

QLIK SENSE FOR BEGINNERS

Mark O'Donovan

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Title: Qlik Sense For Beginners

Version: 1.0

Part1.Teach Me Qlik Sense

Chapter1.Tell me something about Qlik Sense

Who is this book aimed at

Anyone who currently uses a spreadsheet, text file or database to save information and thinks it might be useful to analyse this information.

This could be the everyday person who wants to track their personal finances or how they are progressing in their exercise\weight loss program.

This could be the IT user who wants to explore sql backup data, web server logs or sql server reporting services (SSRS) logs.

This could be the finance person who wants to use Qlik Sense to explore Revenue Information or Invoice Details.

Some reasons to use Qlik Sense after you learn the basics from this book and tried some examples:

- It makes it easier to explore data and make decisions.
- It is helping you with your goals in life such as budgeting.
- You are using it at work whether in IT, Finance or another department.
- You might find that it helps you save you money.
- You see it more and more in job advertisements and feel it is something you should learn.

The main reason to use Qlik Sense is that you think it is a useful tool.

Why learn Qlik Sense and NOT QlikView

QlikView is a great product and you might be wondering why you should learn Qlik Sense.

Here are a few reasons why I think it is worth spending your time learning Qlik Sense:

- You like some of the features such as Story Telling that are in Qlik Sense but not

in QlikView.

- You find the responsive design of Qlik Sense that rearranges objects such as tables\charts depending on the size of the screen very useful.
- You are a IT freelancer\contractor and want to stay ahead of the game and be prepared for any opportunities that come when companies need someone with Qlik Sense experience to help migrate their QlikView applications.
- At some point it the future Qlik will drop support for QlikView so it is best to be prepared.

Qlik Sense is aimed more at a self-service style of business intelligence.

How to use this book

I think the best way to use this book is to work your way through the chapters in order, then you can start creating your own Qlik Sense apps with more confidence.

If you have used QlikView before you might be familiar with the scripts used in the data load editor (loadscripts in QlikView).

In this case you might be tempted to skip parts of chapters but this might just cause more confusion later on if your apps don't resemble the screenshots in the book.

The completed applications will be included with the sample data.

These completed apps are useful to see what you will achieve through using this book and later to compare against your own apps.

The sample data and completed apps are FREE to download whether or not you have purchased the book.

Examples in this book

You can download all the sample data for this book from :

<http://www.techstuffy.com/downloads>

The sample data will be in a zip file containing all the data used for the examples within the book as well as solutions to the examples.

Example Apps

Throughout the book there will be referenced to the ‘completed app’ in the sample data, these apps are to help you if you get stuck with the examples.

Also some apps are referred to as ‘starting app’ , these apps are just to provide a starting point for the example.

The data sources for these apps were loaded from the folder:

C:\QLIK SENSE SAMPLE DATA\data sources

If you are using these apps and your data sources (such as excel and text files) are in a different location you will need to update the connection in the data load editor.

To edit the connection go to the Data Load Editor (DLE) and click the pencil icon for the ‘data sources’ folder and change the folder path, move the cursor to the folder name and click save.



You will learn more about the Data Load Editor as you work your way through the book.

Using Example Apps

To add the solutions to your hub copy the qvf files to the following folder:

C:\Users\<your username>\Documents\Qlik\Sense\Apps

Then press F5 to refresh the hub and the application should appear.

You will learn more about moving apps between computers within the book.

About the Author

Mark O'Donovan

Mark O'Donovan has been working within the IT industry for over 18 years within IT support and developer roles.

For over 6 years Mark has been focused on Sql Server development and business intelligence applications such as Microsoft BI and QlikView.

Mark is currently working as a QlikView developer in London and also managing the website www.techstuffy.com.

websites

To keep up to date with QlikView\Qlik Sense by subscribing to one of the following sites:

<http://www.techstuffy.com>

<http://twitter.com/practicalqlik>

<http://youtube.com/practicalqlik>

Other publications

Practical QlikView

- Learn QlikView Development with lots of Practical Examples.

Practical QlikView 2 - Beyond Basic QlikView

- More advanced QlikView development techniques

Practical Sql

- Learn Sql Server Development from the basics to more advanced concepts.

For more information search for these titles on Amazon.

An overview of this book

Chapter2.Getting Started

Tell me something about Qlik Sense

What is this book about?

This book is a practical introduction to Qlik Sense.

First we will look at the basic concepts used in Qlik Sense so you can start using the software quickly and then we will explore different examples where Qlik Sense might be used.

If you have used QlikView before you will be familiar with the scripting techniques used to bring data into the App.

Finally we will discuss how you can take this new knowledge further.

Who developed Qlik Sense

- Qlik Sense was developed by a Swedish company called QlikTech.
- QlikTech was founded in 1993.
- QlikTech has over 24,000 customers including Cisco, King, McAfee and many more.
- QlikTech has over 1000 Employees.
- Qlik Tech also developed a product call QlikView.
The working title of Qlik Sense was Qlik.Next because it is seen as the next generation of QlikView.

If you have never heard of QlikView, QlikTech or Qlik Sense before then hopefully the points above should satisfy you that QlikTech is by no means a small company.

Next we will look at getting the software and installing it on your computer.

Installation overview

What version of Qlik Sense is used in this book?

This book uses Qlik Sense Desktop version 0.96

The Qlik Sense Desktop download is 120MB.

What are the system requirements for Qlik Sense?

Below is a table of system requirements for Qlik Sense installation:

Operating System	Windows 7,8,8.1
Memory	4GB+
Disk space	300MB+ , all features require 500MB
Minimum Browser : Windows 7	IE 10, Chrome 24, Firefox 18
Minimum Browser : Windows 8 (not tablets)	IE 10, Chrome 24
Screen Resolution	1024x768

Where can I get the software and how much does it cost?

It's Free!

Go to :

<http://www.qlik.com/us/explore/products/sense/desktop>

Fill in the form and click on the 'Download Now' button to download the software.

The software will automatically download.

Qlik Sense Installation

Next we will install the Qlik Sense Desktop.

The Qlik Sense Desktop is the application that will be used for the development and viewing of your qlik sense apps.

1. Double click on the downloaded file Qlik_Sense/Desktop_setup.exe and click the run button:



2. Click on the install option accept the license agreement and click next.
3. Click Install.



4. When the installation has completed click the Finish button.

5. Now click on the desktop icon to start Qlik Sense:



Summary

In this chapter we covered the system requirements for Qlik Sense and you have downloaded Qlik Sense Desktop and installed the application.

In the next chapter you will start using Qlik Sense and create your first application which will include creating some simple sample data, importing the data into Qlik Sense and creating a chart from the data.

Chapter3.My First Qlik Sense App

My First Qlik Sense App

In this chapter we are going to perform the following tasks:

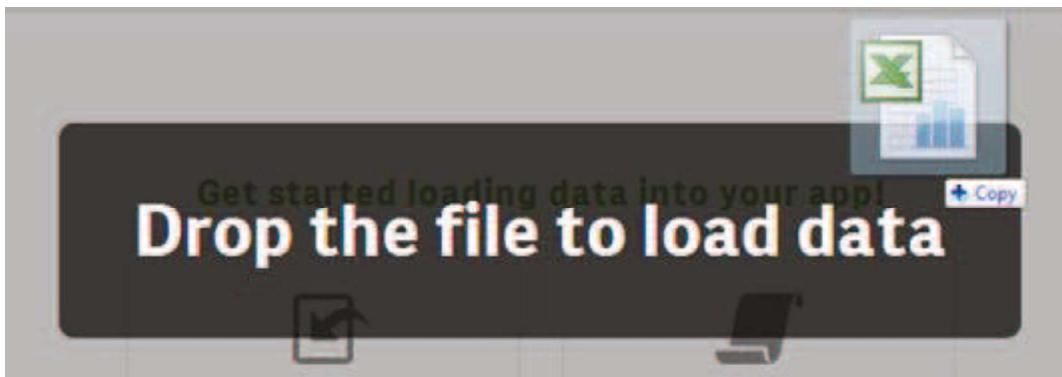
1. Import the data into a Qlik Sense App.
2. Create a chart from the imported data.
3. Display the data in a table.
4. Create a table of calendar month names within the QlikView document so that there is a link between the imported data and this new table created within QlikView.
5. Update the Chart and Table to display the month names.

Import Data into Qlik Sense

1. Open the Qlik Sense Desktop by clicking the desktop shortcut or menu option.
2. You will be presented with a welcome message.
3. Click on the 'Create a new app' option.
4. Enter a name of 'My first app' and click create.



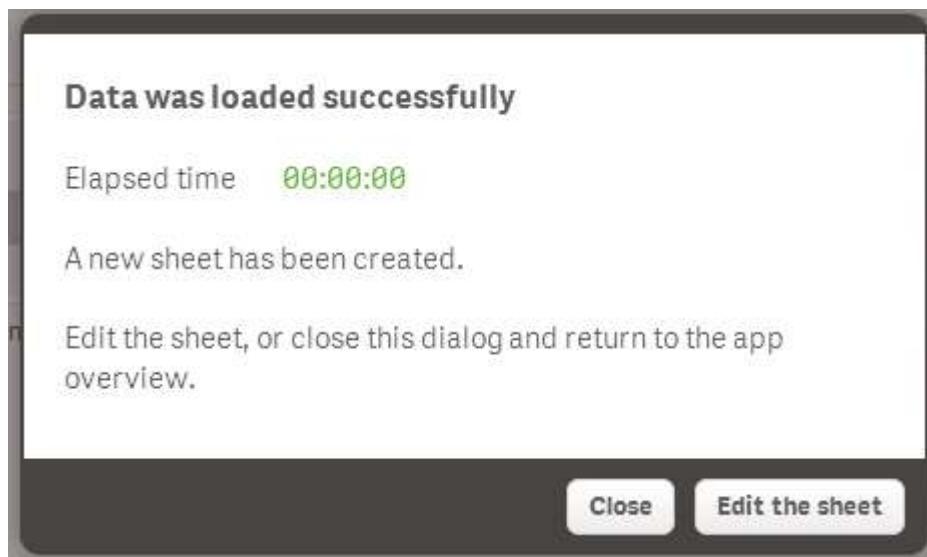
5. Click on the Open app button and the application will be opened.
6. Drag and drop the 'random-data-excel.xls' file with the sample data onto the app.



The following screen should appear:

A screenshot of the "Select data from random-data-excel.xls" dialog in Qlik Sense. The dialog has several sections: "Tables" (with a "Filter tables" search bar), "File format" set to "Excel (XLS)", "Field names" set to "Embedded field names", and "Header size" with three buttons. The "Sheet1\$" tab is selected. Below these, a "Fields" section shows a table with columns ID, TOTAL, MON..., and YE... containing 13 rows of data. A "Filter fields" search bar is above the table. At the bottom are "Cancel" and "Load data" buttons.

7. Click on the 'Load data' button.

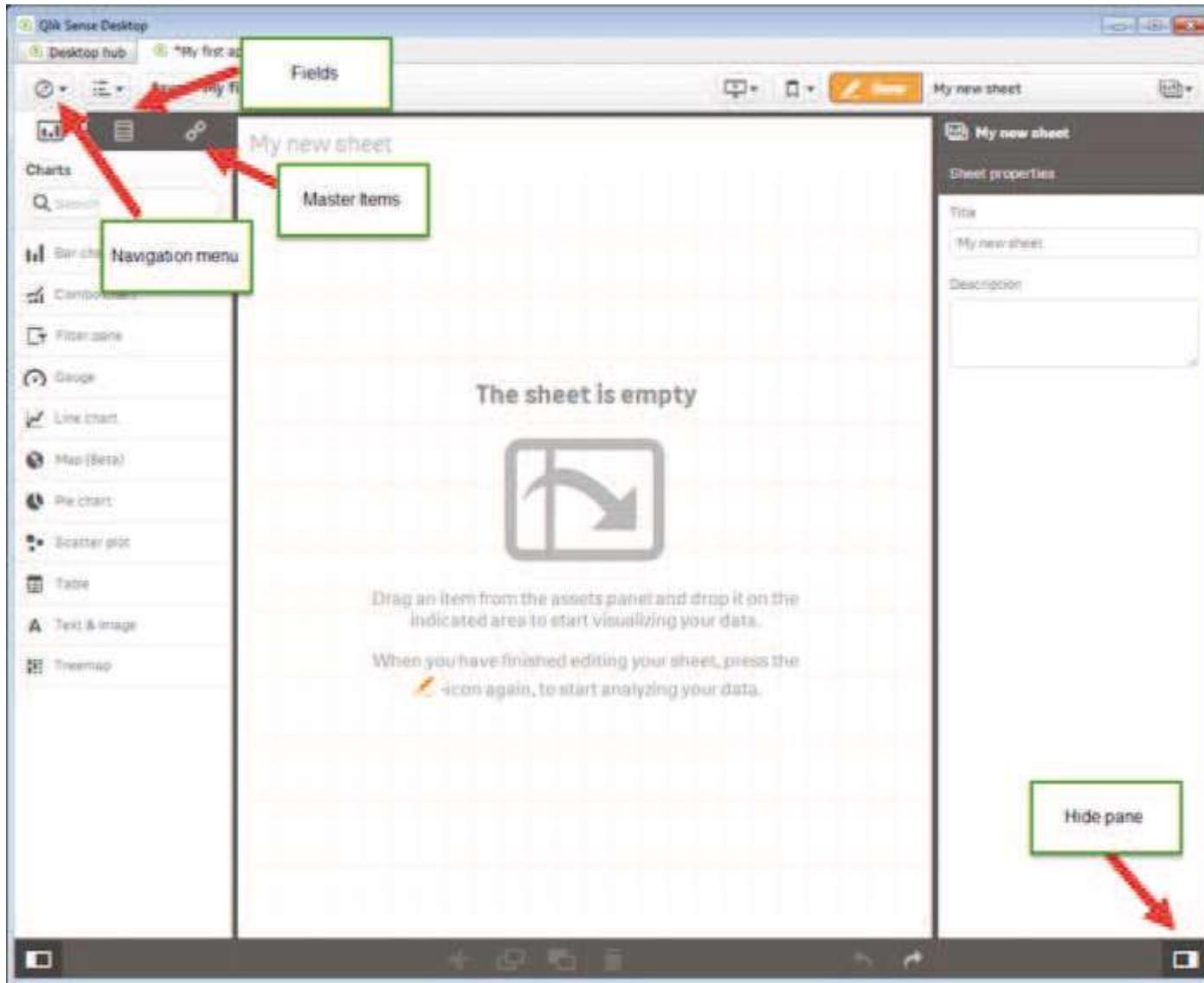


8. Click on the 'Edit the sheet' button to begin creating your first sheet.

Next we will create a simple bar chart and listbox based on the loaded data.

Sheet overview

The sheet in edit mode is split into various parts as shown:



Left pane

This has 3 main options shown in the last screenshot.

- Charts option - which is selected - From here you can drag objects to the sheet.
- Fields - Which shows all the available fields from the data model.
- Master Items - These show Dimensions , Measures and Vizualizations which have been setup to make the creation of objects such as chart easier.

Middle pane

The middle is the main design pane for creating and arranging your sheet objects.

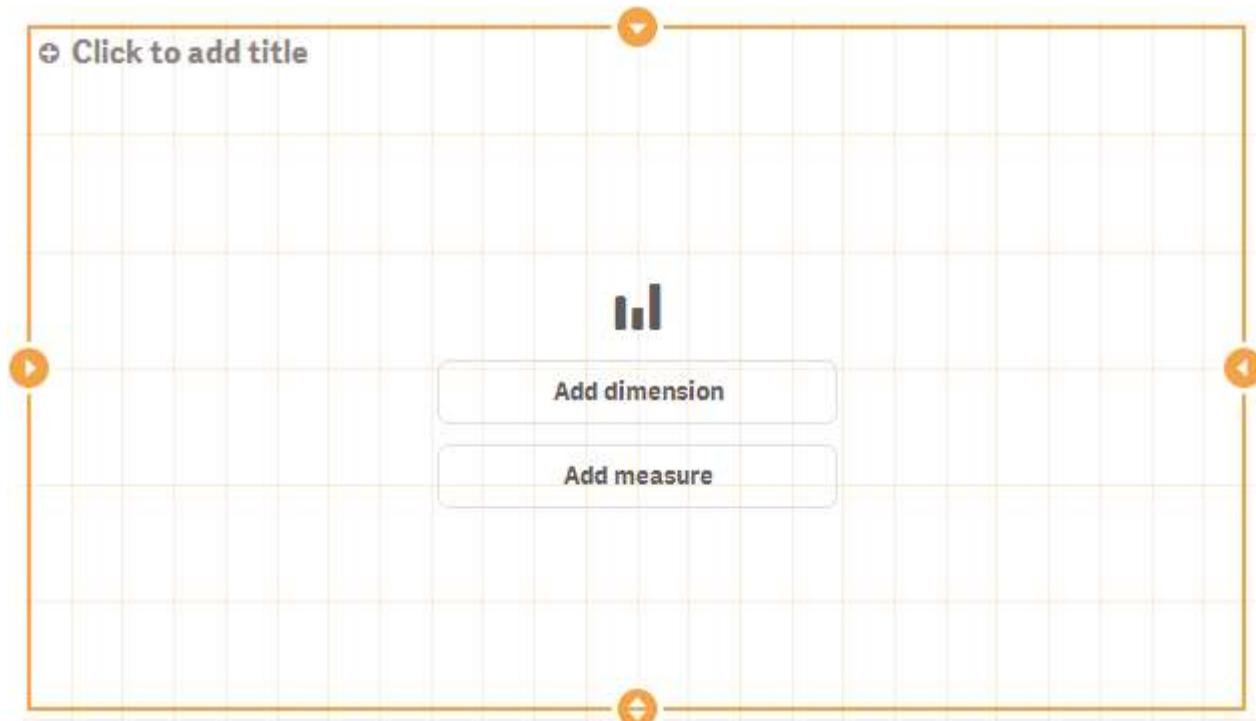
Right pane

The right side is the properties pane and defaults to the sheet properties. If you require more space for the design pane click on the following icon in either the bottom left\right corner of the screen



Create the sheet objects

1. Drag and drop the 'Bar chart' icon the the middle part of the sheet.



2. Click on the add dimension button and select the month field.

Dimensions

Dimensions determine how the data will be grouped in the chart (the X axis).

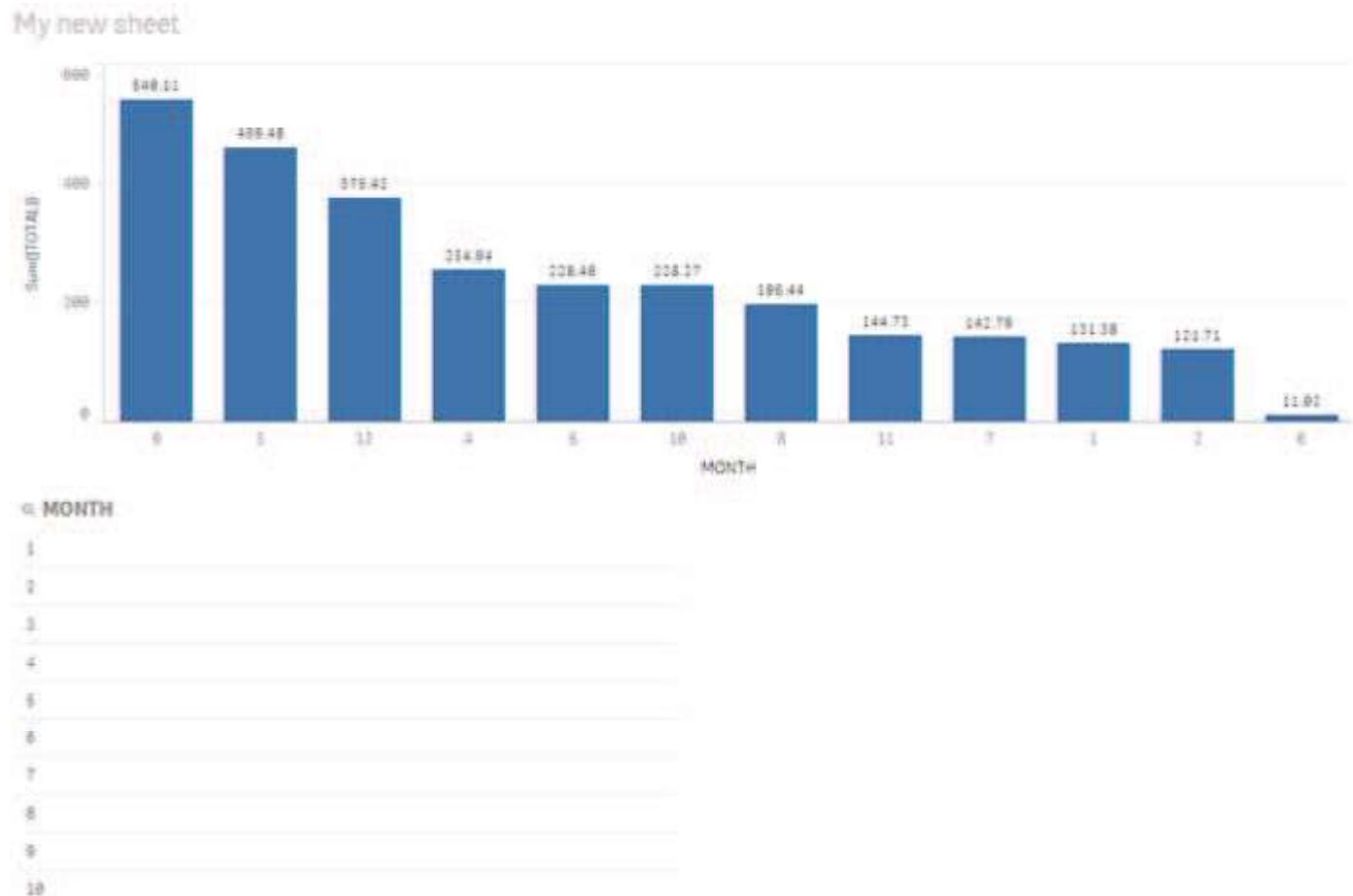
Measures

The expression will determine what value is plotted on the y-axis of the chart.

3. Click on the add measure button. Select the total field and then select the sum(total)

aggregation.

4. Drag the 'Filter pane' option to the sheet.
5. Click the 'add dimension' option and select month.
6. Click done to view your first sheet.

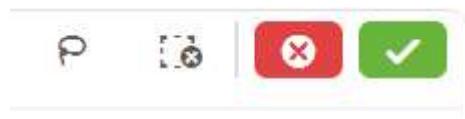


7. Click the save button.

8. Now if you select a MONTH value from the MONTH filter pane the chart will be updated to only display the selected months.

Bar selection options

If you select one of the Months from the bar chart you will be presented with the following options.



The tick and cross are used to confirm or cancel the selection.
The dash line box with the cross is to clear the selection.

The first button on the left is to ‘Turn on the lasso selection’, this allows you to draw a shape around the bars you wish to select:



You can also select bars using the x and y axes by select and holding the mouse down on one of the axes and dragging the mouse to select some bars as shown:



Filter selection options



‘Select possible’ will select all the possible options ie: those that are still white.
‘Select excluded’ will select all the options that are dark gray.

‘Select alternative’, alternative values are those that were possible before the current selection was made,
For example:



Here the alternative values are Jan,Aug and Nov.
Whereas Feb,Mar and Apr have been excluded.
So choosing the option ‘select alternative’ will select Jan,Aug and Nov and unselect Sep.

Completed App:

My first qlik sense app\My first app-completed.qvf

Data Load Editor (DLE)

In this book the Data Load Editor is often abbreviated to **DLE**. Whereas the Data Model Viewer is abbreviated to **DMV**.

Just like when you editing a sheet the DLE is split into 3 main panes.

Left pane: Sections

The left pane is used to divide your loadscript into sections (In QlikView this was called tabs).

You just click on the + symbol at the top of the pane to add a new section.

Middle pane: The loadscript

The middle pane contains the script for the currently selected section.

Each new document contains SET statements to create variables that contain standard values such as the MonthNames or DayNames for the system settings.

As you can probably tell from the MoneyFormat and DateFormat below the screenshot is a computer setup with the UK regional settings.

```
SET ThousandSep=',';
SET DecimalSep='.';
SET MoneyThousandSep=',';
SET MoneyDecimalSep='.';
SET MoneyFormat="#,##0.00:-#,##0.00";
SET TimeFormat='hh:mm:ss';
SET DateFormat='DD/MM/YYYY';
SET TimestampFormat='DD/MM/YYYY hh:mm:ss[.fff]';
SET MonthNames='Jan;Feb;Mar;Apr;May;Jun;Jul;Aug;Sep;Oct;Nov;Dec';
SET DayNames='Mon;Tue;Wed;Thu;Fri;Sat;Sun';
SET LongMonthNames='January;February;March;April;May;June;July;August;September;October;November;December';
SET LongDayNames='Monday;Tuesday;Wednesday;Thursday;Friday;Saturday;Sunday';
SET FirstWeekDay=0;
SET BrokenWeeks=1;
SET ReferenceDay=0;
SET FirstMonthOfYear=1;
```

Right pane: Create and Manage Connections

The right pane allows you create connections to data sources such as Access \ Sql databases using ODBC or OLEDB connections.

You also have the ability to select the data you wish to read into your app.

Bottom of screen:**output button**

The output button at the bottom of the screen allows you to view the output of the last ‘load data’ command.

Top right:**Debug and Load data**

The Load data button is to run the current script and load data into your app. The scripts are run from top to bottom in the order of the sections in the left pane.



The debug button is to the left of the load data button.

Click on the debug button and a Variables and Breakpoint button appears at the bottom of the screen next to the Output button.

Variables

You can create a simple variable by adding the line of code:

```
LET mytestvar =1;
```

If you click on the load data the variable mytestvar will appear in the ‘User defined variables’ and ‘All Variables’ sections.

You can use the Variables dropdown menu to show certain variables : All, System, Reserved or User Defined.

You can click on the star next to the variable name to add it to your favourites.

Breakpoints

Breakpoints allow you to stop the loading of the script at a certain point, for example if you want to check the values of certain variables.

You can click to the right of a line of code in the same column as the row numbers to add a breakpoint as shown:

```

SET LongDayNames='Monday;Tuesday;
SET FirstWeekDay=0;
SET BrokenWeeks=1;
SET ReferenceDay=0;
SET FirstMonthOfYear=1;

LET mytestvar =1;

C:\Users\day\
LOAD * INLINE
MONTH, MO
1, Jan
2, Feb
3, Mar
4, Apr
5, May

```

Breakpoint

Finally if you put a tick in the ‘limited load’ tickbox you can enter the number of lines you wish to read.

For example if we ticked the limited load and entered a value of 3 and click the play button we would see the following output.

```

Calendar << INL1E36
Lines fetched: 3
years_to_display
Lines fetched: 2
09:46:47
Sheet1$
Lines fetched: 3

```

This shows us that no more than 3 lines of each source were read.

New tab option - in the DLE

In the DLE you can open various commands in a new tab like you might in a web browser.

You do this by selecting the navigation button and then instead of click on the words ‘App Overview’ you click on the icon of 2 windows on the far right of the menu to open the option in a new tab.



G:\WORKING\SENSE\newtag.png

Inline Tables

A table that is defined and stored in the load script is called an Inline table.

Next we are going to add an Inline table so that we can convert the Month numbers into abbreviated month names such as Jan, Feb, Mar etc...

1. Select the Navigation button then the option 'Data load editor':



2. Type the following Inline table into the DLE script in the Main section.
(see data sources\calendar table.txt)

Calendar:

```
LOAD * INLINE [
```

```
    Num, Name
    1, Jan
    2, Feb
    3, Mar
    4, Apr
    5, May
    6, Jun
    7, Jul
    8, Aug
    9, Sep
    10, Oct
    11, Nov
    12, Dec
];
```

3. You can add a name to this table by entering the table name followed by a colon in the line before the load statement. In this example we have called the table 'Calendar'.

IMPORTANT: Links between tables are created when field names are the same in both tables.

The main fields in the first table were:

ID
TOTAL
MONTH
YEAR

The inline table has the fields:

Num
Name



4. QlikView would create no link between these tables, we can easily change the fieldnames on the inline table by just renaming the header names as in the example :

UPDATE SCRIPT

Calendar:

LOAD * INLINE [

```

MONTH, MONTHNAME
1, Jan
2, Feb
3, Mar
4, Apr
5, May
6, Jun
7, Jul
8, Aug
9, Sep
10, Oct
11, Nov
12, Dec
];

```

```

LOAD
ID,
"TOTAL",
"MONTH",
"YEAR",
F5,
F6
FROM 'lib://book source code/random-data-excel.xls'
(biff, embedded labels, table is Sheet1$);

```

5. We have changed the fields in this table from Num and Name to MONTH and MONTHNAME.

Reload the data.

6. If we now go to the Data model viewer we can see that QlikView has created a link between the 2 tables using the MONTH field.



Testing the Inline Table

Now update the dimension for the bar chart.

1. Open the sheet, 'My new sheet'.
2. Click the edit button.
3. Select the bar chart.
4. Click on the dimensions button in the RIGHT PANE.



5. Change the fieldname to MONTHNAME and click Done.

My new sheet



6. Select the MONTH Filter pane and change the dimension field to MONTHNAME, keeping the title as MONTH.

Sorting

1 ▾ MONTHNAME

Sorting

Custom

Sort by expression

Sort by frequency

Sort numerically

Ascending

Sort alphabetically

Q. MONTH

Jan
Feb
Mar
Apr
May

7. Save the sheet to prevent losing changes.

Completed App

QLIK SENSE SAMPLE DATA\My first qlik sense app\My first app-completed.qvf

Basic concepts

Next we will cover some of the concepts used in Qlik Sense and throughout this book.

Associative Experience

The Associative Experience is the core feature of Qlik Sense that allows the user to see which values are associated based on the data model using colors.

Green is the values that have been selected by the user.

White shows values that are associated with the current selection also called the possible values.

Dark gray shows the values that are not associated with the current selection.

Light gray values are alternative values. For example in a list this would be values that would be possible values if the selection within the field had not been made.

This experience of showing what values are related allows the user to quickly explore the data and answer questions they might have.

For example, in a Sales example you might want to find what products the top customers 5 customers used. These types of questions would be easy to answer with Qlik Sense.

Desktop Hub

The desktop hub is where you will find all the apps that are available to you and from where you will create a new app.

On your computer the apps will be in the following folder:

C:\Users\<username>\Documents\Qlik\Sense\Apps

Sheet

A Qlik Sense App is made up of mainly Sheets, Bookmarks and Stories.

The sheet is where you will do the most of your qlik sense development and drag objects such as tables and charts to arranged and customized.

Master Items

Master items allow for global changes by creating reusable dimensions, measures and visualisations (such as charts).

Snapshots

Snapshots allow you to take screenshots of objects such as charts and tables to use later in your Stories.

You can highlight values in the snapshot when you add it to a slide.

Data Storytelling

This feature allows you to create slides that contain the snapshots, text and images.

You also can create a slide that contains a whole sheet with the ability to go back to the

sheet from the slide.

Dimensions

Dimensions determine how the data will be grouped in the chart (the X axis).

Measures

The expression will determine what value is plotted on the y-axis of the chart.

Data Load Editor = DLE

In this book I have abbreviated the Data Load Editor to DLE.

The DLE is where you create the script to load the data into your qlik sense app and create the data model.

Getting the data model correct is the No1 important thing to get right with your Qlik Sense app.

You can create a simple UI and encourage users to create their own sheets but without a correct data model the app will be of little value to the user.

Data Model Viewer = DMV

The data model view allows you to view the data model that was created with the script in the DLE.

You can also preview the data that is contained within the tables to check it has been loaded into your app.

String or Field

When developing in qlik sense it is important to know that different types of quotes represent strings (sometimes called literals) or fieldnames:

Strings(literals) = ''

Field name = "" or [] or ``

This is important when creating a field name in your script that contains spaces where you would use "" or [] or ``.

For example :

```
LOAD
'test' as "MY TEST FIELD"
```

AUTOGENERATE(1);

The data ‘test’ is contained within the field called “MY TEST FIELD”.

Summary

Using a simple example we have covered:

- How to import data from an Excel spreadsheet.
- How to display data in tables and a simple bar chart.
- How to create tables of data within your QlikView document (Inline tables).
- How tables are linked together in QlikView.

In the next chapter we are going to look at the QlikView document in more detail.

We will look at some of the following areas:

- Different data sources that you can use.
- How you can change the imported data using expressions.
- Different types of Charts that you can use to display your data.
- Ways that you can filter the data in the load script using inner joins and the where clause.

Part2.Creating Qlik Sense Apps

Creating Qlik Sense Apps

In this part we will describe the types of files you can read data from into your Qlik Sense app and demonstrate examples using Excel and Text files.

Then we will demonstrate how you can filter the data in your data model using inner joins.

Read Data into Qlik Sense

Data Sources

A data source is where you are get the data you wish to analyse. Different types of data sources need to be setup in different ways. I will describe each of the main data sources for Qlik Sense.

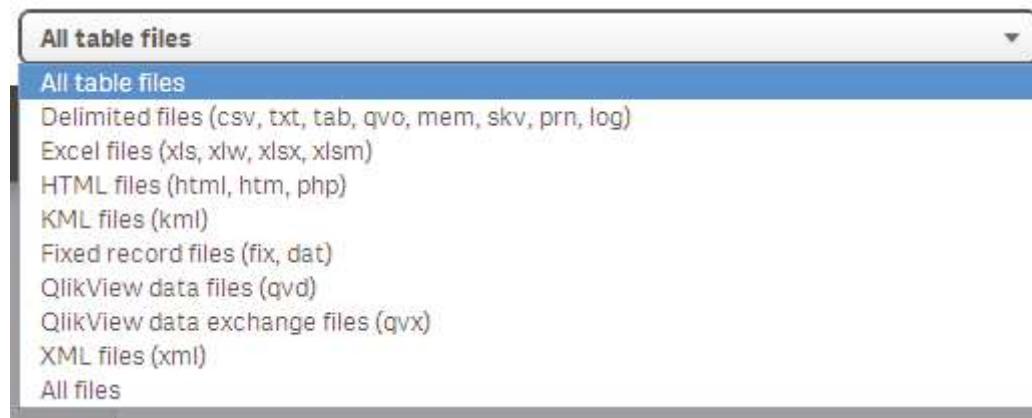
The first data source you will have already encountered if you are following the examples is the Excel file.

Excel files are one of a group of files you can import into Qlik Sense called ‘Table Files’.

1. From within the 'data load editor' click on the 'select data' button

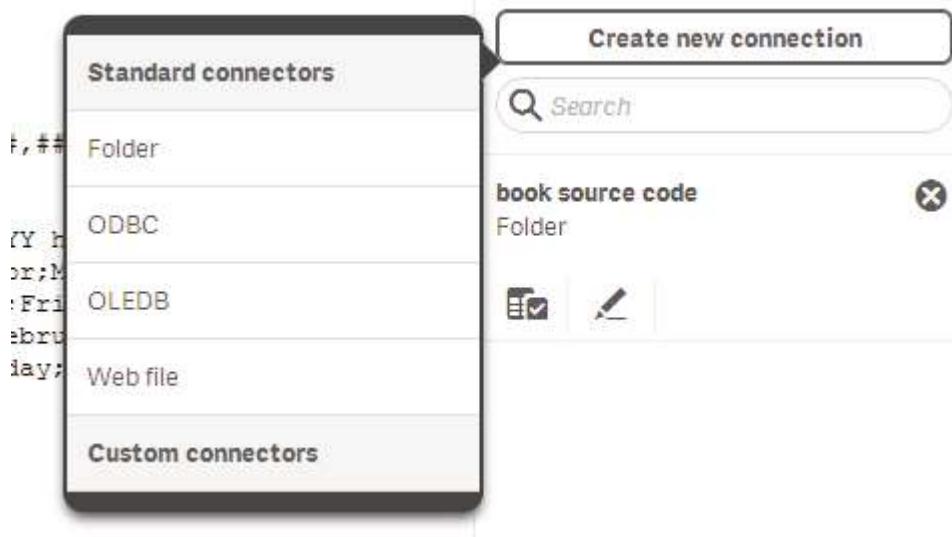


2. then select the 'file type' dropdown list to see the table file options:



3. There are various other options for data sources you can see in the 'data load editor' by clicking on the 'create new connection' button.





When starting to use Qlik Sense you will mostly use this option to import Excel or Delimited files such as csv (comma separated files) or plain text files such as a log.

Table Files

Excel

This is the data source that everyone uses first when learning Qlik Sense. There are various ways you can load excel files into qlik sense.

Drag and drop

Open the App and drag and drop the file onto the screen.

You can also drag and drop the spreadsheet onto a sheet.

If you already have data in the app you are asked if you would like to replace or add the data already loaded.

Each data file is created within a new tab in the data load editor.

Select data button

Within the data load editor click the 'select data' button and browse to the data file.

Table Files - Excel Example

1. Create a new app - called Customers.
2. Drag and drop the file SampleCustomerReports.xls onto the app page.
3. Under field names selected 'Embedded field names' so the fieldnames within the data are used.

Product	Customer	Qtr 1	Qtr 2	Qtr 3	Qtr 4
ANTON	Alice Mutton	782			
BERGS	Alice Mutton	312			
BOLID	Alice Mutton			1178	
BOTTM	Alice Mutton	1178			
ERNSH	Alice Mutton	1121.2		2607.15	
GODOS	Alice Mutton		286.8		
HUNIS	Alice Mutton	62.4			
PICCO	Alice Mutton		1588	936	
RATTC	Alice Mutton		592.8		
REGGC	Alice Mutton				741

4. Click load data
5. When you get the message 'Data was loaded successfully' , click close.
6. Click the save button then go to the 'data load editor' (DLE)
7. In the DLE a tab called 'SampleCustomerReports.' is created with the following script:

LOAD

```

Product,
Customer,
"Qtr 1",
"Qtr 2",
"Qtr 3",
"Qtr 4"
FROM 'lib://data sources/SampleCustomerReports.xls'
(biff, embedded labels, table is [Source Data$]);
```

In your script the path to the spreadsheet might be different if it was stored in a different folder.

Text files

There are several reasons to import text files into Qlik Sense.

For example all your data might be in a csv (comma separated value) format or you do not own Microsoft Office.

In this example we are going to import a list of years.

1. Create a simple text file with the following data called years_to_display.txt (see data sources folder in sample data):

2009
2010

2. Open the 'My first app' app.
3. Edit the 'My new sheet' sheet.
4. Click on the fields in the left pane and drag the year field to the sheet as show:

My new sheet



5. Drag and drop the file `years_to_display.txt` to the sheet:
6. Click Add data.
7. Click the header of the data and change `@1` to `YEAR` and click 'load data'

Fields Select all fields

<input checked="" type="checkbox"/>	@1
	2009
	2010

8. Go to the data load editor

You should see the following code added to the years_to_display.txt tab:

```
LOAD  
    @1 as "YEAR"  
FROM 'lib://source code/years_to_display.txt'  
(txt, codepage is 1252, no labels, delimiter is '\t', msq);
```

Inner Join

If you wanted to display only the years listed in your text file you could create a join between the tables as in the following example:

To only display the years listed in the text file I added the following ‘INNER JOIN’ command before the SalesData table is read.

INNER JOIN (years_to_display)

This command means that data will only be read from the SalesData table where there is a matching record in the years_to_display table.

In this case the years_to_display and SalesData tables are linked using the YEAR field so only years listed in the years_to_display table will be displayed.

The ‘years to display’ filter pane lists the records in the YEAR field.

1. In the ‘My first app’ app go to the DLE.
2. Click on the 3 bars to the left of the section name ‘random-data-excel.xls’ and when you see the crosshairs click the left mouse and drag the tab to move the random-data-excel.xls tab to the bottom as shown:



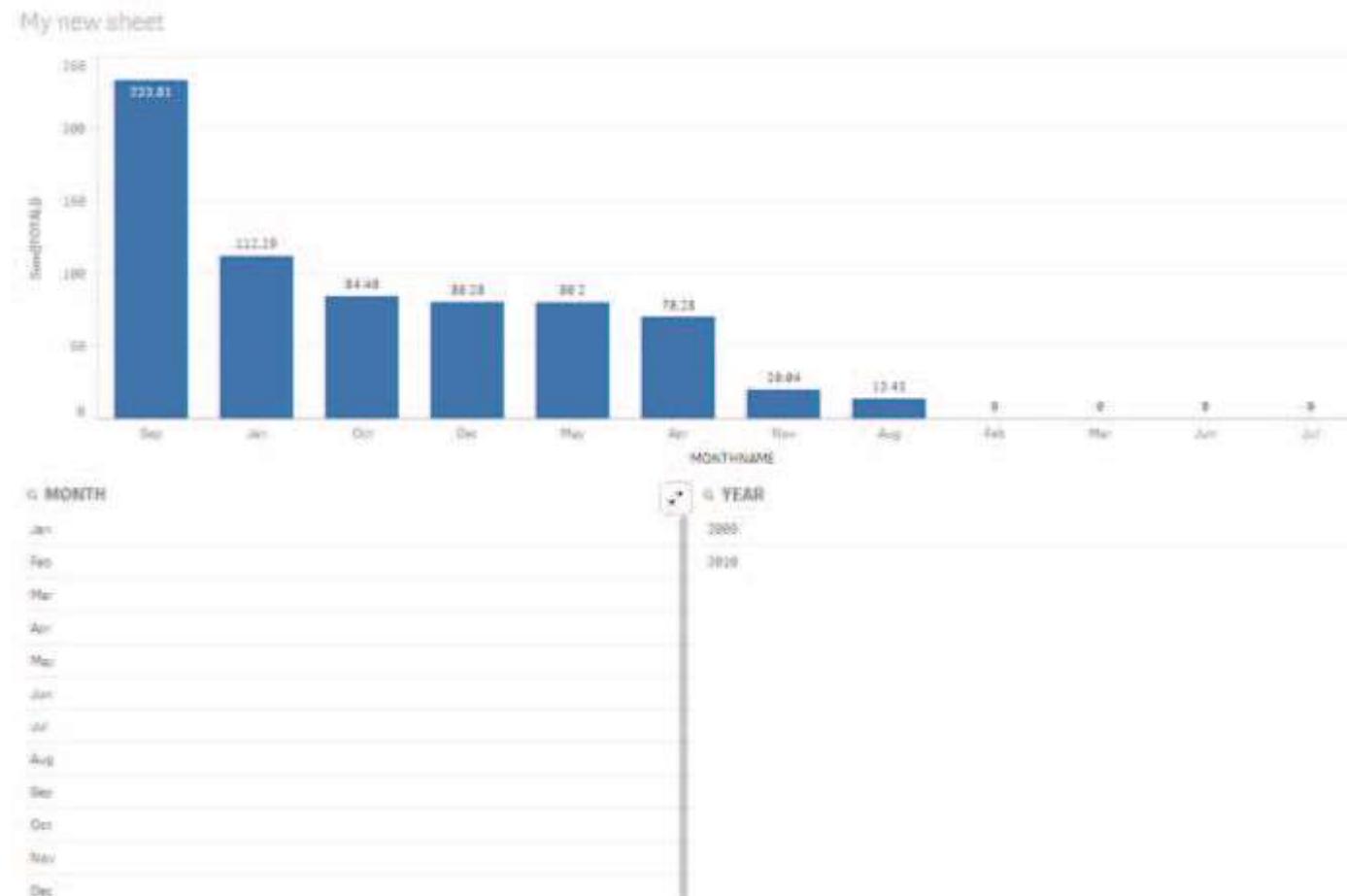
3. Add the inner join as shown and click load data:

INNER JOIN (years_to_display)

```
LOAD
  ID,
  "TOTAL",
  "MONTH",
  "YEAR",
  F5,
```

F6
 FROM 'lib://book source code/random-data-excel.xls'
 (biff, embedded labels, table is Sheet1\$);

4. Go back to the 'my first sheet' to see the filtered data:



Completed App:
My first qlik sense app\My first app-inner join completed.qvf

Part3.Manage Data

Manage data loaded into Qlik Sense

In this part of the book we will focus on the data that is being brought into your Qlik Sense app.

We will cover:

- Reading data from ODBC and OLE DB connections.
- Managing the data such as creating links between 2 tables or reading less data using the WHERE clause.
- Creating expressions to calculate fields and also some useful expressions to know when loading data into your app.