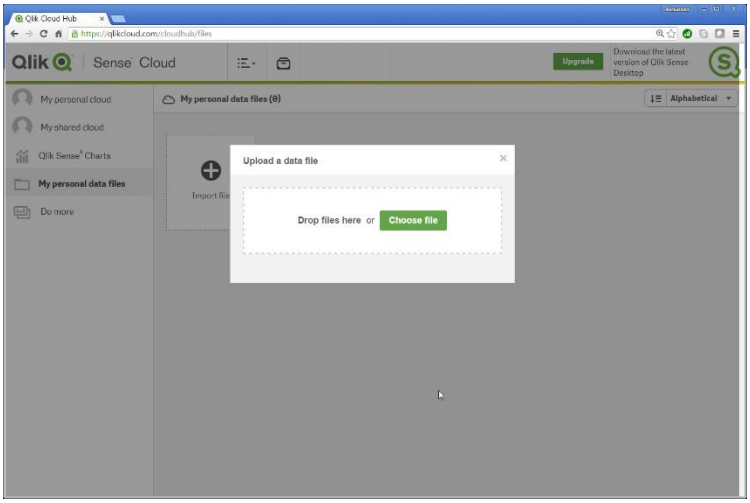


Upload Data

9. Click on **My personal data files** workspace.



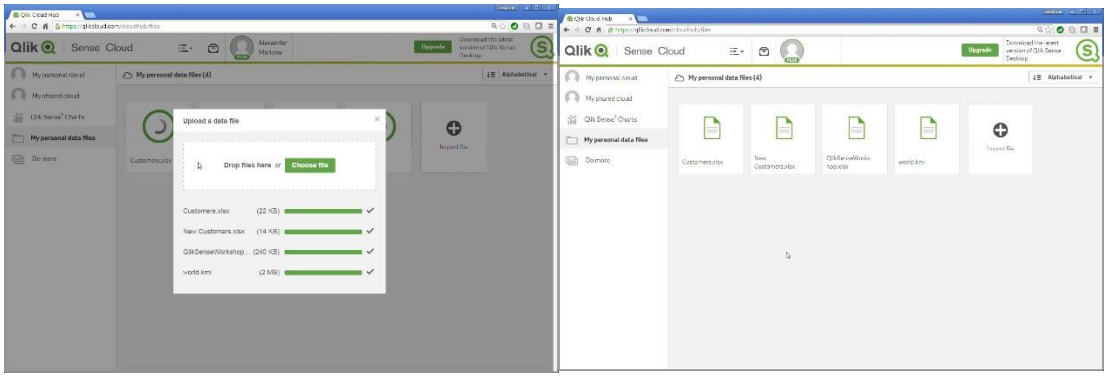
10. Select **Import file** option



11. From to the folder where the workshop materials were extracted. Import all of the files from the ***/data*** folder: ***Customers.xlsx, New Customers.xlsx, QlikSenseWorkshop.xlsx, World.kml.***

    Note: You can drag and drop the files into the window from File Explorer or Finder. If you wish to choose each file independently, please use the "Choose file" button.

12. Your files should now have been uploaded into your workspace.



1. Using Qlik Sense

Open the Application

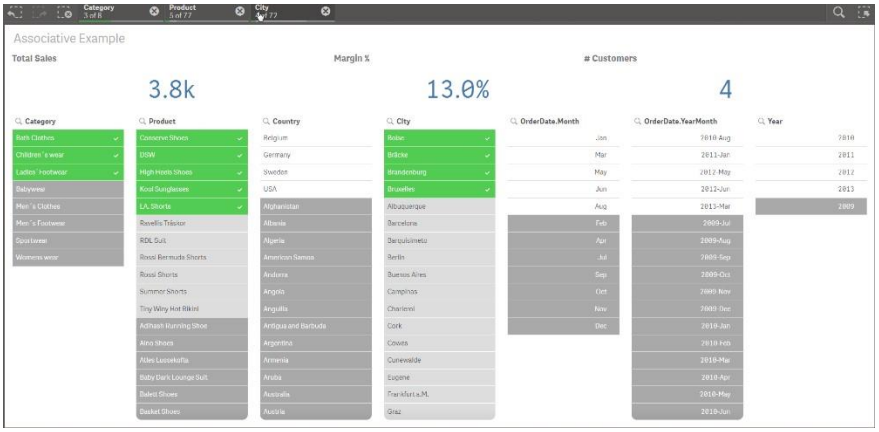
In this first section, you will preview the finished Qlik Sense application and learn how to interact with it.

1. From the Qlik Sense Hub, click on **My personal cloud** and open the application titled "**Qlik Workshop v3.0**" by clicking on it
2. Click on the **Associative Example** tab.

Filter Your Data

3. Click on the different filters and notice the interactivity and associations among the data.

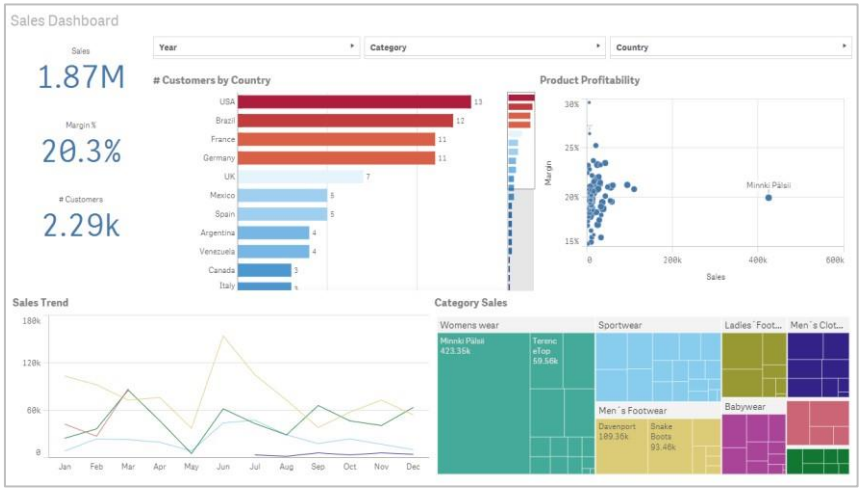
Green denotes that a value has been selected, white shows the associative values, and gray shows where there's no values for these given selections. This type of interactive analysis is at the heart of Qlik and this allows you to drive new insights and make new discoveries.



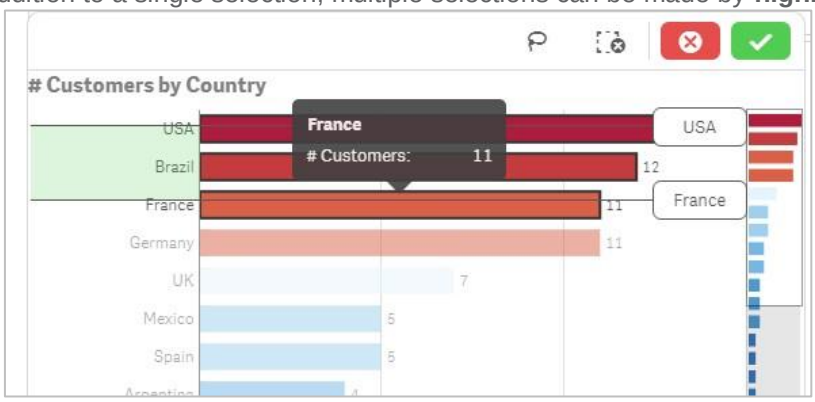
4. In the top left click on **the 'Clear all Selections' button** to remove your selections ( ).

Interact With Your Data

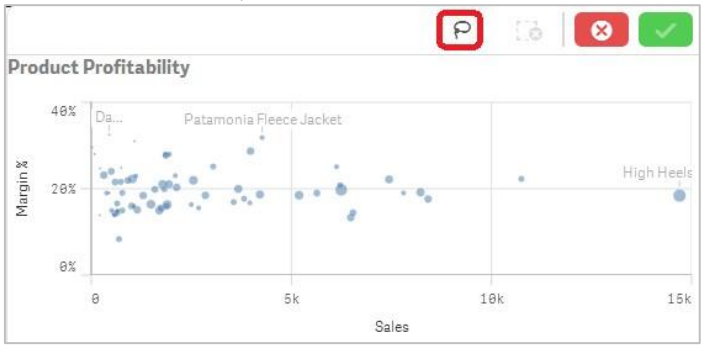
5. Click the top right hand drop-down that currently says 'Associative Model'.
6. Click on the **Sales Dashboard** sheet
7. In the chart entitled **'Customers by Country'**, click on the horizontal bar **'USA'** to filter for that value. Notice how all of the other visuals on the sheet update.



In addition to a single selection, multiple selections can be made by **highlighting multiple values**.



8. On the **Scatter Plot**, click on the chart and notice the **lasso** button.

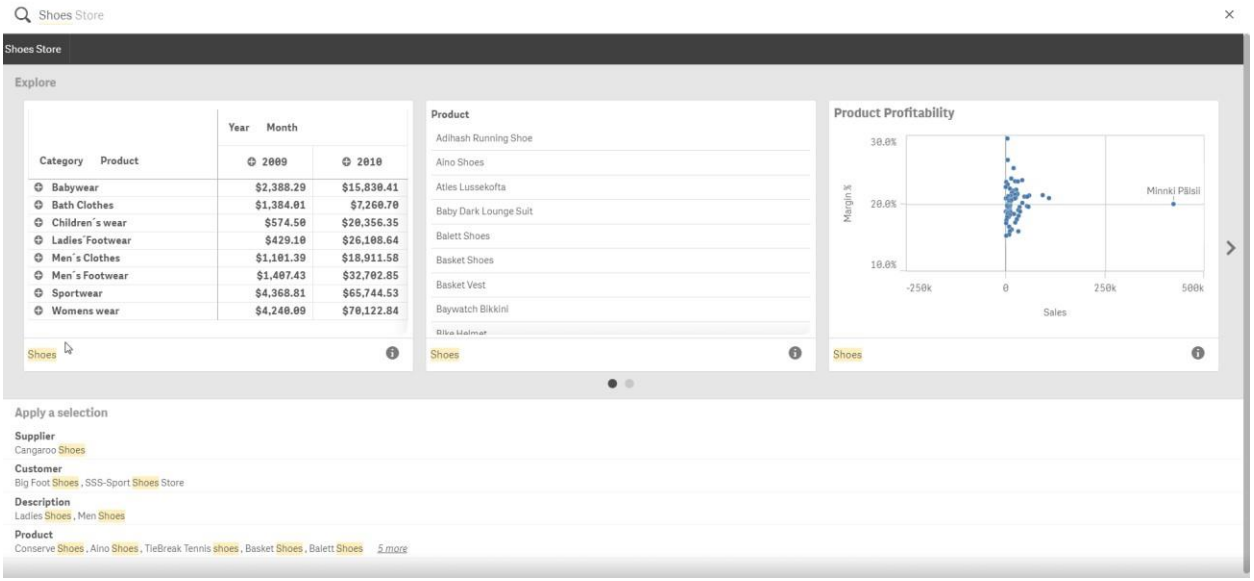


9. Click on the **Lasso** and circle a selection of values.

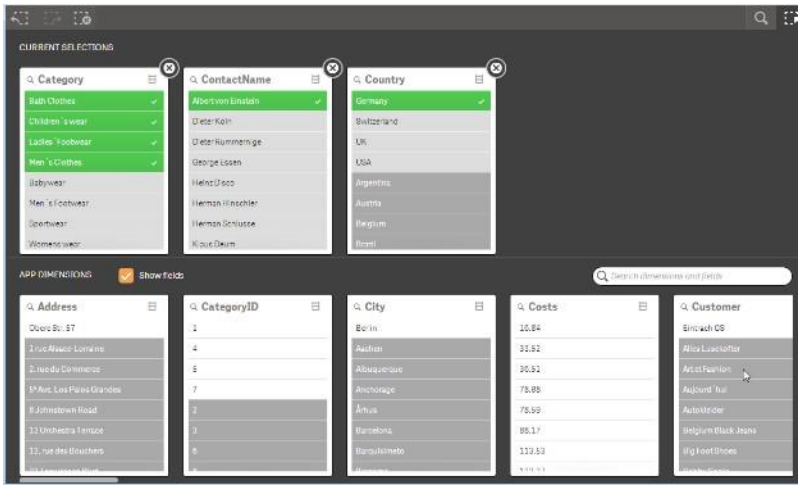
Clear Selections

Search for Data

10. In the top right corner, click on the **Search** icon.
11. Type in **Shoes**. Notice all of the charts and data fields which that come up that meet that requirement.



12. Click one of these search results and notice the application update.
13. In the top right hand corner, click on the **global selector** icon. The **global selector** allows you to filter on any value that appears in your data set. Click on a few values. Click back on **the global selector** icon to see these filters applied.



14. Clear all selections.
15. You can also do more complex searches, such as:
    a. In the top right corner, click on the **Search** icon. 
    b. Type in (without the quotes) '**babywear joan 2012'**. Notice how Sense makes the suggestion to select Joan Callins and even the year. This is part of the Smart Search capabilities. Select the first suggestion in the list in the gray bar to see all babywear sold by Joan Callins in 2012.
16. Clear all selections and do not save the changes.

2. Connect and Load Your Data

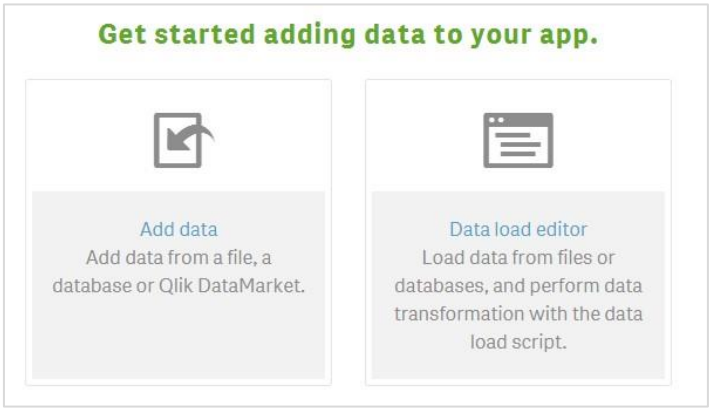
In this section, you will build a simple Qlik Sense application off of multiple data sources and produce a few simple visuals to answer a few key questions. Throughout the exercise, you will aim to answer specific business questions in the data.

Create a New Qlik Sense Application

1. Navigate to **My personal cloud**, click the **New app** button.
2. Provide a name such as **Sales Analysis,** and then click **Create app**

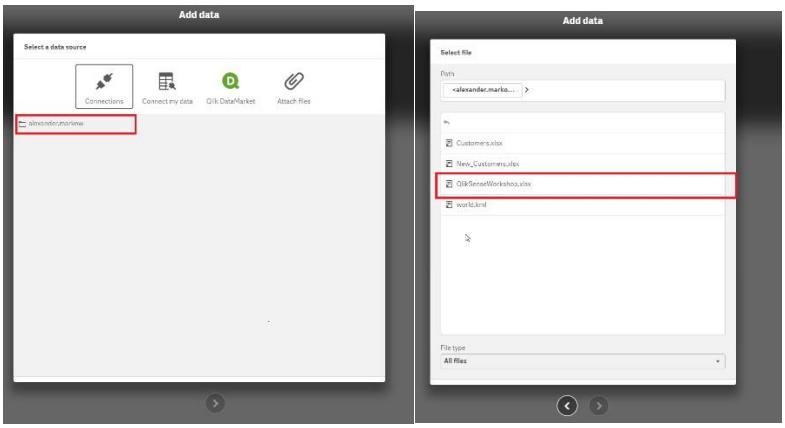
Load in Data

When you create a new application, the first requirement is to provide data.

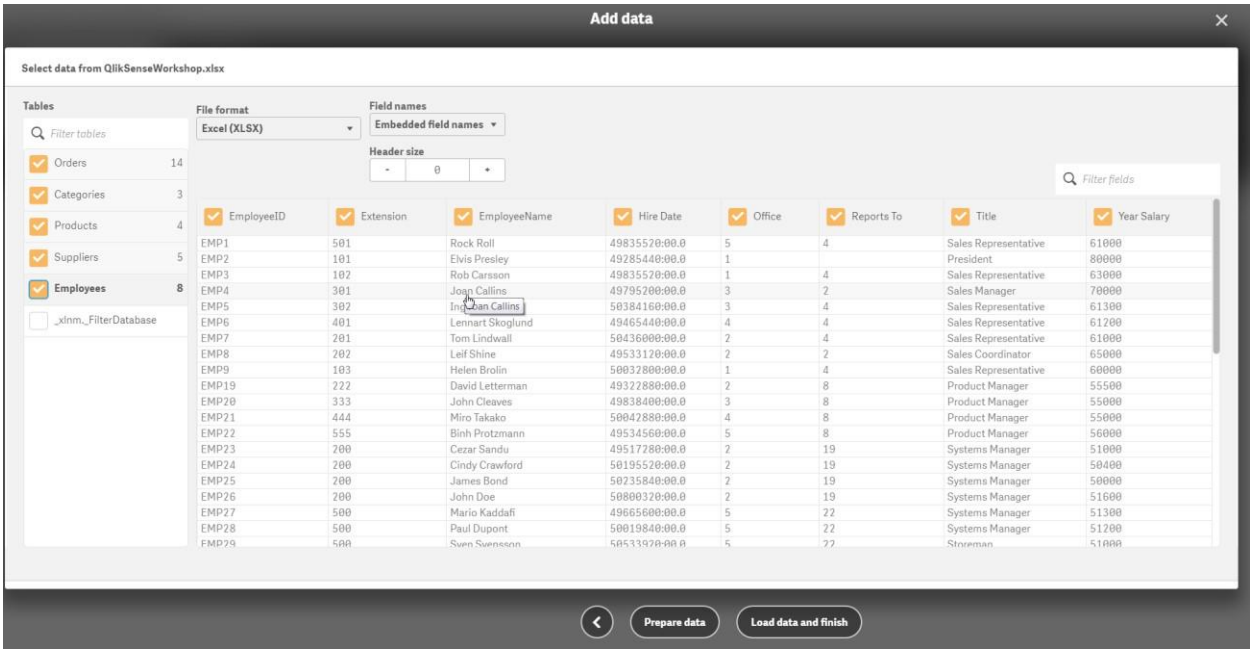


- ***Add Data*** allows you to load data in a simple and intuitive way. This includes connecting to filebased source, relational sources, cloud and web based sources (available with Qlik Sense enterprise), and third-party data sources (available through **Qlik DataMarket**).
- **Data Load editor** allows you to do more advanced data preparation, custom SQL and logic off of this data, and provide complete control over all data prep aspects.

3. Click on Add data and open your named Connections folder and select and load the **QlikSenseWorkshop.xlsx** file.

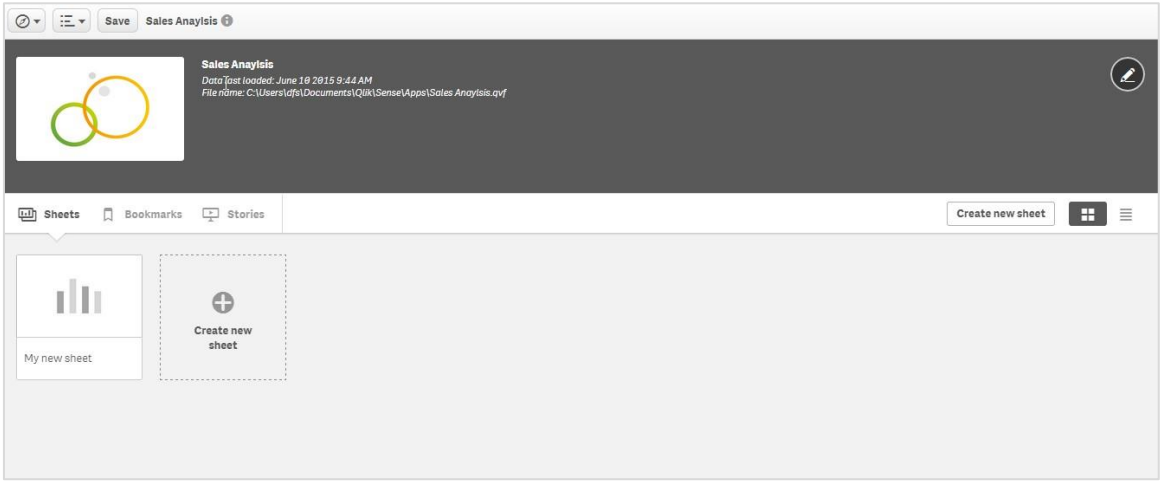


4. Select Next 
5. You will now see the '**Select data**' dialog. This dialog lets us select which fields to load in, set a header size, select tables, and more.
6. On the left side of the screen, select **all of the worksheet tables** (***Orders, Categories, Products, Suppliers, Employees***) Do not select the xlnm._FilterDatabase table.



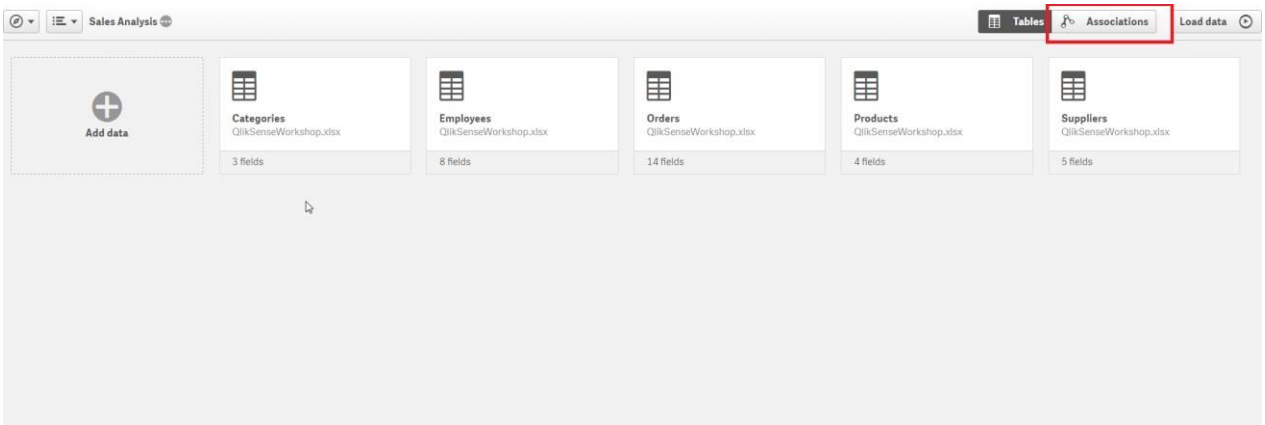
The data shown on this dialog is the data from the Excel worksheet 'Orders. The 'Fields' are the column from the spreadsheet. If we didn't want to load some of the fields we could just untick the boxes by the fields we don't want to load. For now, we'll load in the whole data file.

7. Click **Load and Finish**.
8. When the load has finished, click **Close**. You have just loaded your first data set into Qlik Sense.



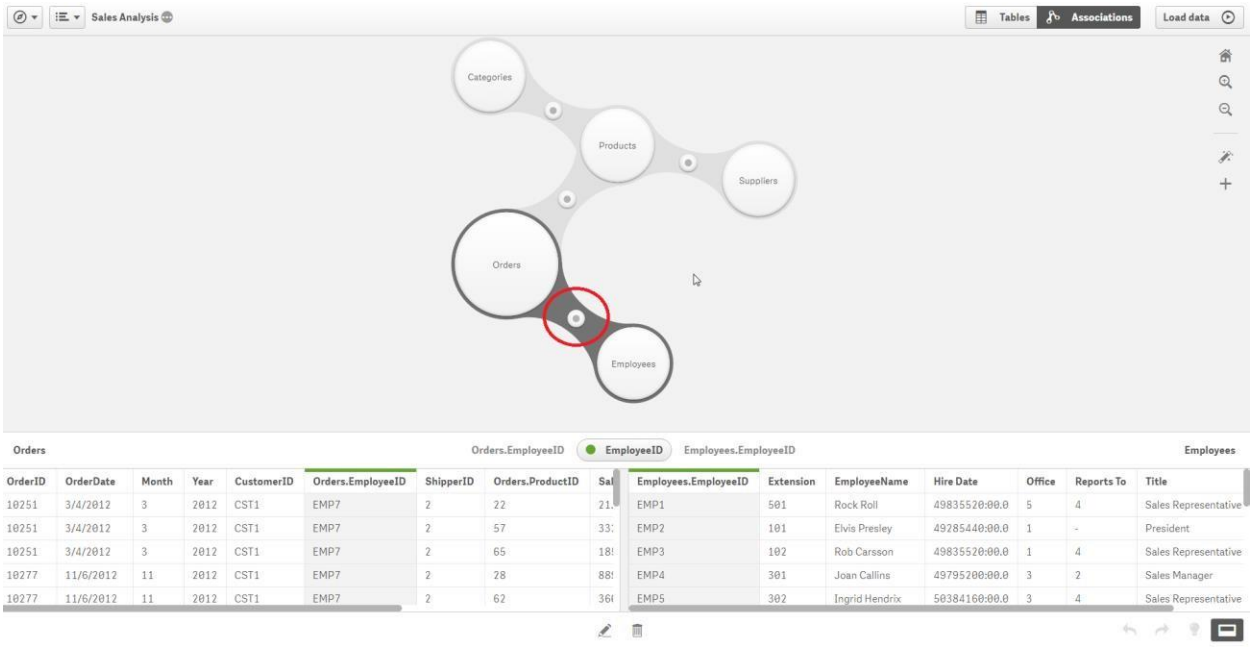
By default, Qlik Sense automatically associates the data together from these different tables based off of common column names. This makes the data loading process easy and intuitive for simple data requirements. However, all of these associations can be changed and managed, which will be discussed in the section below.

Please click on **Open Data Manager** to see the data we have loaded.

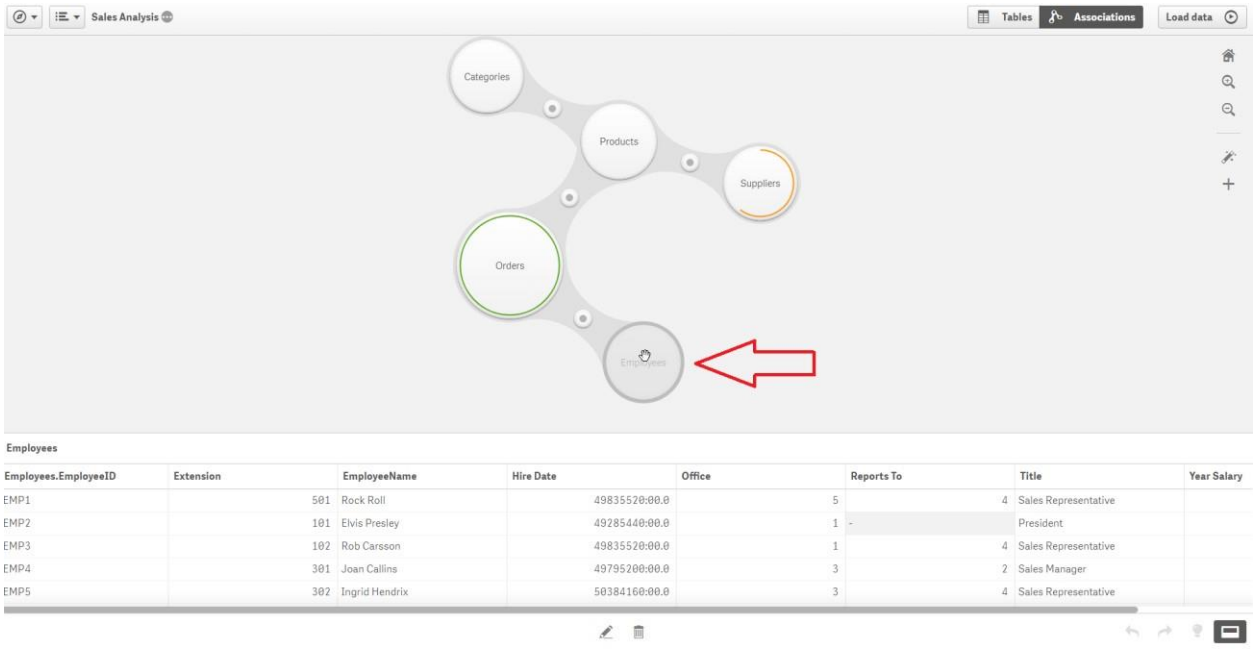


9. Select **Associations** above to enter the Visual Data Associative "bubbles" as shown below.

This interface allows you as the user to determine what "associations" between tables should persist as well as how they match in terms of data volumes and what fields are matching in each of the data sources. So if I select the small dot from the Orders and Employees connection, I see that these two tables are matched on **EmployeeID**.

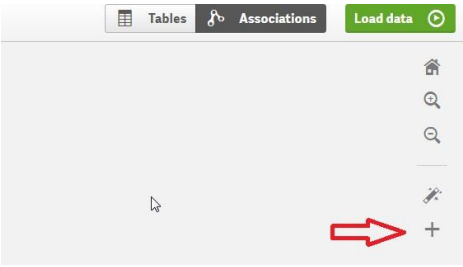


If you hold down your left mouse button and drag the Employees bubble as shown below, we can see that (via the green ring) there is a higher subset of values that could potentially be associated on the Orders table than the Suppliers, so I would want to leave this as is. If you disconnect them accidently, just simply drag and drop the Employees bubble to the Orders bubble to re-associate the tables on **EmployeeID**.

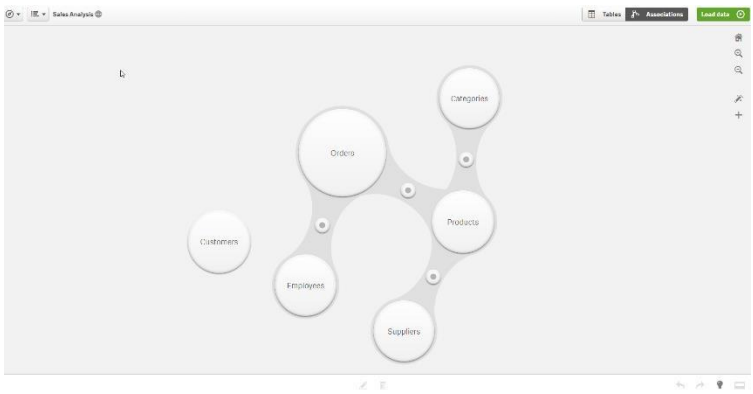


Add Additional Data

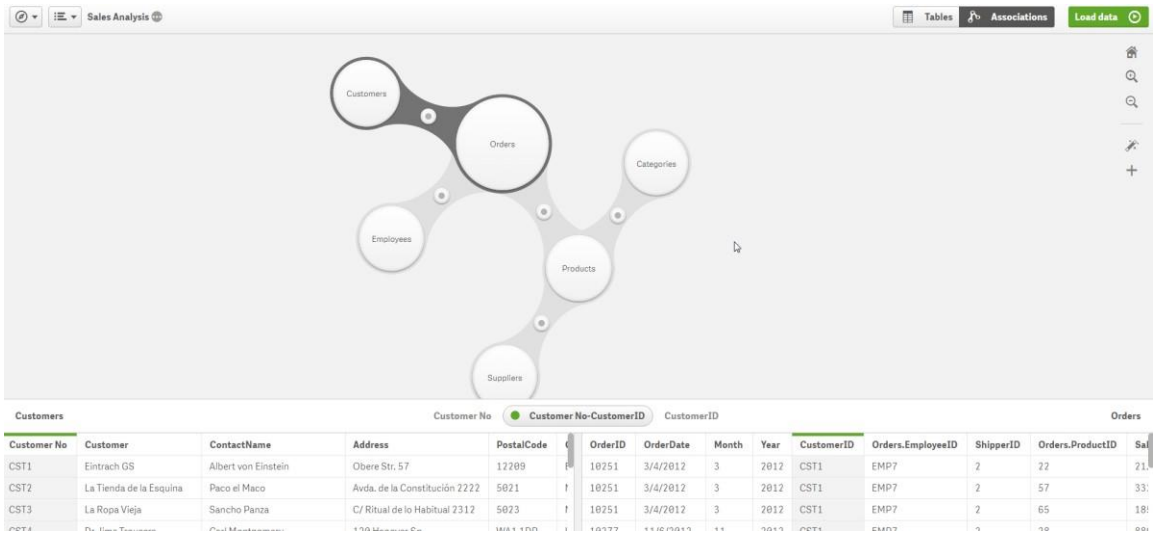
10. We now want to bring in our **Customer data**. Click on the plus to the right of the screen to add our additional customers table.



11. Select your **Customers.xlsx** file from your data folder, and add the **Customers table** (not the FilterDatabase table).
12. Click on "**Prepare Data**" at the bottom of the screen to bring the Customers table into our data model. You should see the following below.



13. If you then left click and hold the **Customers table**, you will see that we have a large amount of potentially associated values in our Orders table. (But not all! This means that we are missing Customers data from our Customers table that is found in the Orders table, more on this later)
14. Drop the Customers table onto the Orders table to create an association. It will look like this:



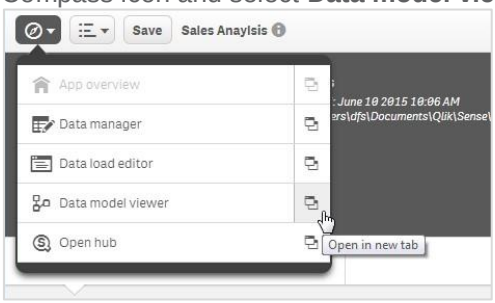
a. You will also notice that the field will currently be called "**Customer No – CustomerID**", we would normally not use in conventional business nomenclature. Let us fix this now.

15. Left click on the **Customer No-Customer ID** button at the bottom middle of the screen, rename the Association name to **Customer_ID**.
16. Click on 

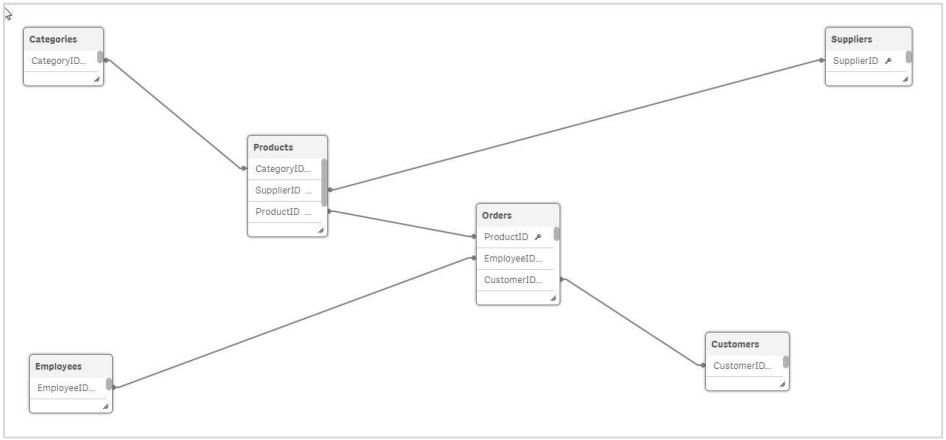
to load the **Customers table**.

View the Data Model

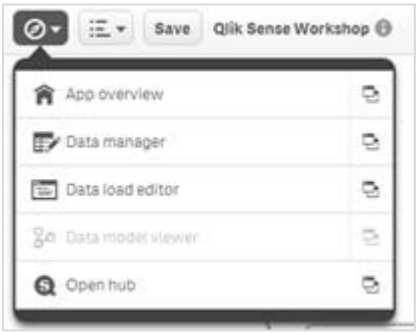
17. To view the data model that was formed by the load, from the top-left hand side, click on the Compass icon and select **Data model viewer** using the option to open a new window.



All of the joins and relationships between the tables are done automatically based on common column names. If you want to modify these relationships, you can alias the different fields to force these relationships off of fields that are not named the same.



18. Click back on the **Compass button**, to return to the **App Overview**.



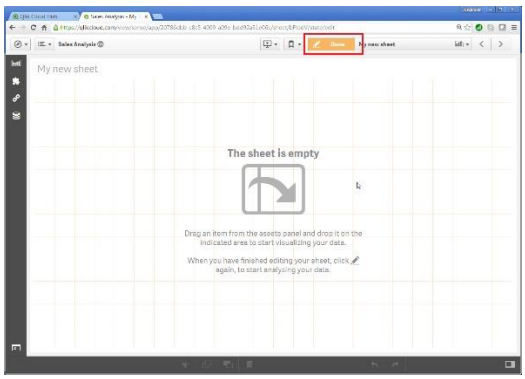
3. Visualize Your Data

Create Your First Visual

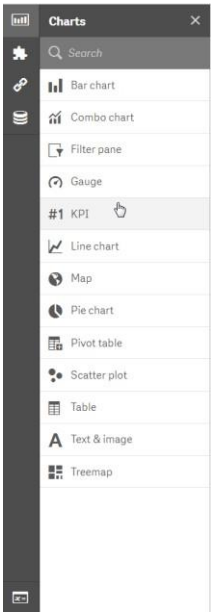
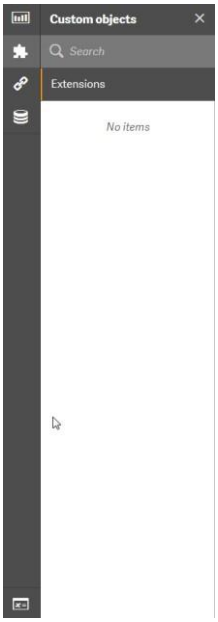
Question to Answer: Which Country Has the Most Customers?

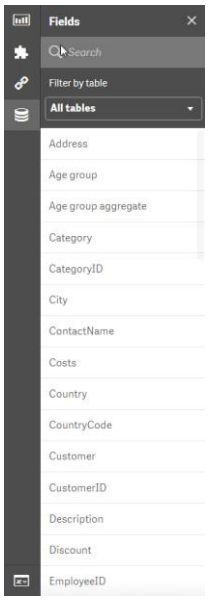
Now that you have loaded the data, you now want to start to explore this data. The easiest place to start is to try to answer a specific question, such as identifying which countries have the most customers.

1. Within the App Overview, click on **My new sheet**.
2. Click the **Edit** button on the top right corner.

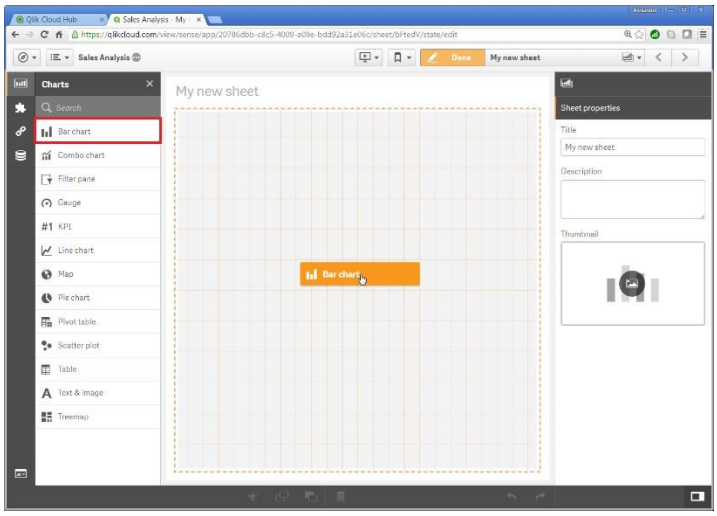


Within the design interface, you will see three main sections: Objects, Design Canvas, and Properties editor. On the left hand menu, you will see the objects window. This includes a list of available chart objects, data fields, and a reusable library that you can drag-and-drop onto the Canvas.

Charts: A listing of different visuals that are supported out of the box	
Custom Objects: I listing of extensions in addition to the out of the box visualizations presented above (this is currently not supported in Qlik Cloud, but is fully available in Qlik Sense Desktop and Enterprise version)	

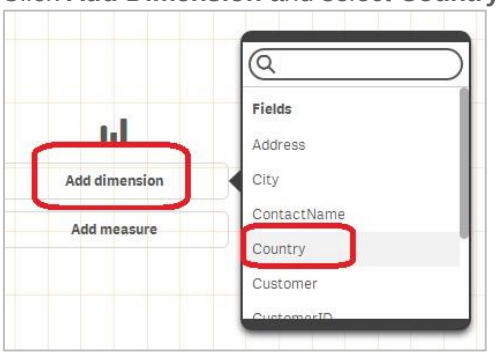
Fields: Data fields that have been loaded that you can drag into the application	
Master Items: Reusable objects (Dimensions, Measures, and Visualizations) that you can reuse throughout the application. As we go through the workshop, you will see how this can save a lot of time and effort to avoid building the same or similar calculations and visuals each time. At this point, you have not created any Master items, so this menu will be blank.	

3. In the **Objects** section on the left, select the **Charts** tab and drag-and-drop a **bar chart** onto the canvas.



From here, you can either click to add data elements, like dimensions and measures, or you can drag and-drop them in.

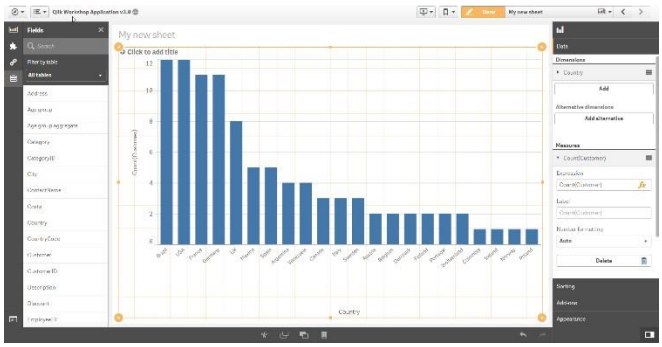
4. Click **Add Dimension** and select **Country**.



5. Click **Add Measure**. In the search box, type in **Customer,** select **Customer** from the filtered list, and then select **Count(Customer)**

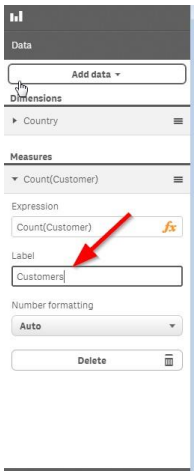
When a measure is added, you can choose from a list of common aggregations to summarize these fields. A more flexible expression editor is also available to create more complex or compound calculations. More on this later.

6. The following visual will now appear.

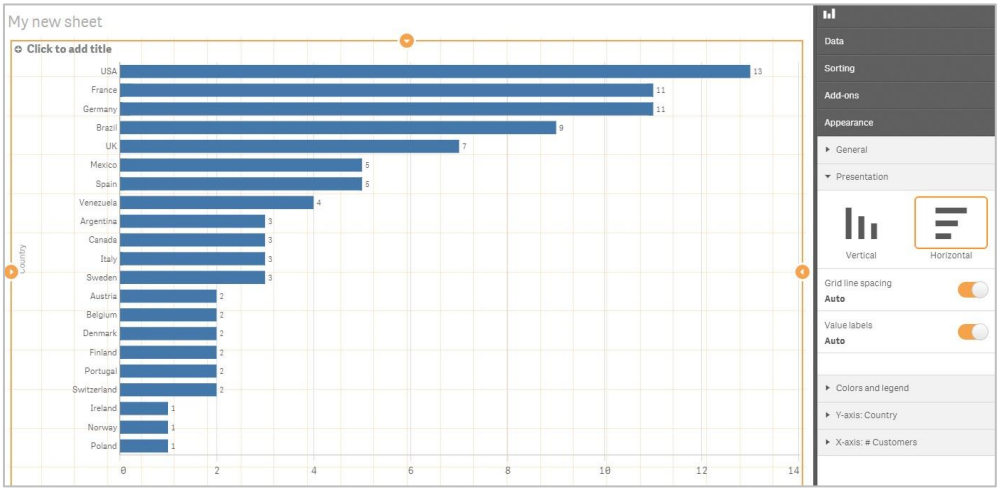


Properties Pane: On the right-hand side, a properties pane will be shown. The properties pane allows you to control the behavior, formatting, and appearance of the visual.

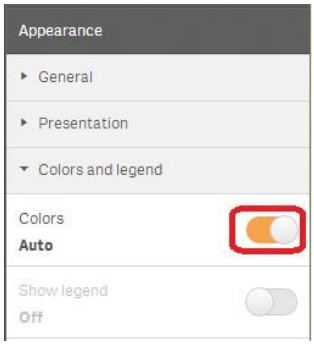
7. From the right-hand menu, click on **Measures** and change the label from **Count([Customers])** to **Customers**. This allows you to put more usable names on the visual.



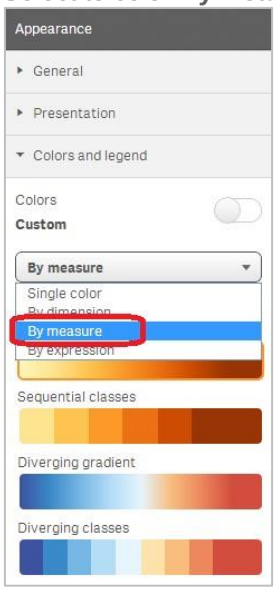
8. Click on **Appearance > Presentation** and change the orientation from Vertical to **Horizontal**. Based on the type of data being presented, this different orientation may allow you to better visualize the data.
9. Under **Appearance > Presentation,** select **Value Labels** to see the numbers on the visual.



10. Under **Appearance > Colors and Legend** (You may need to scroll down to see **Colors and Legend**) uncheck **Auto**.

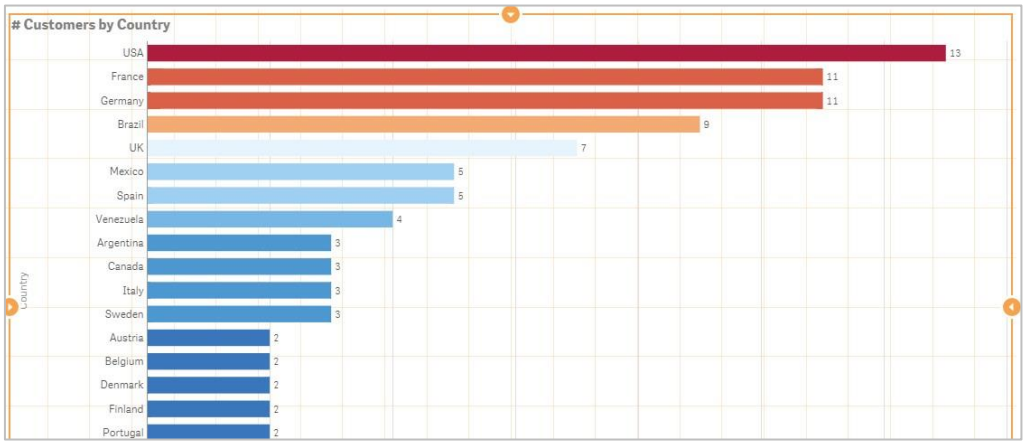


11. Select to color **By Measure**. Color can easily be added to better highlight key areas on the visual.



12. Put the proper labels on your visual to better depict what question you are looking to answer. To do this, double-click on the Title and provide a name: **Customers by Country**

13. Your visual should now look as follows:



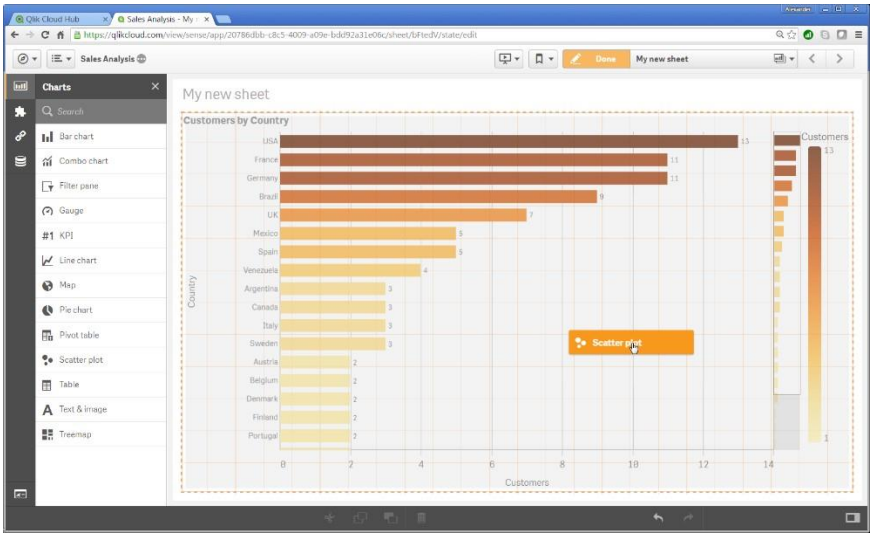
With just a few clicks, you were able to identify all of your customers by countries and you can see that the USA has the most customers.

Create a Scatter Plot

Question to Answer: Which Product Has the Highest Sales? Which Product is the Most Profitable?

To answer this specific question, you are going to want to visualize your data with two measures or calculated values.

1. With the **Edit** option enabled, from the left-hand pane, select a **Scatter plot** and drag it to the right side of the bar chart (not directly on top of the bar chart). You will see a drop zone that's split in the middle. (Color changes to gray as you move it to the right side of the screen while holding down your left mouse button)

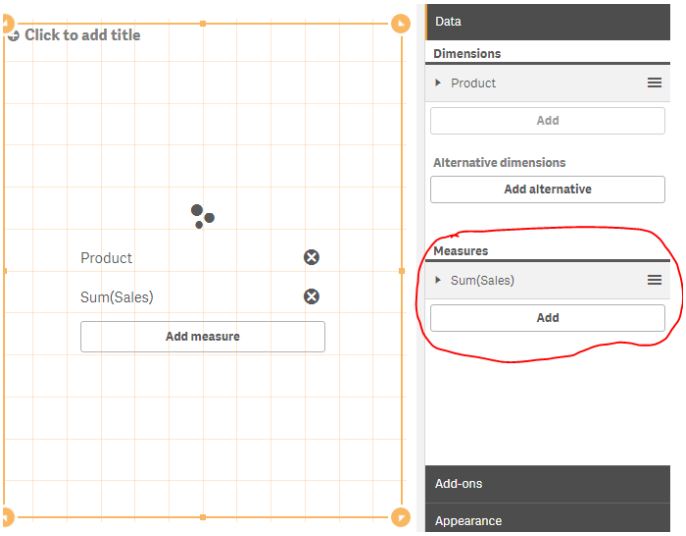


2. From the **Fields** section, drag-and-drop **Product** onto the Scatter Plot. Ensure the 'drop zone' encompasses the entire scatter plot or else Product will be dropped next to the chart as a filter object.

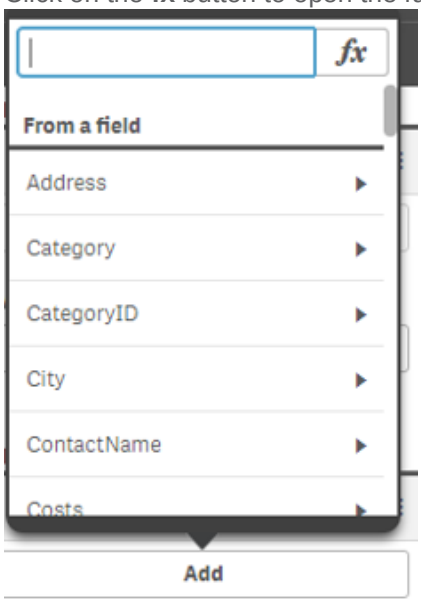
   If this happens use the undo button at the bottom 

3. From the **Fields** section, drag **Sales** onto the chart and select **Add as measure > Sum**. The chart object should look like this so far:

4. From the right-hand Properties pane, under **Add Data**, click on **Measure**.

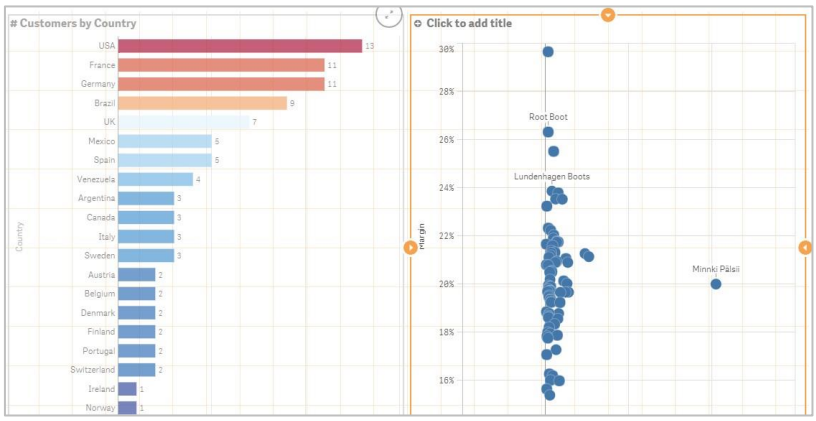


5. Click on the **fx** button to open the full expression editor.



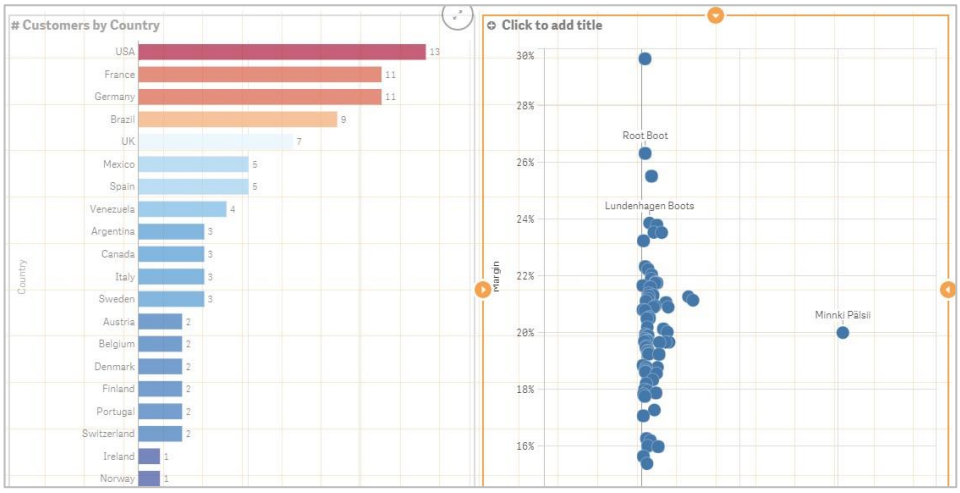
6. From the right hand select, select the following:
   - Select **Profit** under the Field dropdown and select **Sum** from Aggregation and click **Insert**.
   - Type in **/** to denote a division function
   - Select **Sales** under the Field dropdown and select **Sum** from Aggregation and click **Insert**. The expression should look as follows: **Sum(Profit)/Sum(Sales)**

7. Click **Apply.** The visual should now look as follows:



8. In the Properties pane, the labels for the measure by default show as expressions. Adjust the labels and other settings as follows:
   - Measures > Sales > Label: Sales
   - Measures > Sales > Number formatting > **Money**
   - Measures > Sum(Profit)/Sum(Sales) > Label: **Margin %**
   - Measures > Sum(Profit)/Sum(Sales) > Number formatting > Number > Formatting -> **12%**
   - Give the chart a Title by clicking in top left corner: **Product Profitability**

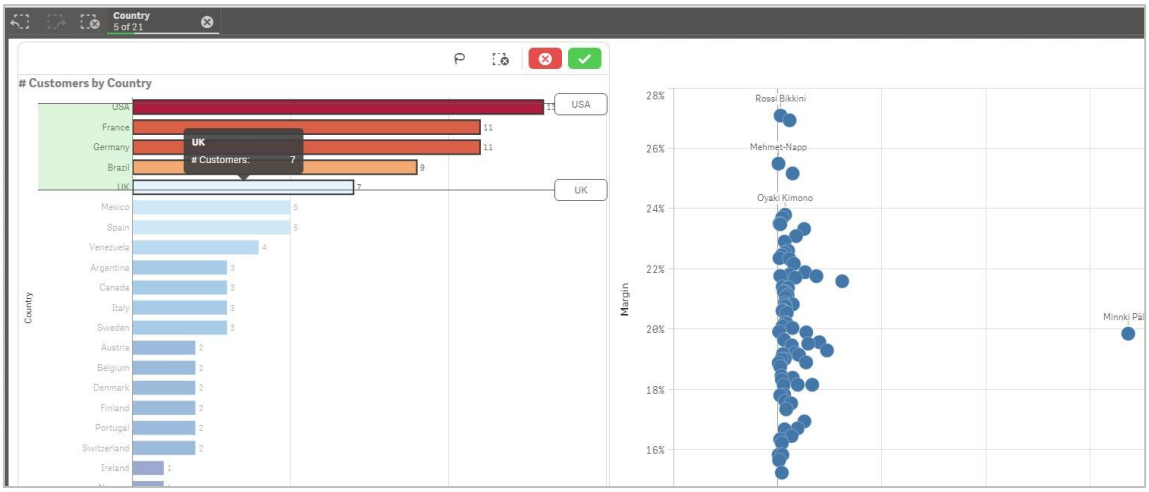
Your visual should now look as follows:

9. 

To view an expanded screen you can toggle the hide/show panes  in the bottom corners of the screen or click **Done**. You can now very easily identify your highest selling product as well as your most profitable ones.

Interact with the Application

10. Click **Done**.
11. Click on **USA** in the bar chart and see the interactivity.



12. Search. From the top hand menu, click on the Search icon and type in **berlin**.

All of the associative and search characteristics of the Qlik platform are all still available. While Qlik Sense provides a much easier-to-use and visual experience, the same core Qlik engine is being leverage to provide rapid performance and an associative experience among this data.

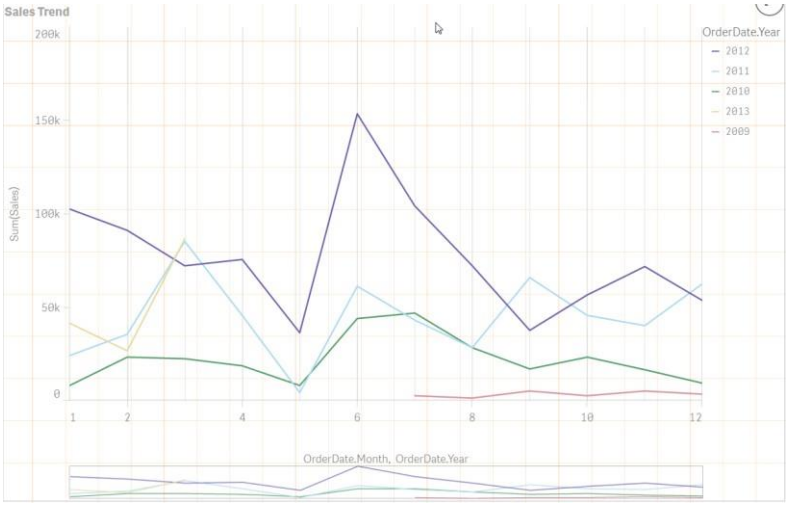
13. Click the **Clear all selections** button and then click the **Edit** button to return to **Edit** mode.

Create a Line Chart

Which Month Had the Highest Sales?

1. Go back into Edit mode, open the left and right panels. Drag a Line chart below the Bar Chart. Watch the drop zone for correct placement.
2. From the **Fields**, drag-and-drop **Month** dimension from the **OrderDate** field (expand by clicking on the arrow) onto the line chart and select **Add Month**. Next, add **Year** to the line chart using the same steps.

3. From the **Fields**, drag-and-drop **Sales** and select **Add as Measures > Sum.**
4. You visual should now look as follows.

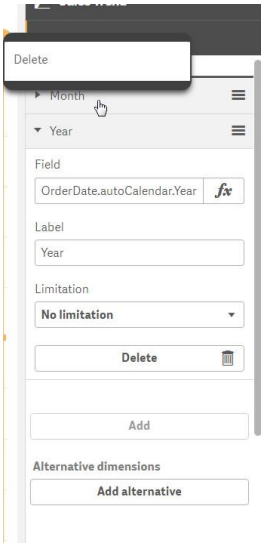


5. Rename **OrderDate.Month** and **OrderDate.Year** as Month and Year, respectively 6. From the **Properties** pane, under **Measures** > **Label**, rename **Sum(Sales)** to **Sales**.
7. Provide a Title (**Sales Trend**).
8. From the **Properties** pane, in the **Appearance** drawer, under **Colors and Legend**, toggle on **Colors** and **Show Legend**
9. Click **Done**.

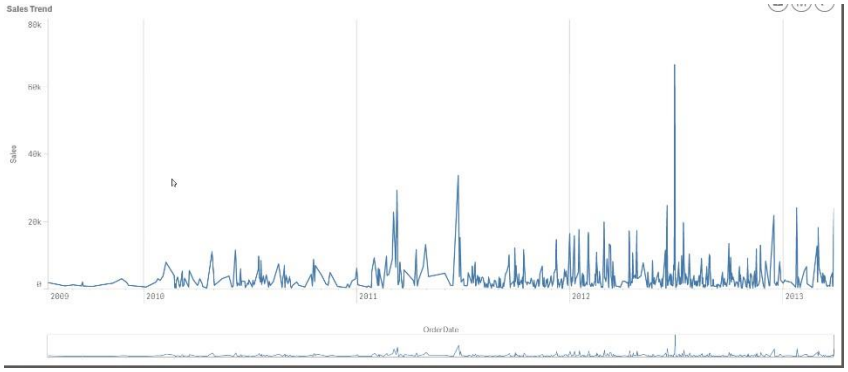
In the visual above, you can see how sales are the highest in Month 6 and are historically lower in the beginning and end of the Year. But click on other countries show different trends. This chart shows Year over Year sales values by month.

You can also replace the Year over Year analysis with a contiguous time series.

1. In the properties pane on the right, please right click and delete **Month** and **Year** from your dimensions



2. Drag the **OrderDate** field from the Fields selector onto your line chart.
3. You should now see a continuous time series chart as seen below:



4. Scroll in with your mouse wheel for a more granular analysis of your data, or select dates or ranges just like you would on any other visualization. Should you want to remove the continuous scale of a chart like this, it can be toggled on and off on the X-Axis properties under Appearance.

Create a Tree Map

Question to Answer: Which Product drives the most sales in each category?

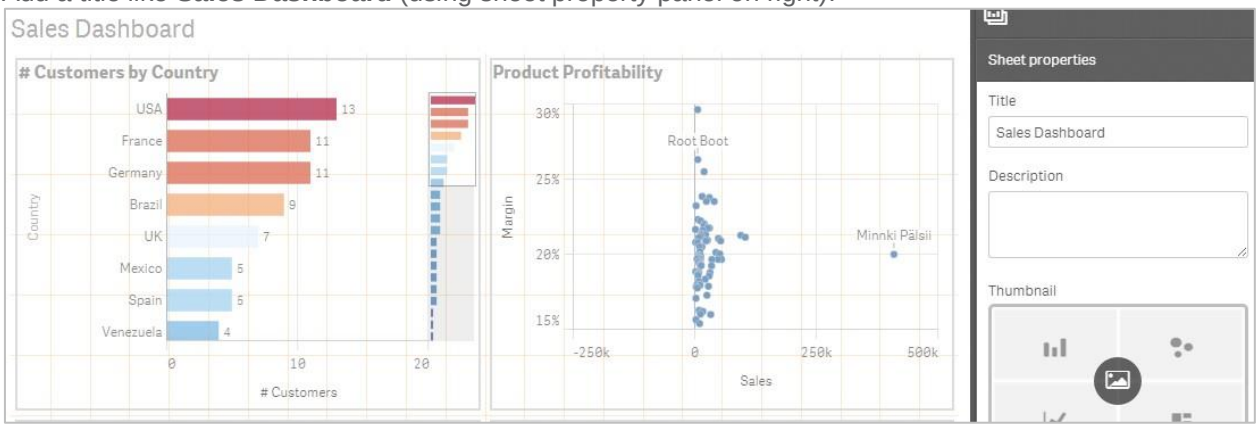
1. In **Edit** mode, from the Charts section, drag-and-drop a **TreeMap** below the scatter chart.
2. Drag-and-drop **Category** (1ST) and **Product** (2ND) onto the Treemap. When dragging the fields over use the **Add Category** and **Add Product** options.
3. Drag-and-drop **Sales** and **add as a measures > Sum**.
4. Title your treemap “Category Sales”.

5. The Treemap should appear as follows:

From the treemap, you can see that **Women's Wear** is the biggest seller and **Minnki Palsii** is the product that is driving the sales in this category.

Add a Title to the Sheet

1. Click on My new sheet or any area on the canvas (but outside of a visual).
2. Add a title like **Sales Dashboard** (using sheet property panel on right).



3. Click **Done**.

4. Enhance Your Application

So far, you have built a simple, but very powerful application in Qlik Sense Cloud. In the third section, you will begin to use more advanced functionality to learn how to leverage other types of data sources, to further enhance your application, and to extend your application.

Create Master Items for Reusability

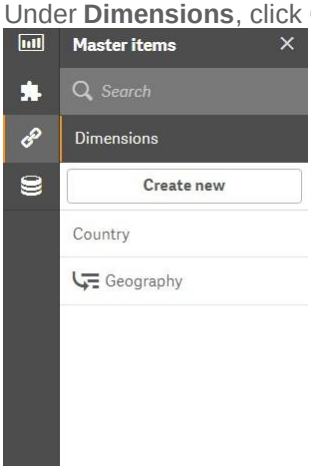
In the first example, you dragged-and-dropped a dimension and a measure onto a visual to populate it. As your application gets more complex, you may have more complex dimensions and expressions that

you may wish to reuse in many different places and only define its definition once – to save time and to more easily manage your application. The Master Items or Library allows you to centrally create reusable dimensions, measures, and visualizations to incorporate throughout the application.

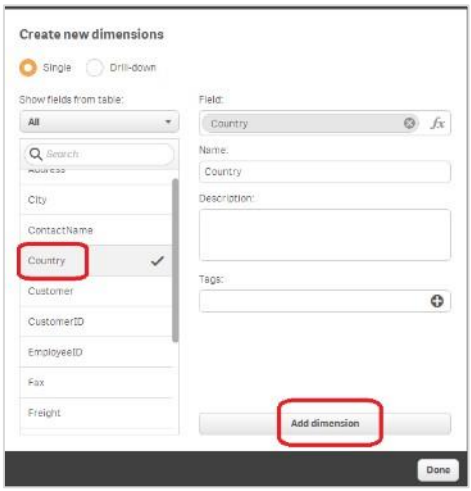
Create a Dimension

1. Click on the **Master Items** section.

2. Under **Dimensions**, click **Create New.**



3. Click on **Country** and select **Add Dimension**.



Add a Drill Down Group

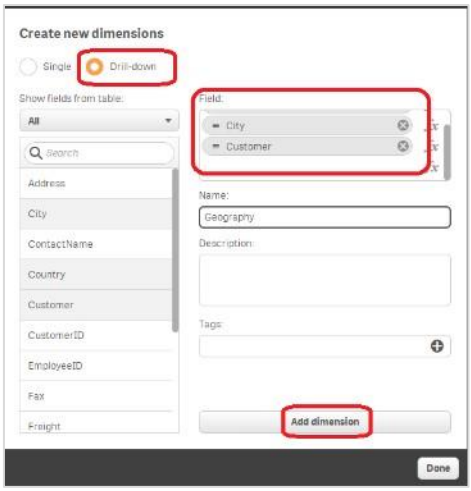
This is an example of a simple Dimension that you can create for others to reuse in this application. However, there may be some more complex Dimensions that you may wish to add. A common use case is a Drill-Down group, whereby a user can click and progressively go down to more levels of detail.

1. Within the same window, select **Drill-down**.

2. Click on **Country**, **City**, and **Customer**.

3. Click on **Name** and type on **Geography**.

4. Click on **Add dimension**.



Your new dimensions are now available to use. Click **Done.**

Create Time and Date Based Functions

In addition to creating drill down groups, we can create date and time based functions, like Year, Quarter, Months, etc. off of a Date field.

1. Under **Dimensions**, select **Create new**.
2. Click on the **fx** button.
3. Under expression, type in the following

4. Provide a new name, such as **Month** and click **Add dimension**.
5. Repeat these steps and use the following functions for some common date-based manipulations:

    - Year(OrderDate)
    - QuarterName(OrderDate)
    - Monthname(OrderDate)
    - Week(OrderDate)
    - Weekday(OrderDate)

Create New Measures

Similar to Dimensions, Measures can be created as well. This allows you to create a set of reusable calculations that can be used throughout the application. To create a new measure.

1. Click on **Measures** from the left hand menu.
2. Click **Create new**.
3. Under **Expression**, type in: **Sum(Profit)/Sum(Sales)**
4. Provide a Name: **Margin %**

5. Click **Create**.

6. Your new measure will appear in your library.

Using The Master Items on Visuals

These new master items (dimensions or measures) can now be added to your existing visuals. As an example:

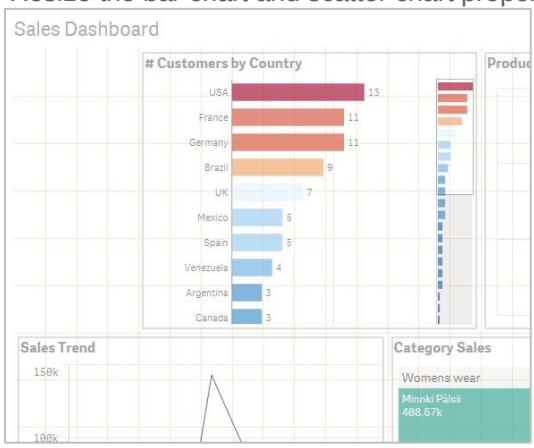
1. Switch to the **Sales Dashboard** sheet
2. Drag-and-drop **Geography** over top of the **Customers by Country** visual.
3. Select '**Replace Country**'

4. Click **Done**.
5. Click on a **USA** from the visual and notice the drill down.

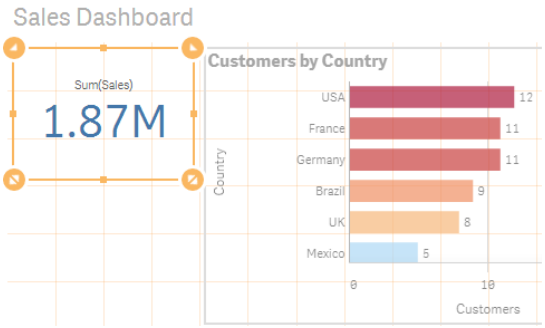
Add KPIs

The KPI object is a very effective way to show the top line numbers and draw the user's attention to these numbers. To add a KPI:

1. Resize the bar chart and scatter chart proportionally, so that there are four grids open on the left.

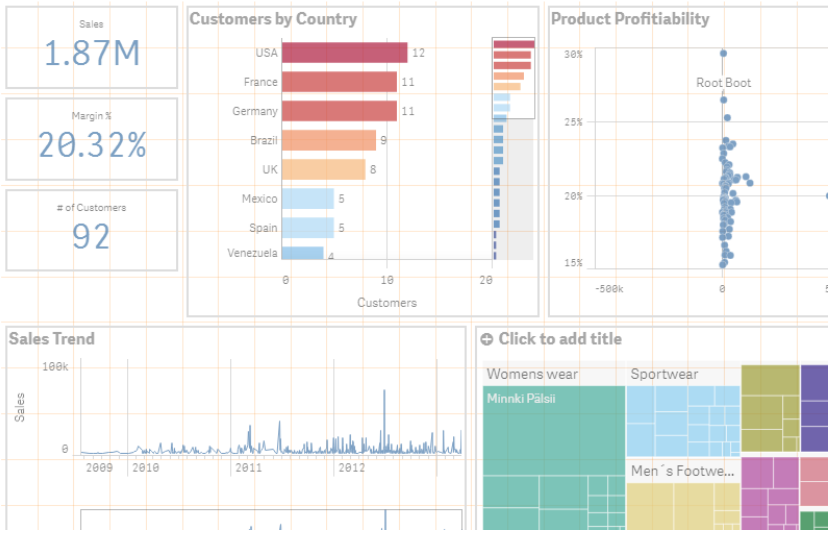


2. From the charts, drag-and-drop the KPI object to the left of the bar chart.
3. Under measure, select **Sales > sum(Sales),** rename to **"Sales".**



4. Place another **KPI** below and add a measure for **sum(Profit)/sum(Sales)** and call **"Margin%**". Format the number to a **percentage - 12.34%**

5. Place one final **KPI** below and add a measure for **Count(Distinct Customer_ID)**.
    a. We use the function keyword “Distinct” to identify unique customers, if you want to see customers with their duplicate entries (such as number of transactions) you would simply not include this.
6. Your visual should now look as follows.



Add Filters

Question to Answer: How to Further Refine These Results Based on Specific Values?

In addition to selecting items directly from a visual, filters can be added that will allow you to dynamically select values to filter the results on the application.

1. Resize the bar and scatter charts to provide one line of extra space at the top.
2. From **Fields** section, drag-and-drop the following fields:

    - **Category**
    - **Country**
    - **Year**

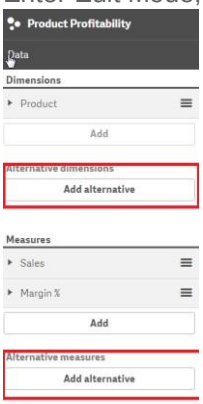
3. Resize and place them along the top, as shown in the screenshot below.

Add Alternative Dimensions / Measures

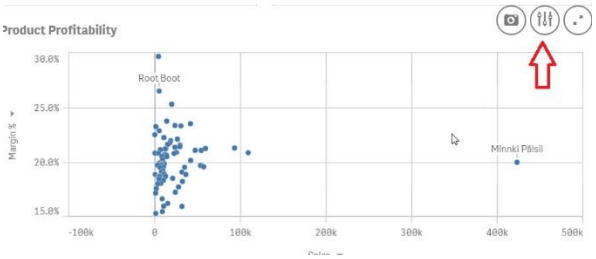
Question to Answer: How do we offer different views of the data without switching to a new sheet or rebuilding visualizations?

Qlik Sense allows you to duplicate chart objects as well as entire sheets, but this may not always be necessary for the user experience you would like to impart. To allow the user to switch between several dimensions and measures within a chart, you can simply add them as "alternatives.' Let us do this now.

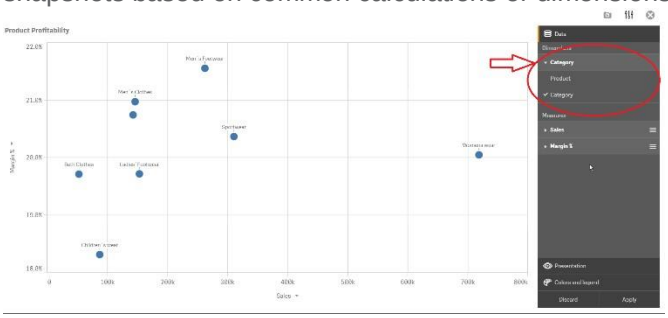
1. Enter Edit Mode, and left click on the Scatter Plot we created for Product Profitability.



2. Here we can add additional measures and dimensions.
   a. Please select add alternative for the Dimension, and add **Category**.
   b. Next select add alternative for the Measures, and add **Sum(Quantity)** for the Number Sold.
3. Hover over the chart, and select the Options Button shown below.



4. You can now toggle the Dimensions and Measures for this chart, suggesting potential views or snapshots based on common calculations or dimensions.
5.



5. Working with Maps

Maps provide a very effective way to see how specific KPIs are performing in a geographic based manner. Qlik provides support for two very common map types:

1. **Point Maps**. Bubbles on a map to denote specific lat/long data points. This can be a country, city, zipcode, or a very specifc point.
2. **Area Maps**. Shapes that are overlayed on top of a map with boundaries. This can be different countries, states, counties, etc.

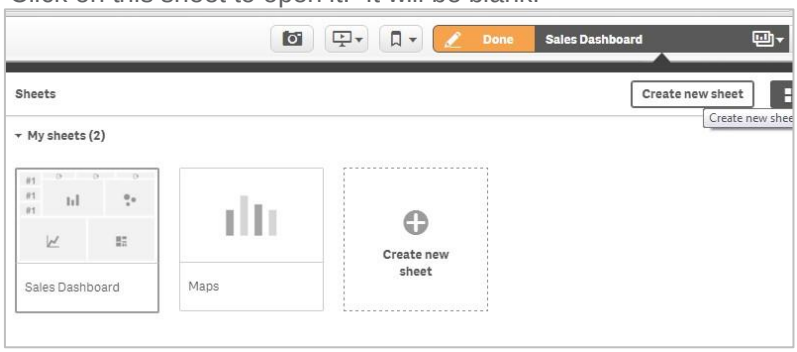
In this section, we will look at both types of maps.

Point Maps

Point maps require a Latitude and Longitude as well as a Qlik specific function to denote that this is a specific point that needs to be plotted on a map. To add the Latitude and Longitude, we will need to do the following.

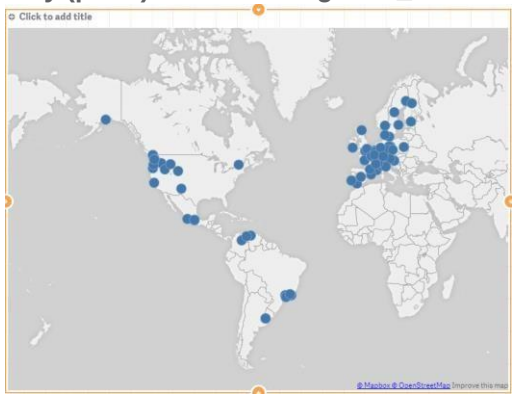
Create a new sheet in your application.

1. From the right-hand menu, select Sales Dashboard under the drop-down
2. Select **Create new sheet**. Provide a name for this sheet, such as “Maps”.
3. Click on this sheet to open it. It will be blank.



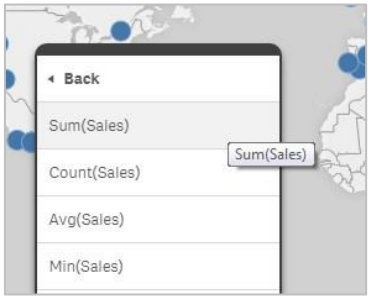
Add a Point Map

4. From the charts, drag-and-drop a Map to the sheet.
5. When you click Dimensions, you will see a list of dimensions that can be used on this map. Select **City (point)** and then **Longitude_Latitude(point)**

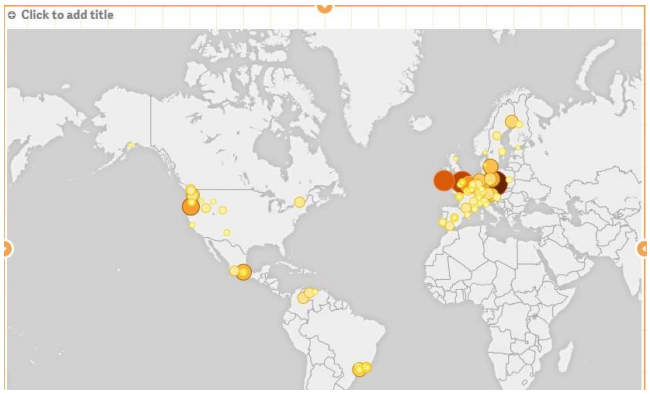


All of the cities in our data set are plotted on this map.

6. To add a measure or to change the bubble size, from the **Fields** section, drag-and-drop **Sales**. Select **Add as Measure > sum(Sales)**.



7. Your visual will now appear as follows:



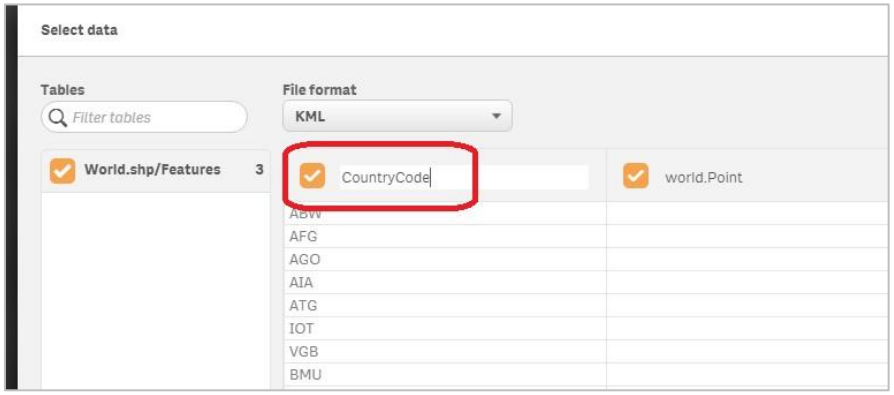
8. From within the Properties section, adjust different properties to see the affect that this has on the visualizations.

Area Maps

Area maps allow you to look at geographical data with boundaries. This can be a world map outlining different country boundaries, a state/county map with these boundaries, or a custom map with custom boundaries. For area maps to work, we will use an open standard KML file that already has these boundaries defined.

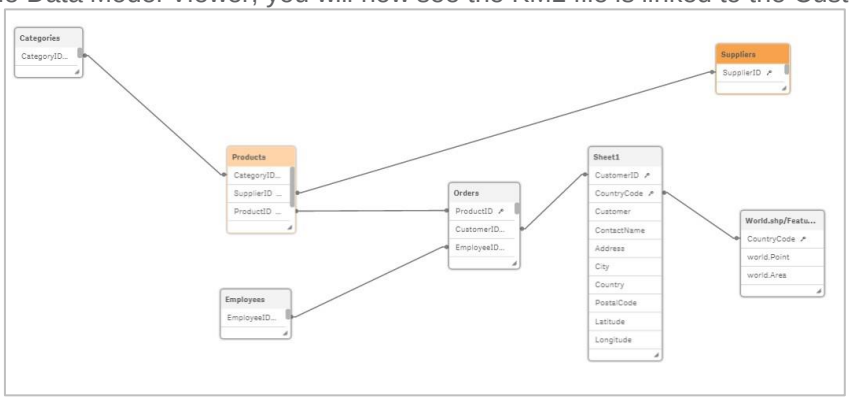
Add KML Data

1. From the application, select **Add data**.
2. Under **connections**, select **World.kml**.
3. For simplicity, rename the **world.Name** field to **CountryCode**. This will force the association between the KML file and our customer file.



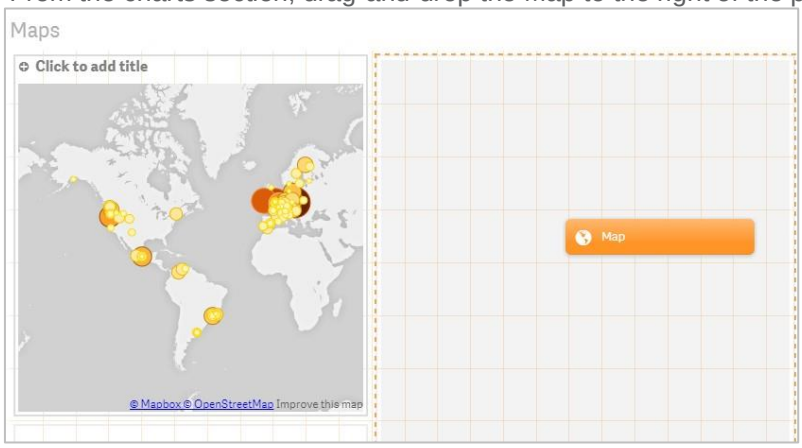
4. Click **Load and Finish**.

In the Data Model Viewer, you will now see the KML file is linked to the Customer table.

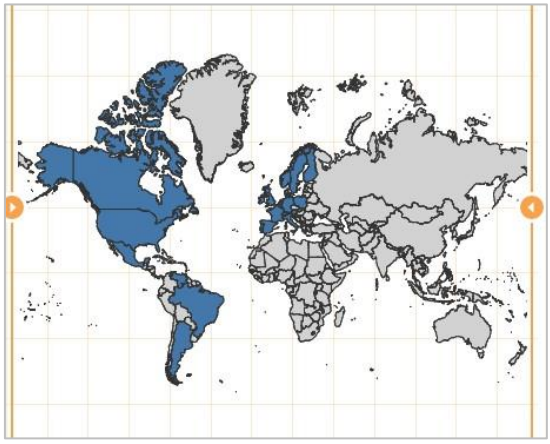


Create the Map

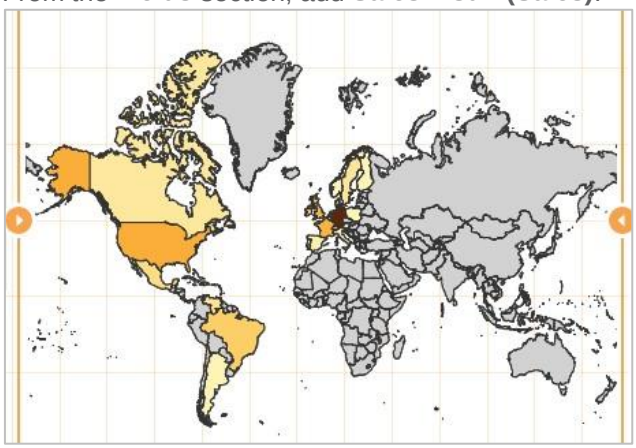
5. From the charts section, drag-and-drop the Map to the right of the point map.



6. Click **Add dimension** and select **Country > world.Area (area)**.



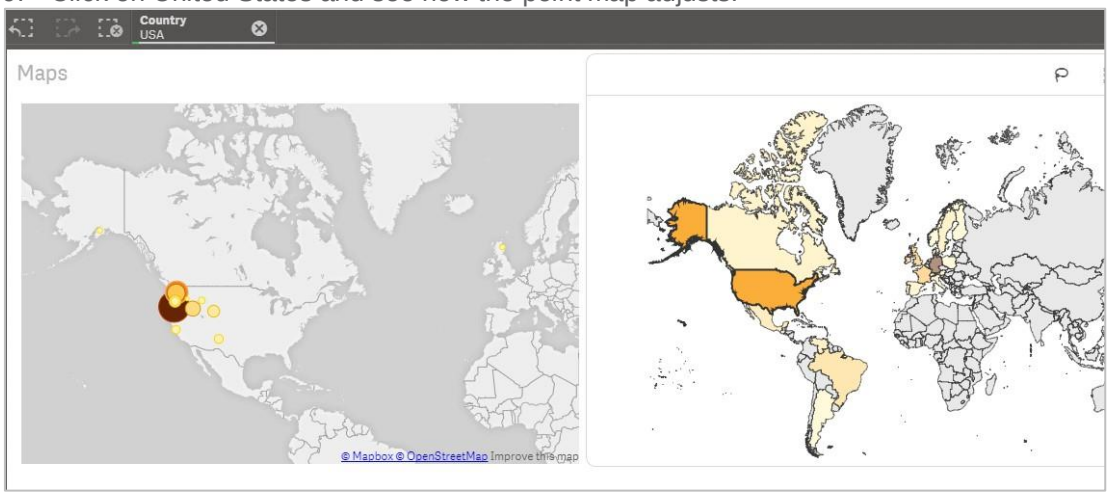
7. From the **Fields** section, add **Sales > sum(Sales)**.



8. Adjust different properties to see how the presentation, formatting, and display changes.

Interact with the Map

9. Click on United States and see how the point map adjusts.

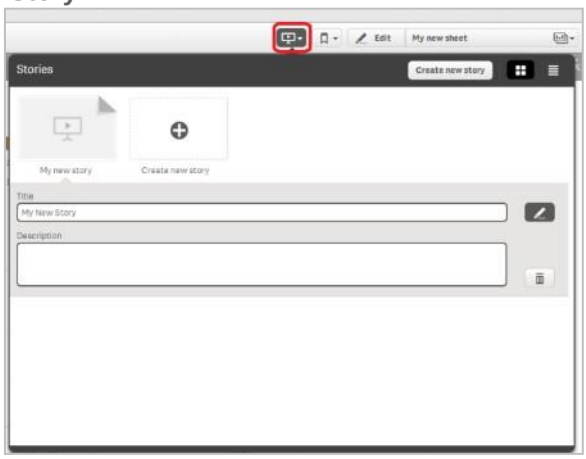


6. Share and Collaborate

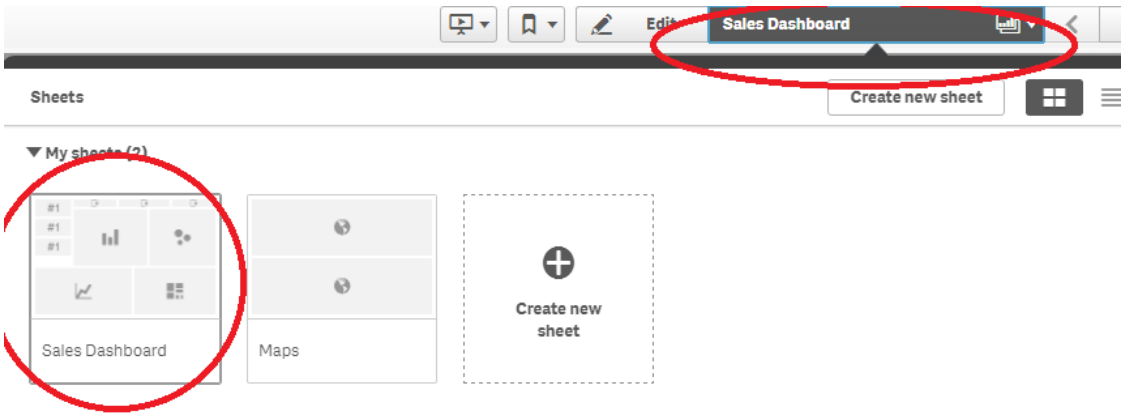
Create a Story

Now that you've built your first application using Qlik Sense, a very common use case is to share this information with others. One approach is to just distribute this application for others to consume this information, but a more effective form of collaboration is to use the information with "narrative" to tell a story with your information and to guide your story in a specific direction. To do this:

1. From the **Stories** icon, select "**Create New Story**" and enter a name for the story such as: **My New Story**

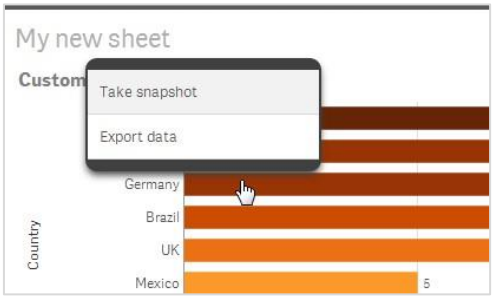


2. Return to the application through the top right menu.



3. Click **Done** to exit the Edit mode

4. Right-click on **Customers by Country** and select "**Take snapshot**".

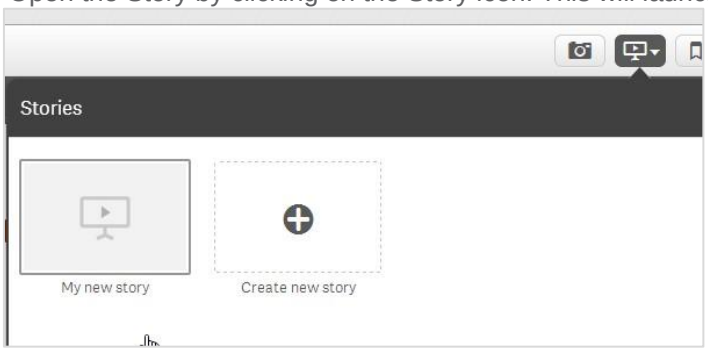


Within the application, you can take “snapshot”. A snapshot becomes a view of this visual that can then be used in your story. These snapshots can include different filters and selections to compare. For example, the first snapshot is showing the summary visual, while the other visual can be a drill down for a specific country.

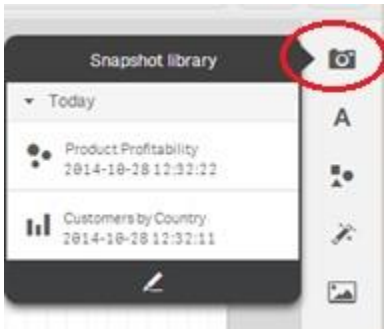
5. Click on **USA** to filter.

6. Right-click on the **Scatter Plot** and select **Take Snapshot**.

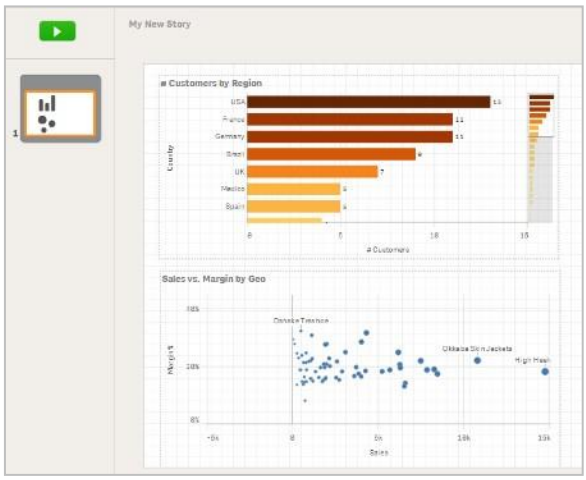
7. Open the Story by clicking on the Story icon. This will launch the Story Editor.



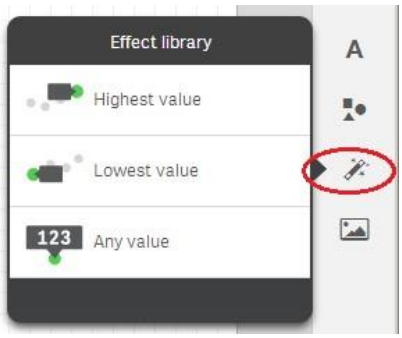
8. Click on the Snapshot icon in the top right



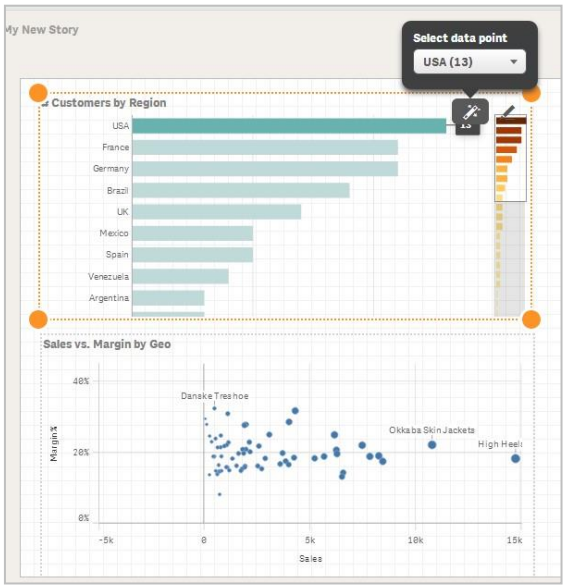
9. From the **Snapshot library** , **drag-and-drop** the two snapshots onto the canvas and place them as follows:



10. Click the **Effects** icon,

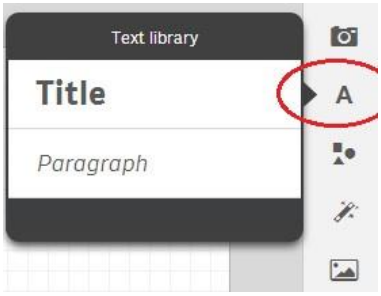


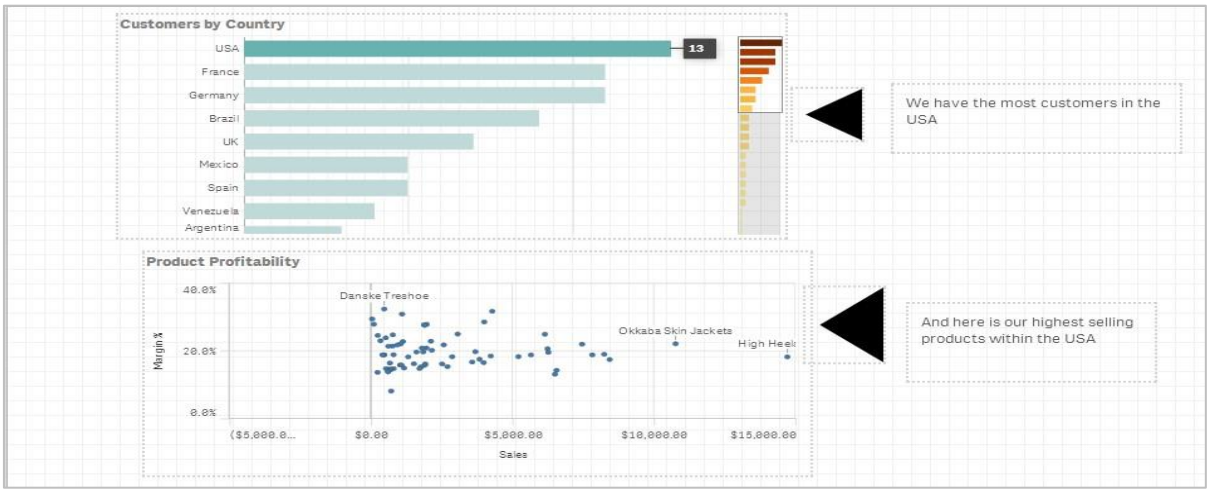
11. And drag the **Highest Value** from the **Effect Library** onto the Bar Chart. It will auto-highlight **USA** as follows:



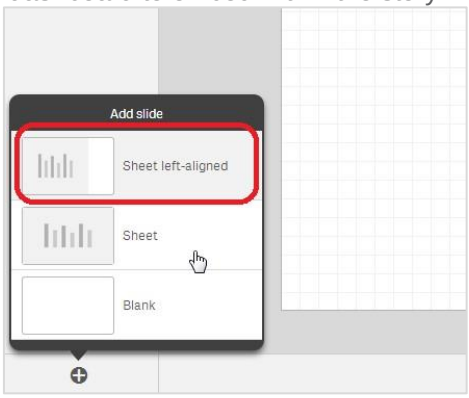
The effects icon allows you to highlight specific pieces of information to easily draw the user's attention to the story that you're looking to convey.

12. Use **text** button to drag on paragraphs or titles as well as the **icons** button to drag on shapes to create a slide that looks like the image below.

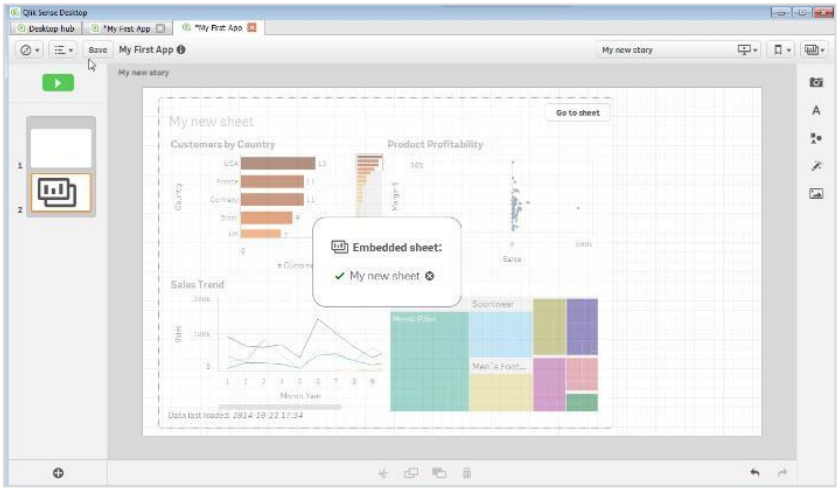




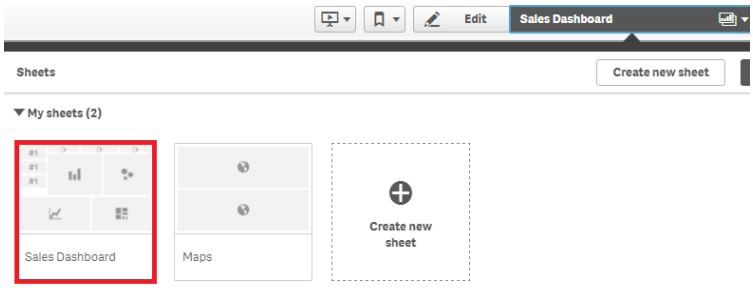
13. Use the + button in the bottom left to add a new Sheet and select **Sheet-left aligned**. Select your dashboard to embed within the story



In addition to these static views, you can embed an entire sheet within the story to provide supporting information and to provide an additional level of interactivity.



14. Click the green **Play** icon  and click through the story. You can use the <- and -> arrow keys to move slides backward and forward.
15. When you are finished browsing the Story, hit the Black X in the top right to close the Story player , click **Save,** and then return to **Sales Dashboard** Sheet by clicking the sheet navigation button in the top right as follows:



16. Click the **Clear All Selections** button and then click the **Edit** button to return to Edit mode for the next exercise.

7. Additional Topics

Data Load Editor

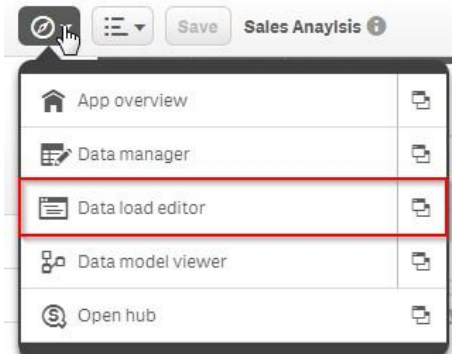
In this workshop, you have been leveraging data from simple file-based sources and quick drag-and-drop data load has made this experience easy and intuitive for the novice user. However, in most situations, your data is more likely going to come from various relational sources, in addition to these file-based sources or if changes need to be made directly to the data. The script editor is used to connect to various data sources, load the data, and transform the data into a consistent and usable format for Business Discovery applications. In this exercise, the Load Script will be used to:

- Call in databases and tables
- Change fields

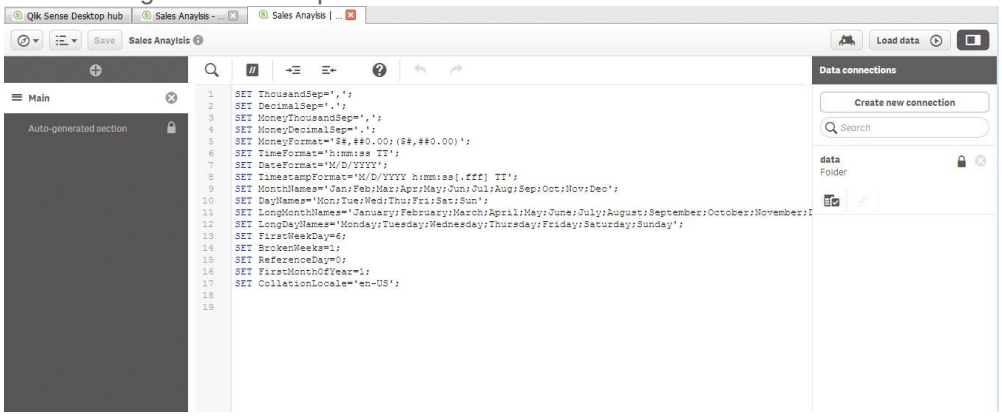
- Create fields
- Remove fields
- Create tables
- Manipulate data and tables
- Load data into the application

To open the data editor:

1. Click on the **Compass** icon (in the top left-corner) and select **Data load editor**.



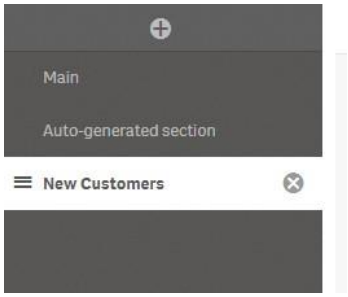
2. The following window will open:



System Variables – appear by default at the top of the Load Script.

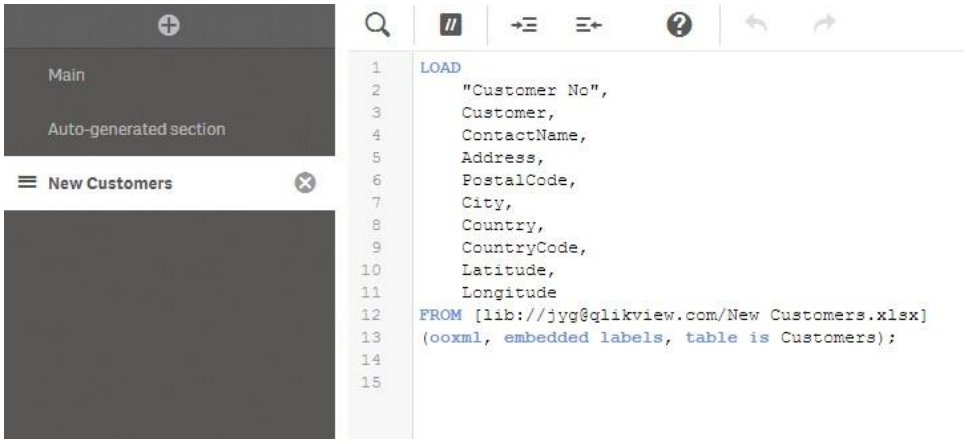
Append Some New Customer Records

1. Click the “Unlock” button.
2. Create a New section in the data load editor and call it “**New Customers**”



3. Under Data connections, click on your login ID and select the **New Customer.xlsx** file.
4. Click Add.

A new section of code will have been added to the data load editor. This is a programmatic routine that the data load editor was creating for us. When this data is in the data load editor, many data preparation manipulations can be done off of this data. You can see that we created a synthetic key.



5. Rename the “Customer No” to “Customer_ID and add “Concatenate(Customers)” on Line 1 as shown in the screenshot below

```
Concatenate(Customers)
LOAD
    "Customer No" as CustomerID ,
    Customer,
    ContactName,
    Address,
    PostalCode,
    City,
    Country,
    CountryCode,
    Latitude,
    Longitude
FROM [lib://qlikid_roccoxpecora/New_Customers.xlsx]
(ooxml, embedded labels, table is Customers);
```

In this specific example, when all of the new customer records are named exactly the same as our master customer file, this new file will be automatically appended to the master customer records.

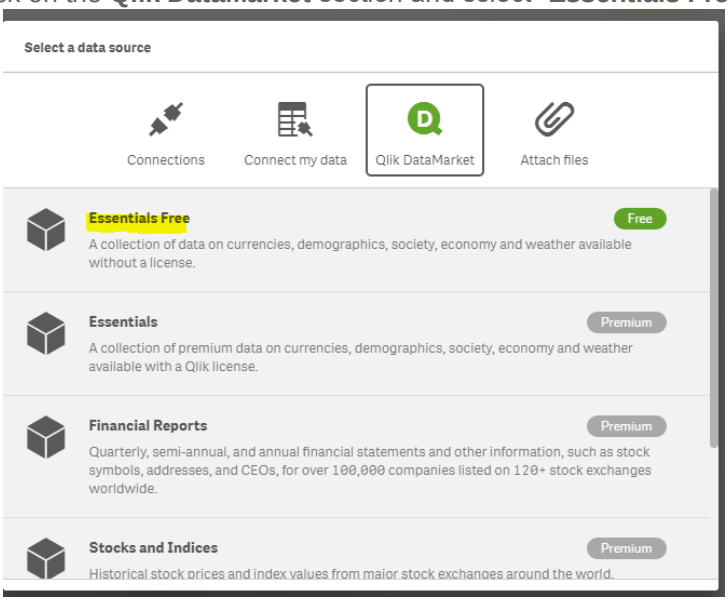
This is called an “alias”. When you rename a field using the data manager, this is automatically populated to the script, and can be changed easily with the wizard.

Some other examples of scripting can be found in this video: https://community.qlik.com/docs/DOC-8231

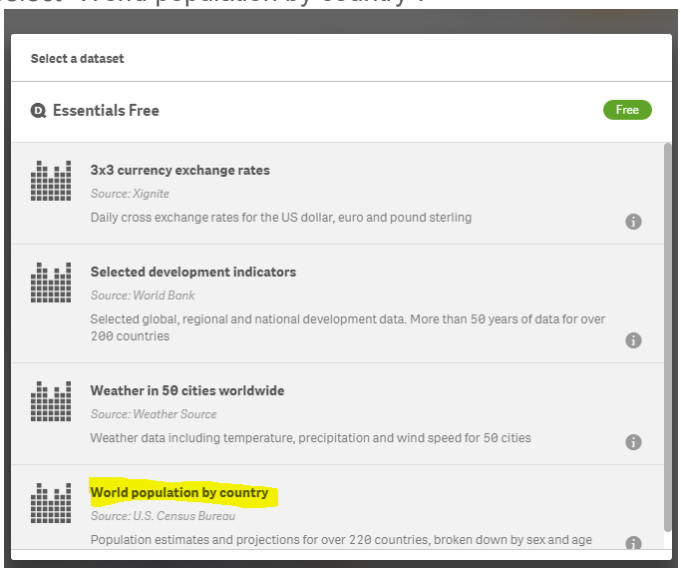
6. Click **Load data**.

Data Market: Third-Party Data

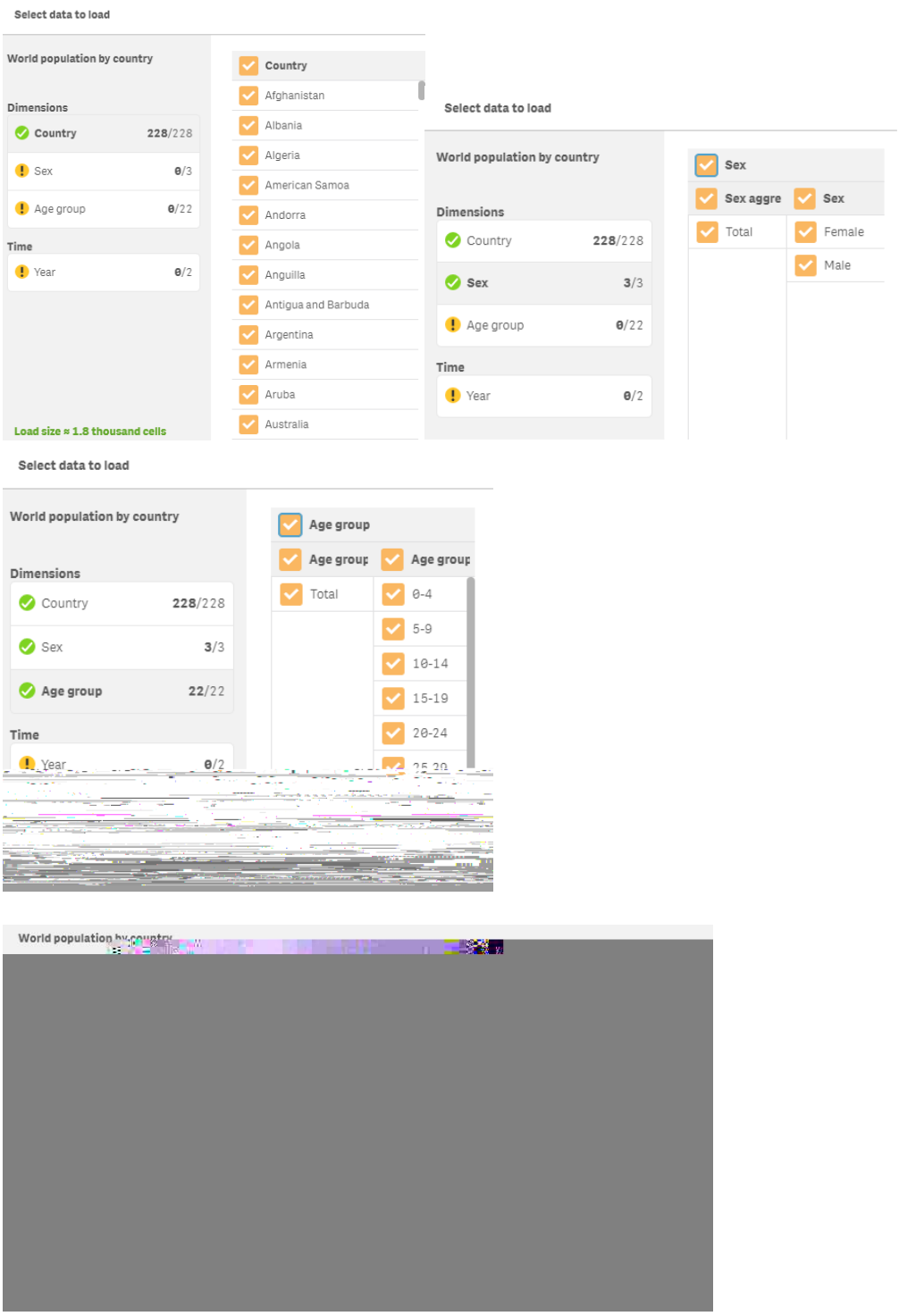
1. From the application, select **Add data**.
2. Click on the **Qlik DataMarket** section and select “**Essentials Free**”.



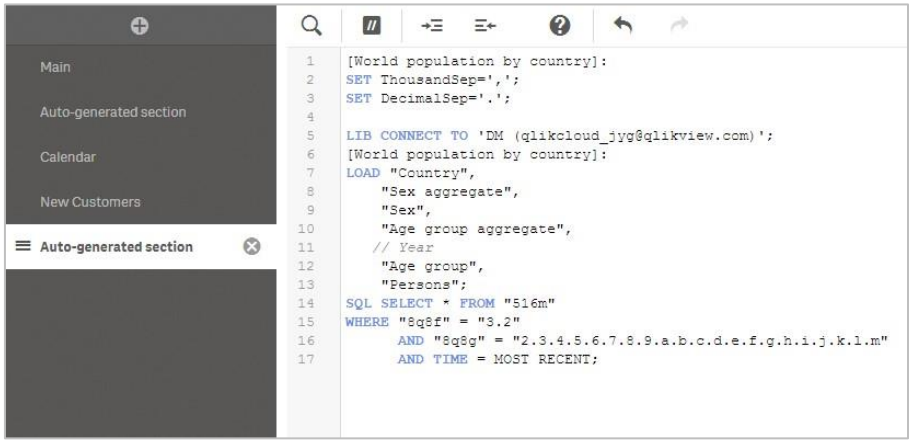
3. Select “World population by country”.



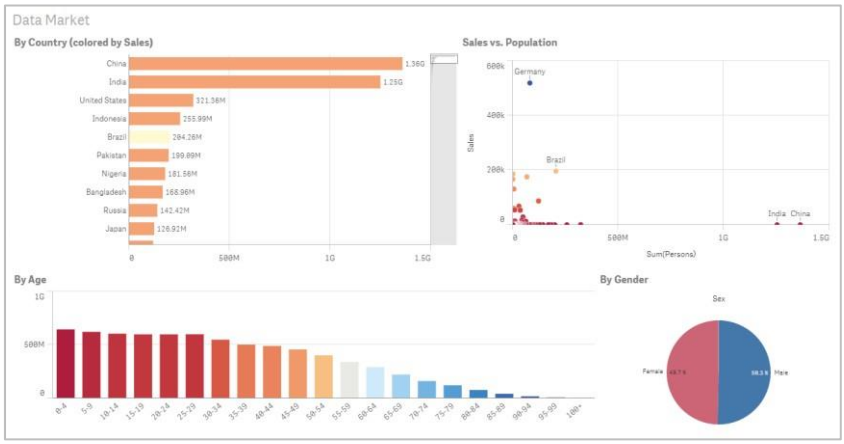
4. Select the following data based on the screenshot below.



5. Click **Load data**.
6. By default, there will be a circular reference as the data is being joined on both Country and Year. To correct this error, we can go into the script and remove **comment out the Year field on line 8**.

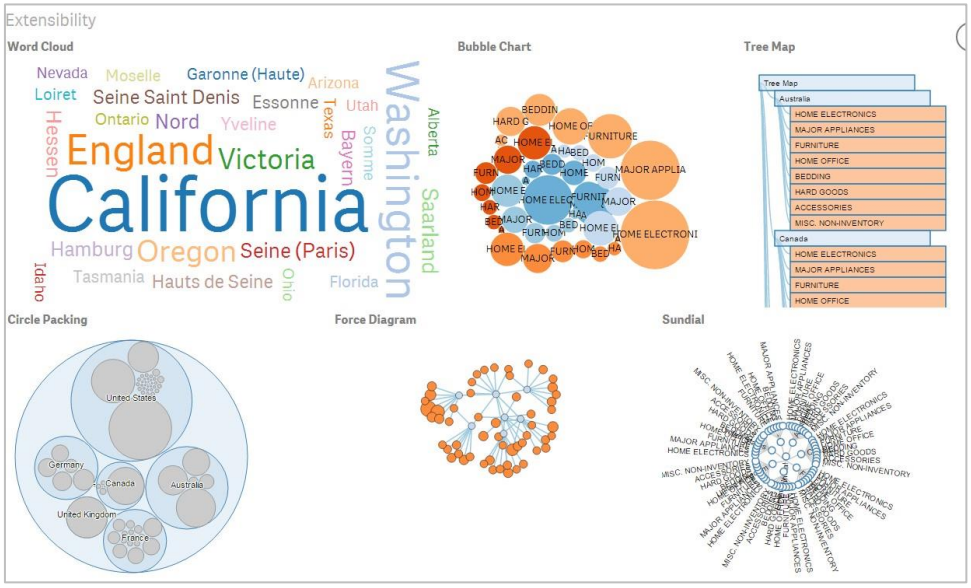


7. From here, you can create new sheets and views off of this data and correlate it to your own data.



Extending Your Application with Custom Visuals

Extensions are currently not supported with QlikCloud. They are fully supported with Qlik Sense Enterprise. Qlik Sense provides an open and extensible API where developers can extend the Qlik Sense platform to provide custom functionality and custom visuals. Some popular examples include:



Next Steps: Training and Support

Upon completion of this short introduction to Qlik Sense, these are some recommended next steps.

1. Getting Started Webinar

Watch this 1 hour webinar to learn about how to get started using Qlik Sense.
Qlik Sense Webinar

2. Free Qlik Sense Applications

Download free Qlik Sense applications to showcase in class.

Visit Demo Page to download now.

3. QlikCommunity

QlikCommunity is a website for people to share their Qlik knowledge and resources on a global level. It contains hundreds of best practices, tutorial videos, informative discussion topics and much more. You can login to QlikCommunity using your Qlik login. Visit QlikCommunity to learn more.

We recommend you review the following areas:

- **Getting Started Webinar**
- **New to Qlik Sense**
- **Resource Library**
- **Qlik Sense Video Tutorials**

4. Websites

The following websites will direct you to numerous websites filled with valuable Qlik information. These websites apply to both QlikView and Qlik Sense

Blogs

Title	URL	Description
QlikTips	http://qliktips.blogspot.com/	Blog by Stephen Redmond
Quick Intelligence Blog	http://www.quickintelligence.co.uk/qlikview-blog/	Blog by Steve Dark
QlikView Notes	http://qlikviewnotes.blogspot.com/	Blog by Rob Wunderlich
QlikView Maven	http://qlikviewmaven.blogspot.com/	Blog by tim.benoit
The Qlik Fix!	http://www.qlikfix.com/	Blog by bh1979
QlikBlog.at	http://www.qlikblog.at/	Blog by Stefan Walther

YouTube

Title	URL	Description
Official Qlik Channel	http://youtube.com/qlikview	Collection of QlikView videos produced and curated by QlikTech
Qlik Tips	http://youtube.com/QlikTips	Videos produced by QlikTech's Josh Good
Quick Intelligence	http://youtube.com/quintelligence	Videos produced by Steve Dark
QlikView Podcast	http://www.youtube.com/user/AnswerSharks	Videos produced by Answer Sharks
QlikView Associative Search	http://www.youtube.com/watch?v=HYtv-qLhttp://www.youtube.com/watch?v=HYtv-qL-1oc&feature=youtu.be1oc&feature=youtu.be	Video produced by QlikTech