

The background is a gradient from red-orange on the left to yellow on the right. There are three large, semi-transparent circles of varying shades of orange and red. The text "O'REILLY" is centered in white, with a registered trademark symbol (®) at the end.

O'REILLY®



Power BI Bootcamp

Nicolás Lagreste Zucchini

Maria Florencia Hourcourié





Course Agenda

- **Week 1:** Introduction to Business Intelligence, Power BI and Power Query.
- **Week 2:** Advanced and Interactive Visuals.
- **Week 3:** Calculated measures, columns & custom tables with Power BI Programming Language (DAX).
- **Week 4:** Ways to collaborate and share in Power BI.



About us:



Nicolás Lagreste Zucchini 

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🌐 www.analyticmood.com

analytic mood

- **Co-founder of Analytic Mood** — Leading data solutions and business strategies.
- **Experienced Data Expert and Business Analyst** — Extensive experience with NTT Data, Kabel, BI Applications, Grupo Solutio and Analytic Mood.
- **Microsoft Power BI Lead** — Oversees the full development cycle from design to deployment.
- **Power BI Community Speaker** — Presented at the latest Power BI Summit, engaging with industry peers.



María Florencia Hourcouripe 

✉ flor@analyticmood.com

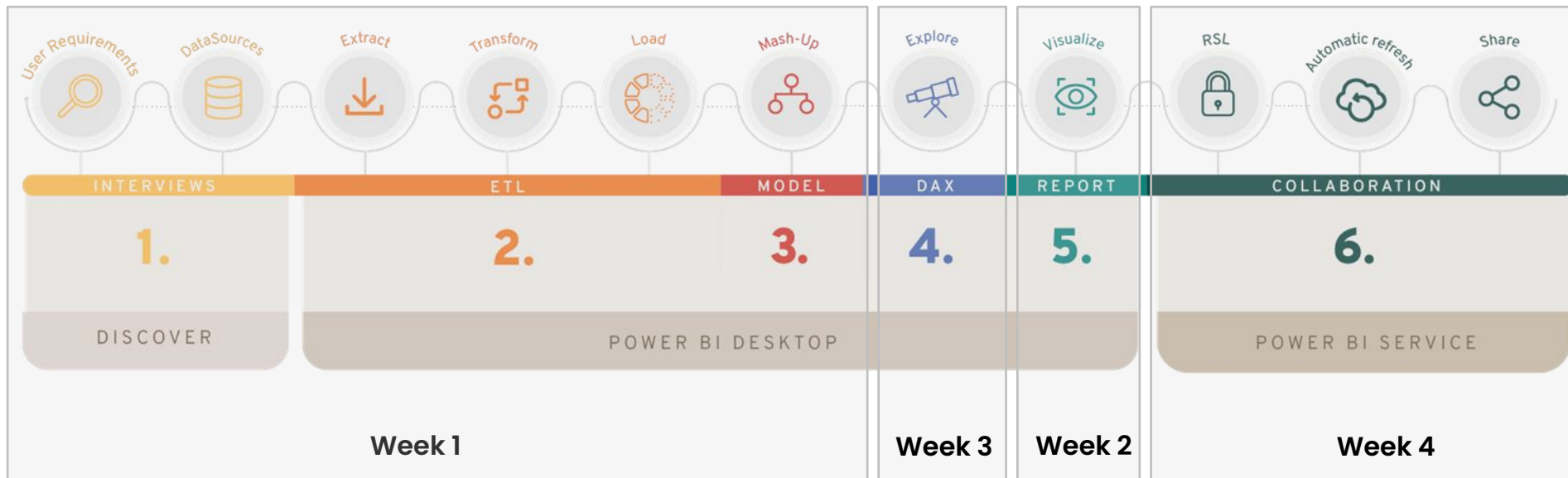
🌐 www.analyticmood.com

analytic mood

- **Co-founder of Analytic Mood** — Pioneering data-driven solutions and strategic innovations.
- **Educational Background** — Holds a Master's degree in "Business Intelligence & Technological Innovation" from EAE Business School.
- **Consultant & Trainer in Microsoft Power BI** — Expert in guiding professionals through Power BI applications and analytics.
- **Power BI Community Contributor** — Recently spoke at the Power BI Summit, sharing expertise with fellow data enthusiasts.



Our Method: Flow of Report Development





Exercise 0.0 – Initial set up

Download the shared .ZIP

- **Option 01 - AnalyticMood Web**

<https://www.analyticmood.com/en/resources>

User: PBIUser

Pass: Oreilly\$2023



NOTE: use the latest version of Power BI Desktop.



O'REILLY®

WEEK 02

Advanced and
Interactive Visuals



Week 2: Advanced and Interactive Visuals.

- Identify common types of data visualization and their uses.
- Create an interactive report with Power BI Desktop.
- How to customize those visuals to meet your organization's requirements and to direct the user's attention to exactly where you want it while helping to make the visual easier to read and interpret.
- You will also learn about how to use key performance indicators (KPIs).
- How to use buttons and other navigation techniques.



Week 2: Advanced and Interactive Visuals.

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Designing and changing the format of visuals

- Demo 1.3:
- How to change the format of fields.
- Design and change the format of visuals.
- Design two pages that contain:
 - Maps, Bar chart, Line chart, Slicers, Pie chart
- Exercise Case 1.3: Designing and changing the format of visuals

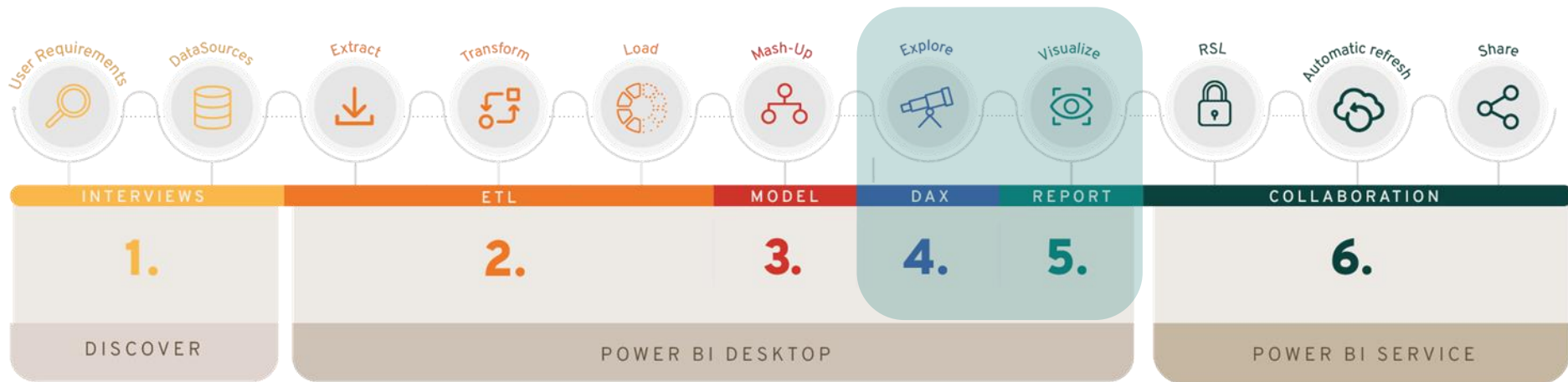


Demo 2.0



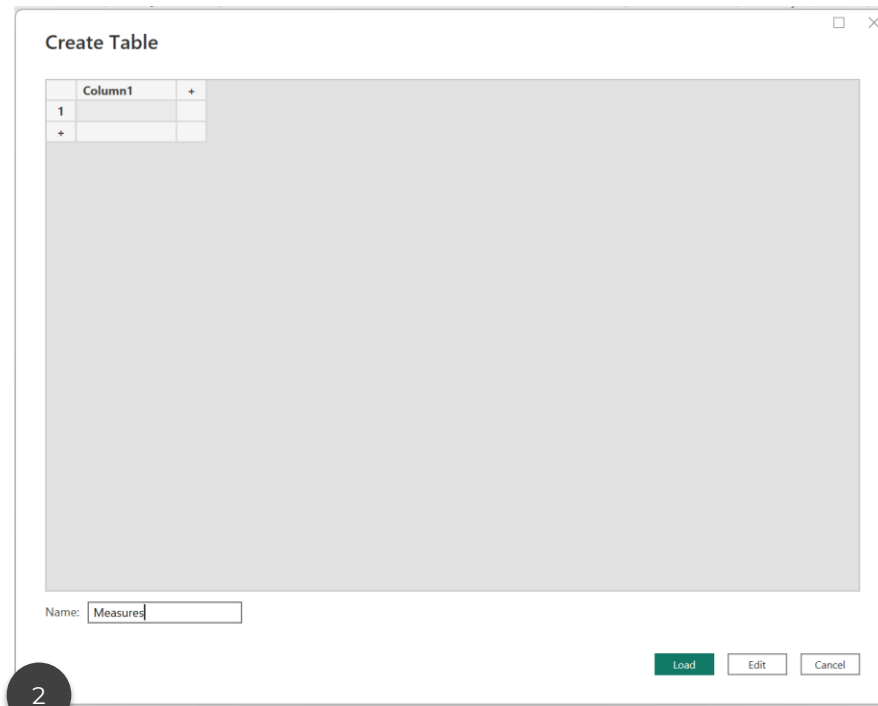
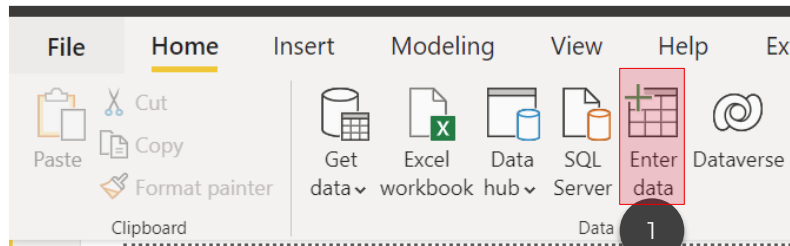


Our Method: Flow of Report Development





Create Measure table



Measures



File Home Insert Modeling View Optimize Help External tools

Paste Cut Copy Format painter Clipboard

Get data Excel workbook Data SQL Server Enter data Dataverse Recent sources

Transform Refresh data Queries

New visual

Insert

Text box More visuals

New measure Quick measure Calculations

Sensitivity Sensitivity

Publish Share

Filters Search

Filters on this page Add data fields here

Data Search

Measure More options

Customer Data

File Home Insert Modeling View Optimize Help External tools

Paste Cut Copy Format painter Clipboard

Get data Excel workbook Data SQL Server Enter data Dataverse Recent sources

Transform Refresh data Queries

New visual

Insert

Text box More visuals

New measure Quick measure Calculations

Sensitivity Sensitivity

Publish Share

Filters Search

Filters on this page Add data fields here

Data Search

Measure New measure New column New quick measure Refresh data



Measures

File Home Insert Modeling View Optimize Help External tools Table tools **Measure tools**

Name Sales Format Whole number Data category Uncategorized

Home table Measure \$ % 0

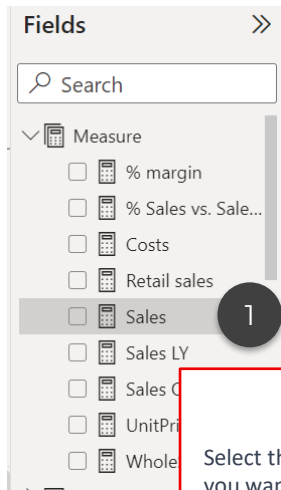
Structure Formatting Properties Calculations

1 Sales = SUM(Sales[Total Sales])

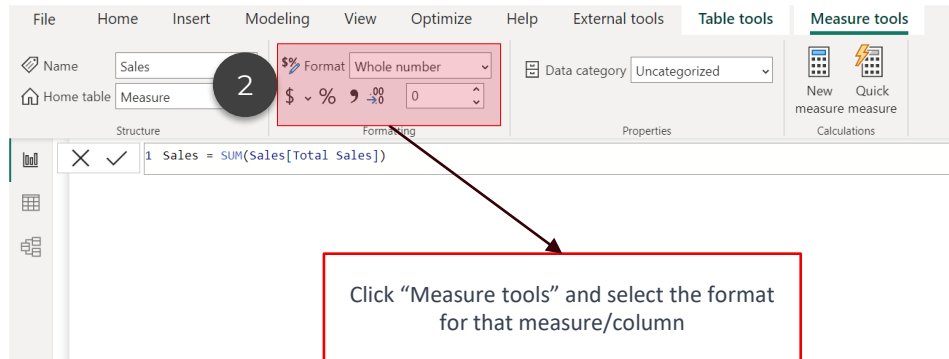
3



How to change the format of fields



Select the column or measure that you want to change the format, by clicking in the middle of the word.





How to change the format of visuals

Add to your visual

- ☒ Title
- ☒ Y-axis
- ☒ X-axis
- ☐ Legend
- ☐ Zoom slider
- ☐ Data labels
- More options**

Total Sales by Category

Category

Computers

Cameras and cam...

TV and Video

Cell phones

Music, Movies an...

Audio

0bn 2bn 4bn

Total Sales

Format

Search

Visual Properties ...

> Size and style

> Title **On**

> Y-axis **On**

> X-axis **On**

> Legend **Off**

> Small multiples

> Gridlines

> Zoom slider **Off**

Bars

Colors

Default

☒ ☐

Show all **Off**

Depending on the kind of visual, you will have different format options to change colors, fonts, sizes, etc.

Select the visual

Select more options if available



Change data category

File Home Insert Modeling View Optimize Help External tools **Table tools** Column tools

Name: ProductCategoryN... Format: Text

Data type: Text

Summarization: Don't summarize

Data category: Image URL

Sort by column

Data groups

Manage relationships

New column

Structure

Formatting

Properties

Sort

Groups

Relationships

Calculations

Change data category

Data

Search

Calendar

Channel

Product

- BrandName
- ClassName
- ColorName
- Manufacturer
- ProductCategory...
- ProductCateg...**
- ProductDescripti...
- ProductKey
- ProductName
- ProductSubcate...

Build visuals with your data

Select or drag fields from the Data pane onto the report canvas.

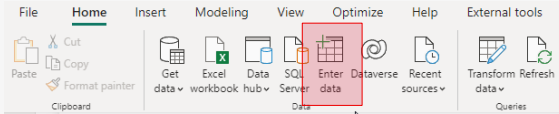


Exercise 2.0



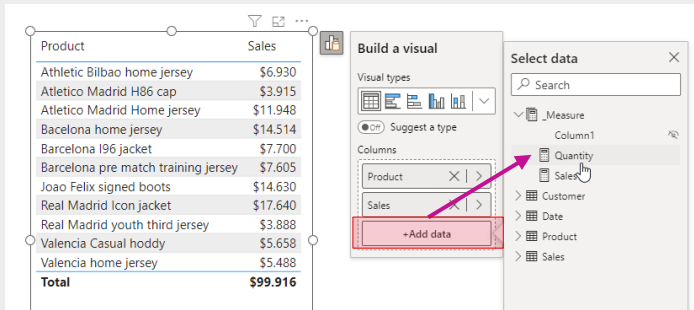
Exercise 2.0. Open the file **Exercise2.0.pbix** (Location: C:\PowerBIBootcamp\Week02\Exercises\Exercise2.0.pbix)

- 1 Create a “**Measure**” table and two measures: **Quantity** and **Sales**. (**Let's do this step together*)

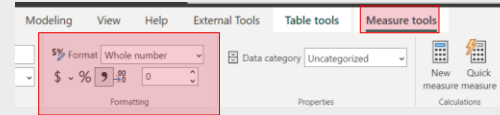
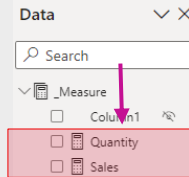


*Slide 73-75

- 2 Replace the quantity column in the matrix with the **MEASURES** “**Quantity**” and “**Sales**” (“_Measure” table).



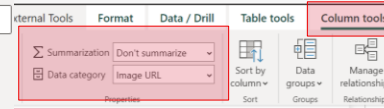
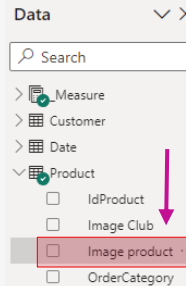
- 3 Display the format of the **measures**:
- Quantity with commas as thousands separator.
 - Sales to currency.



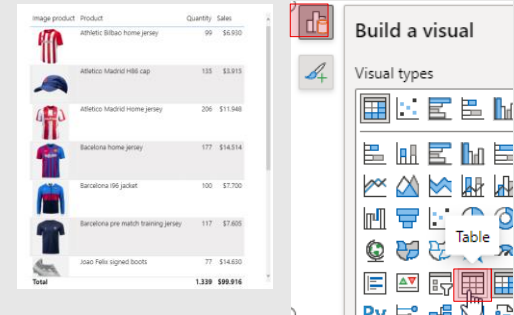
Note: Demo data is different from your data.

Product	Quantity	Sales
Athletic Bilbao home jersey	99	\$6,930
Atletico Madrid H86 cap	135	\$3,915
Atletico Madrid Home jersey	206	\$11,948
Barcelona home jersey	177	\$14,514
Barcelona 196 jacket	100	\$7,700
Barcelona pre match training jersey	117	\$7,605
Joao Felix signed boots	77	\$14,630
Real Madrid icon jacket	180	\$17,640
Real Madrid youth third jersey	54	\$3,888
Valencia Casual hoddly	82	\$5,658
Valencia home jersey	112	\$5,488
Total	1,339	\$99,916

- 4 In the **Products** table, assign the columns of the **Image product** and **Image Club** to the data category: **Image Url**.



- 5 Add this column (**Image product**) to the matrix.
- Change the matrix to a table visual.





Demo 2.1 & 2.2





Sort by column

File Home Help External Tools **Table tools** **Column tools**

Name: Month
Data type: Text
Format: Text
Summarization: Don't summarize
Data category: Uncategorized

Sort by column

Month
Date
Month number
Week
Week number
Year

1

2

3

To set up a custom sort order logic, you must have a column with a numeric value. In case this column is not available in the data source, it has to be created manually.

Date	Year	Month number	Month	Week	Week number
miércoles, 1 de enero de 2020	2020	1	Jan	Wed	4
jueves, 2 de enero de 2020	2020	1	Jan	Thu	5
viernes, 3 de enero de 2020	2020	1	Jan	Fri	6
sábado, 4 de enero de 2020	2020	1	Jan	Sat	7
domingo, 5 de enero de 2020	2020	1	Jan	Sun	1
lunes, 6 de enero de 2020					
martes, 7 de enero de 2020					
miércoles, 8 de enero de 2020					
jueves, 9 de enero de 2020					
viernes, 10 de enero de 2020					
sábado, 11 de enero de 2020					
domingo, 12 de enero de 2020	2020	1	Jan	Sun	1
lunes, 13 de enero de 2020	2020	1	Jan	Mon	2
martes, 14 de enero de 2020	2020	1	Jan	Tue	3
miércoles, 15 de enero de 2020	2020	1	Jan	Wed	4
jueves, 16 de enero de 2020	2020	1	Jan	Thu	5



Show value as percent of grand total

1

ProductCategoryName	Sales	%GT Sales
Audio	154.044.157,84	1,82%
Cameras and camcorders	2.602.598.410,46	30,73%
Cell phones	904.564.508,37	10,68%
Computers	3.256.222.893,81	38,45%
Music, Movies and Audio Books	168.501.907,33	1,99%
TV and Video	1.382.006.435,71	16,32%
Total	8.467.938.313,52	100,00%

2

Build a visual

Visual types

Columns

ProductCateg... X | >

Sales X | >

%GT Sales

+ Add data

Remove field

Rename for this visual

Move >

Conditional formatting >

Remove conditional formatting

Don't summarize

✓ Sum

Average

Minimum

Maximum

Count (Distinct)

Count

Standard deviation

Variance

Median

Show value as

3

No calculation

✓ Percent of grand total

Add Sales field and right click

Click on the arrow and select show value as
→ percentage of grand total



Exercise 2.1



Exercise 2.1: Creating visuals. Open the file *Exercise2.1.pbix*

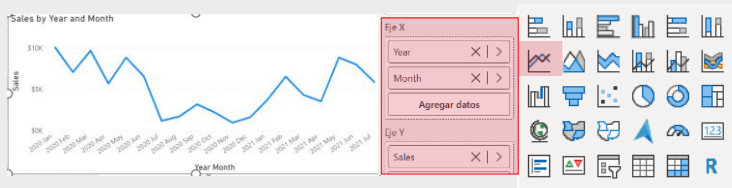
1

Adjust the **size of the image** within the existing table by making it smaller (**25x25**)

Product	Sales	Quantity
Valencia Casual hodydy	\$5.658	82
Real Madrid Icon jacket	\$17.640	180
Athletic Bilbao home jersey	\$6.930	99
Joao Felix signed boots	\$14.630	77
Atletico Madrid Home Jersey	\$11.948	206
Bacelona home jersey	\$14.514	177
Valencia home iersev	\$5.488	112

2

Insert a **line chart** that displays **sales trends by year and month**.



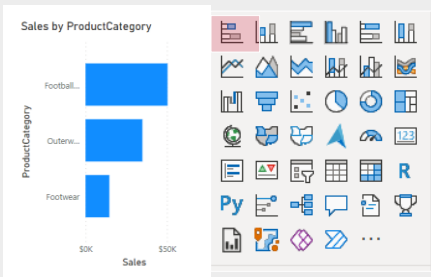
Ensure the 'month' column is sorted according to 'month num'.

Date	Year	Month Num	Month
miércoles, 1 de enero de 2020	2020	1	Jan
jueves, 2 de enero de 2020	2020	1	Jan
viernes, 3 de enero de 2020	2020	1	Jan
sábado, 4 de enero de 2020	2020	1	Jan

3

Create a bar chart illustrating sales by product category.

Utilize the 'Sales' measure for accurate representation.



4

Modify the **line chart's format** as follows:

- Navigate to Format / Visual / X-Axis/ Values.
- **Deselect the 'Concatenate labels' option.**



Format pane: X-axis labels, Concatenate labels (unchecked)

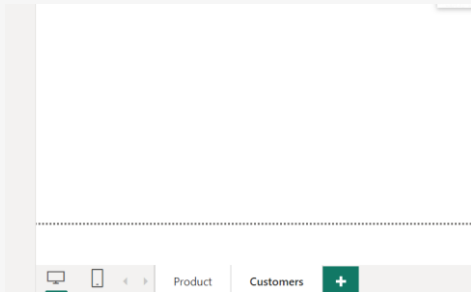


Exercise 2.2

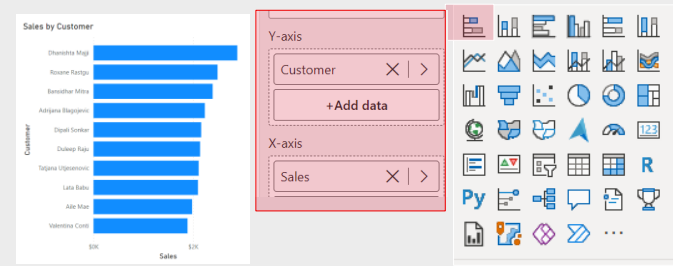


Exercise 2.2: Creating a New Page and Visuals. Open the file *Exercise2.2.pbix*

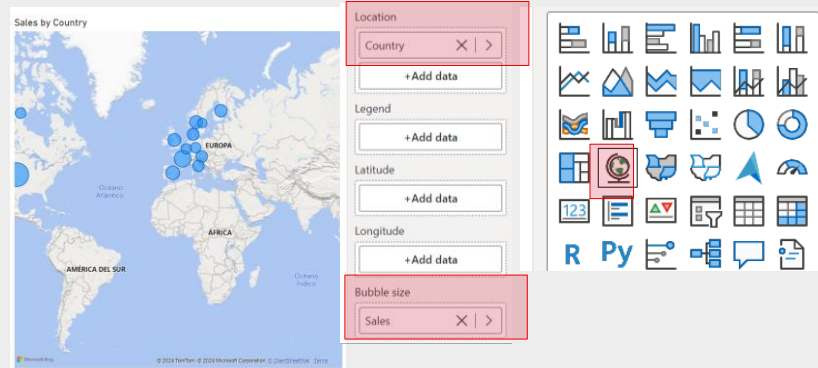
- 1 Rename the current page to **"Products"** and then create a new page titled **"Customers"**.



- 2 On the **"Customers"** page, add a bar chart to visualize **sales** by **customers**:



- 3 On the **"Customers"** page, create a map to display **sales** by **country**:



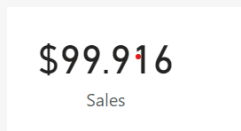
- 4 On the **"Customers"** page, insert a **card** visual.

Add measure **Sales**.

Navigate to Format / Visual / Callout Values / Values.

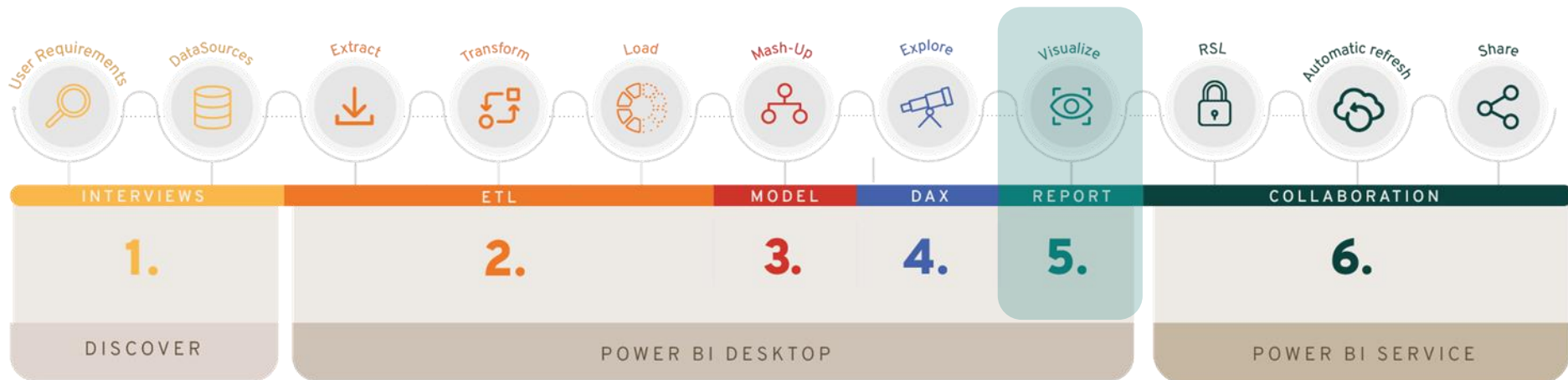
Set the **font size** to 30.

Set the **display units** to 'None'.





Our Method: Flow of Report Development





Refresh Report

Click here to refresh reports (pbi connects to datasources, refreshes steps in Pquery and then the visuals)

File Home Insert Modeling View Optimize Help External tools

Clipboard: Paste, Cut, Copy, Format painter

Data: Get data, Excel workbook, Data hub, SQL Server, Enter data, Dataverse, Recent sources, Transform data, **Refresh**

Insert: New visual, Text box, More visuals

Calculations: New measure, Quick measure

Sensitivity: Sensitivity

Share: Publish

Get the latest data by refreshing all visuals in this report.

ProductCategoryName	Sales	%GT Sales
Audio	154.044.157,84	1,82%
Cameras and camcorders	2.602.598.410,46	30,73%
Cell phones	904.564.508,37	10,68%
Computers	3.256.222.893,81	38,45%
Music, Movies and Audio Books	168.501.907,33	1,99%
TV and Video	1.382.006.435,71	16,32%
Total	8.467.938.313,52	100,00%

Sales by Product Category

ProductCategoryName

Sales

0bn 2bn 4bn

Format: Search, Page information, Canvas settings, Canvas background, Wallpaper, Filter pane, Filter cards



Designing and Personalizing Tooltips

- Demo 2.1
- Add a visual to Power BI;
- Design a tooltip and a personalized tooltip.
- Exercise 2.1: Designing and Personalizing tooltips
- Q&A



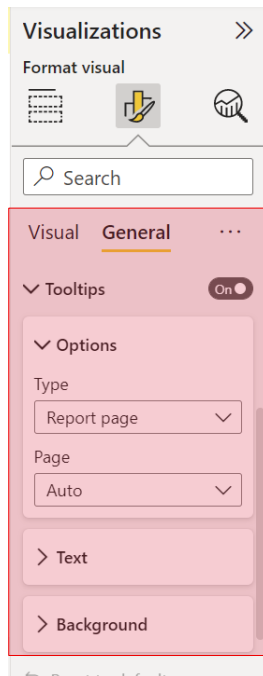
Demo 2.3





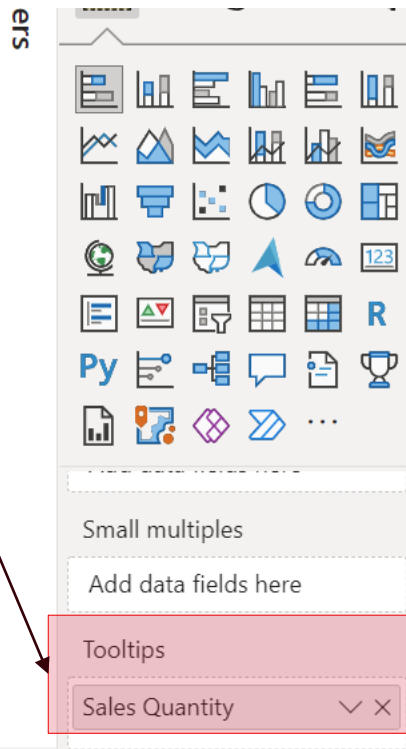
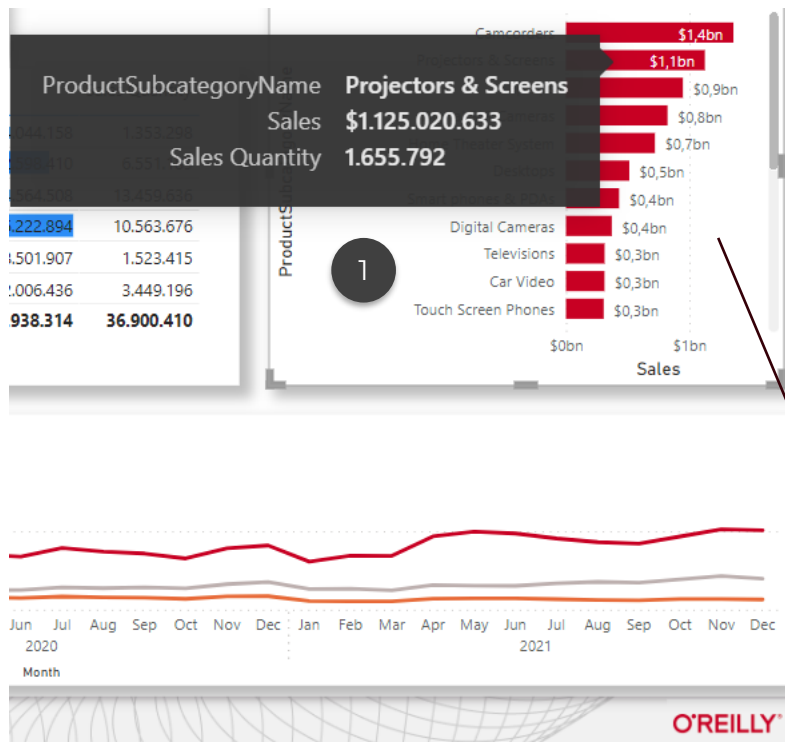
Change format of Tooltips

It is possible to change the format of the tooltips in the following options.





Tooltips

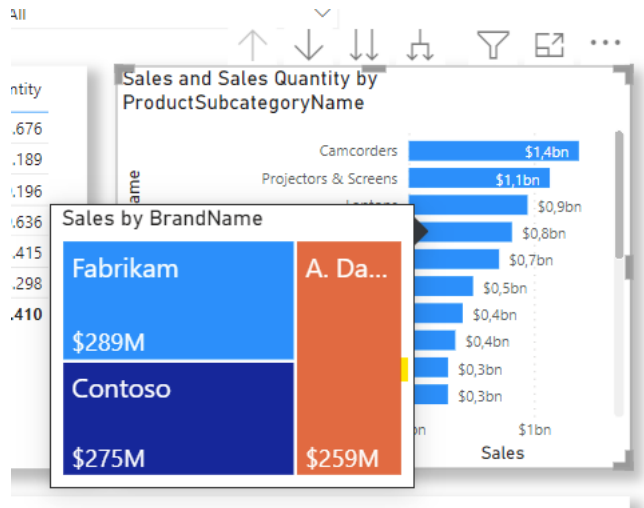


It is possible to show a simple chart with only one measure and then add extra info in the tooltip.



Personalize Tooltips

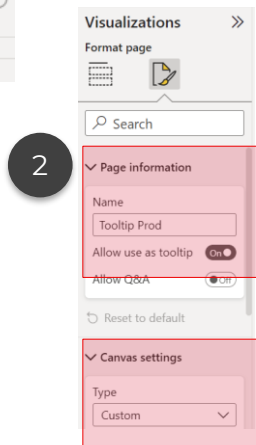
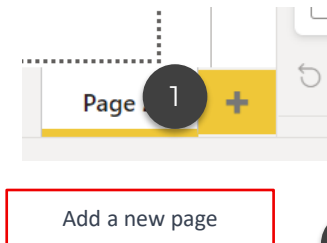
- What if you need to analyze the brand's sales by each subcategory?



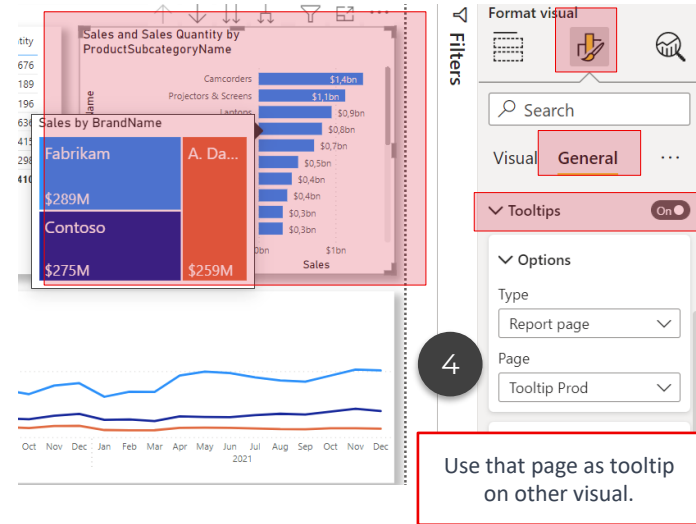
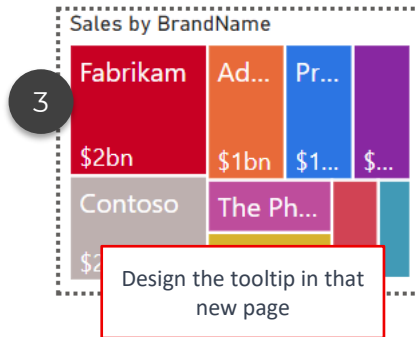
You can design your personalize tooltips on another sheet.



Personalize Tooltips



Change format of page





Adding Backgrounds and Navigating Reports

- Demo Case 2.2
- Add a background to both pages of the report.
- Create buttons to navigate the report.
- Exercise Case 2.2
- Q&A



Adding a background to reports

- To add a background to the report, select the Format icon from the Visualizations panel. Drop down the Background Page option and click on Add Image.
- Browse your local folder or network environment for the desired image and then click on OK.
- You can create your own background it using figma, canva, power point, etc

Visualizations



Format page



Search

> Canvas settings

✓ Canvas background

Color



Image

Background.png

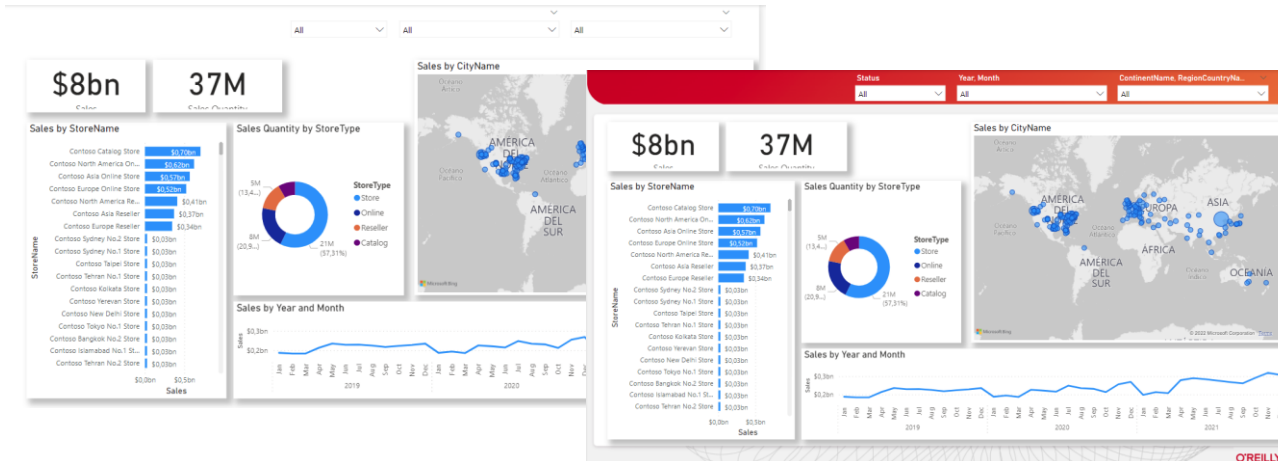


Image fit

Normal



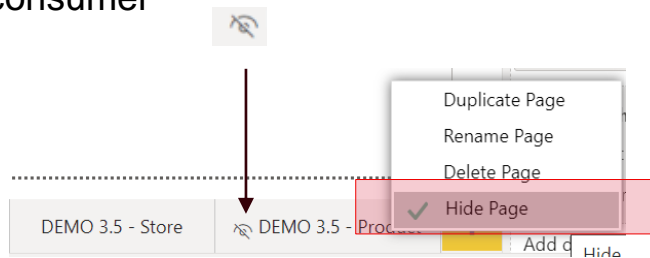
Transparency



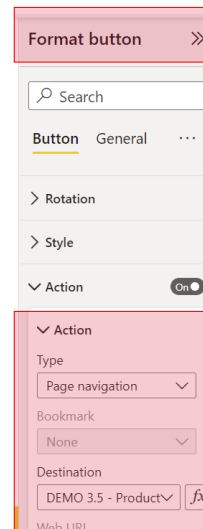


Hide pages from reading mode

- A report author can hide a page from the view of the report consumer until the report is accessed via a page navigation action.
- In Power BI Desktop A report author can hide a page from the view of the report consumer

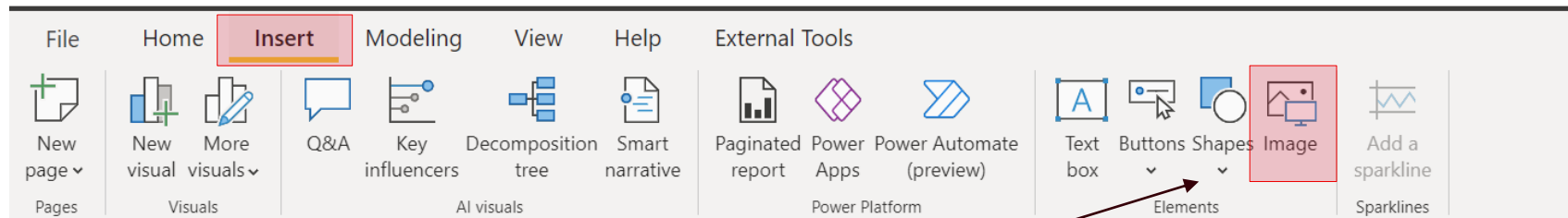


- But in the service of Power BI that page won't be shown until the page is accessed via a page navigation action.





Add Images



Corporate images or the company logo can be added to make the report more attractive from the following option.



Exercise 2.3

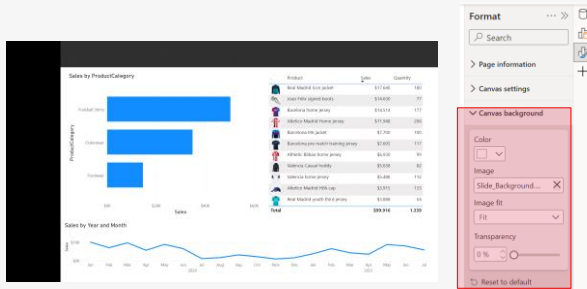


Exercise 2.3: Enhancing Visual Appeal with Backgrounds and Navigation. Open the file *Exercise2.3.pbix*

1

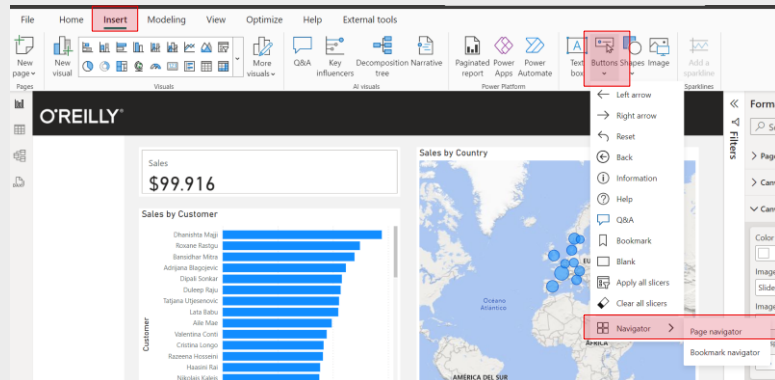
For both "Product" and "Customers" pages, update the canvas background:

- Click on the canvas to select it.
- Format / Canvas background / add "Slide_Background" image from "PowerBIBootcamp\Session02\Visual Gallery..."
- Image fit ="Fit" / Transparency to 0%.



2

Enhance page navigation by adding a **Page Navigator** in both pages.



Note: Use 'Ctrl + click' to test the navigation functionality of the buttons.

Products

Customers

3

Hide Customers page.



Change the Theme of your Report

- Demo Case 2.3
- Show how to edit the current theme, export or import a new one.
- Exercise Case 2.3



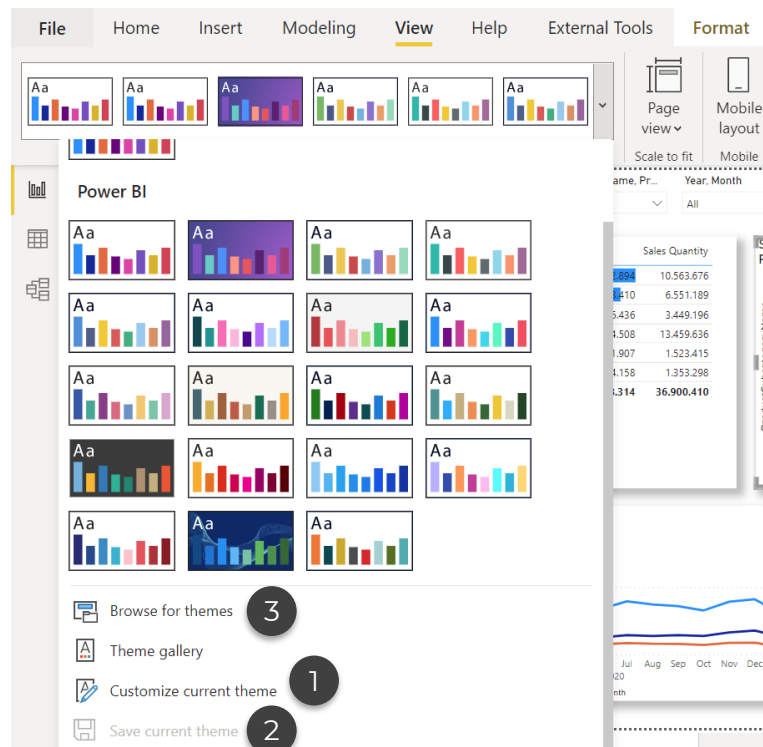
Demo 2.4





Create your own theme

- In the “View” tab there is a default pre-selected theme and all visuals in the report use those colors, fonts and sizes.
- If you want to create your own theme for your company, click on “Customize current theme”.
- After that, you will be able to save that theme and share it with your colleagues to use it in all your Power BI Files.





Customize current theme

Customize theme

Name and colors

Advanced

Text

Visuals

Page

Filter pane

Name and colors

Name

Name your custom theme

Theme colors

Color 1

Color 2

Color 3

Color 4

Color 5

Color 6

Color 7

Color 8

Sentiment colors ⓘ

Negative

Positive

Neutral

Divergent colors ⓘ

Apply

Cancel

Customize theme

General

Title

Cards and KPIs

Tab headers

Font family

Font Size

Font color

Reset to default

Name and colors

Text

Visuals

Page

Filter pane

Cards and KPIs

Format the callout values in card and KPI visuals.

DIN

25 pt

Apply

Cancel

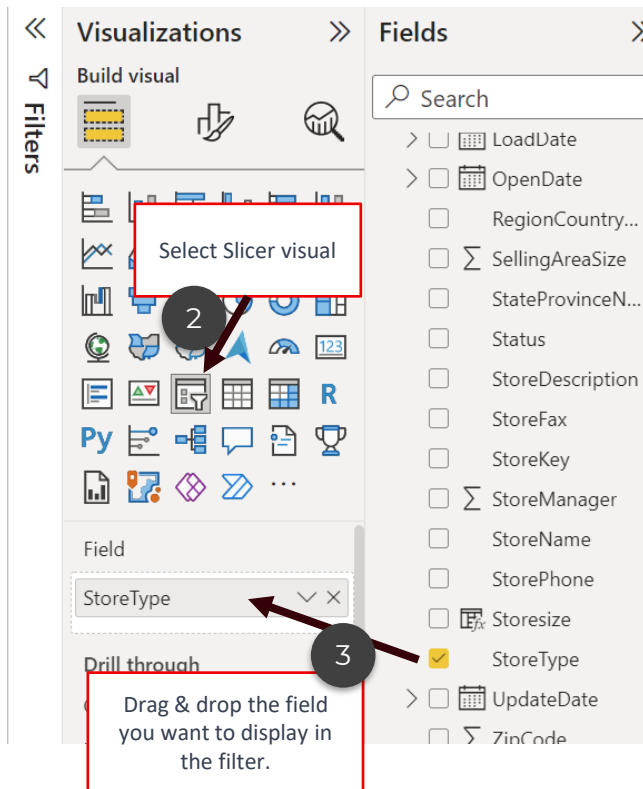
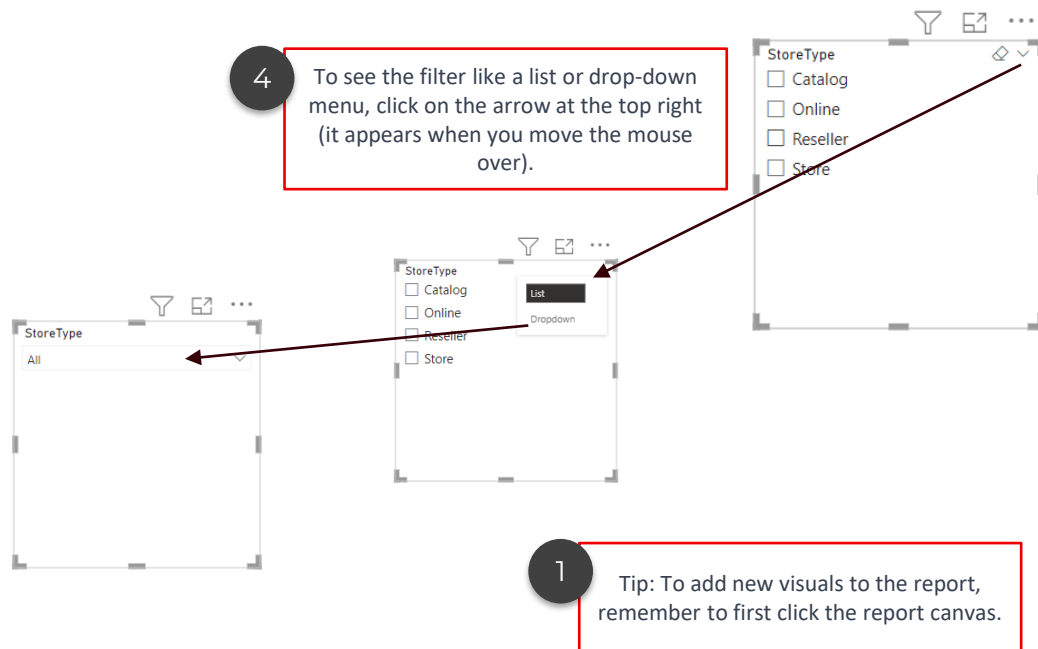
Edit interactions

- Use visual interactions to exclude some page visualizations from being affected by others.

The screenshot shows the Power BI Desktop interface with the following elements and annotations:

- Annotation 1:** A red box with the text "Select the slicer you need to change interaction with other" points to a slicer titled "Clase" with options: ☐ EcActivosómico, ☐ Económico, ☐ Lujo, and ☐ Regular.
- Annotation 2:** A red box with the text "Click edit interactions" points to the "Edit Interactions" icon in the top ribbon.
- Annotation 3:** A red box with the text "Select the new interaction option in the other visual." points to the "No interaction" option in the interaction menu for the donut chart.
- Top Ribbon:** The "Format" tab is active, and the "Data / Drill" sub-tab is visible. A red box with the text "This tab is shown if you have any visual selected in your report." points to the "Data / Drill" sub-tab.
- Visuals:** A donut chart titled "Cantidad por Clase" is displayed, showing data for four categories: EcActivosómico (54, 6.31%), Económico (204, 30.87%), Lujo (1.96, 0.254%), and Regular (5.96, 92.54%).

Slicers





Filter pane

The screenshot shows the Power BI interface with a bar chart titled "Sales by StoreName" and the Filter pane on the right. The chart displays sales data for various stores, with the top five stores highlighted in red. The Filter pane is divided into three sections: "Filters on this visual", "Filters on this page", and "Filters on all pages". Each section has a search bar and a list of filters. Arrows point from each section to a text box explaining its function.

Filters

Search

Filters on this visual ...

Sales is (All)

StoreName is (All)

Add data fields here

Filters on this page ...

Add data fields here

Filters on all pages ...

Add data fields here

Add filters to the selected visual element. Delete some products or make a top 5 to display only the most or least sold products.

Add filters to the page

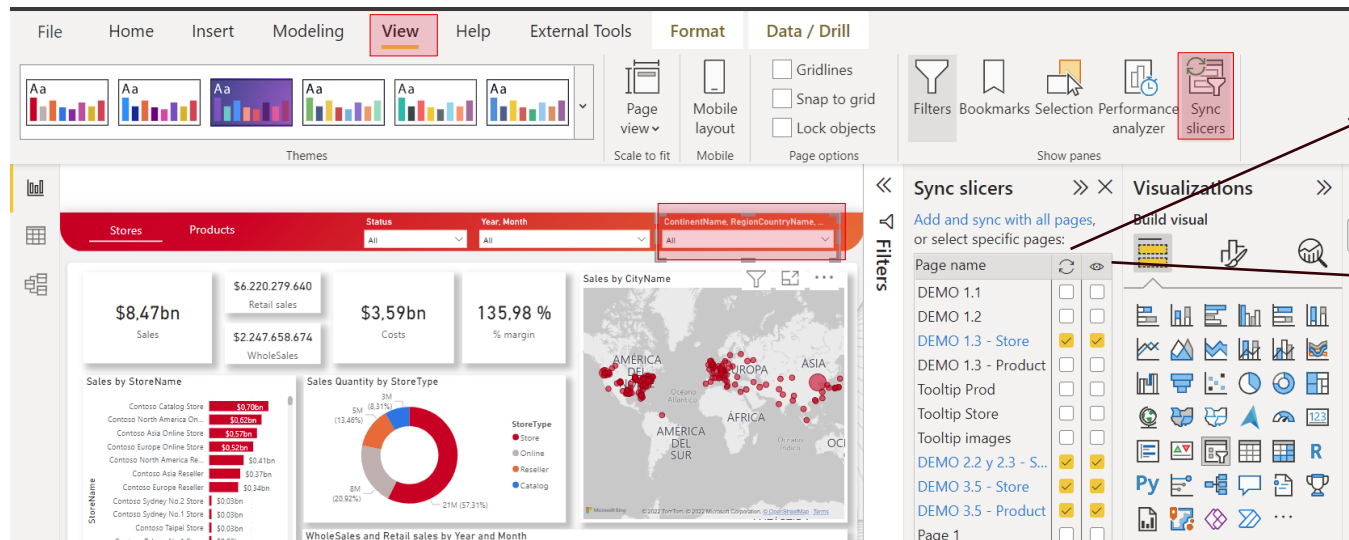
Add filters to the report

StoreName	Sales
Contoso Catalog Store	\$0.70bn
Contoso North America Online...	\$0.62bn
Contoso Asia Online Store	\$0.57bn
Contoso Europe Online Store	\$0.52bn
Contoso North America Reseller	\$0.41bn
Contoso Asia Reseller	\$0.37bn
Contoso Europe Reseller	\$0.34bn
Contoso Sydney No.2 Store	\$0.03bn
Contoso Sydney No.1 Store	\$0.03bn
Contoso Taipei Store	\$0.03bn
Contoso Tehran No.1 Store	\$0.03bn
Contoso Kolkata Store	\$0.03bn
Contoso Yerevan Store	\$0.03bn
Contoso New Delhi Store	\$0.03bn
Contoso Tokyo No.1 Store	\$0.03bn
Contoso Bangkok No.2 Store	\$0.03bn
Contoso Islamabad No.1 Store	\$0.03bn
Contoso Tehran No.2 Store	\$0.03bn
Contoso Tokyo No.2 Store	\$0.03bn
Contoso Moscow No.2 Store	\$0.03bn
Contoso Canberra Store	\$0.03bn
Contoso Ashgabat No.1 Store	\$0.03bn
Contoso Ashgabat No.2 Store	\$0.03bn



Sync slicers

- You can sync a slicer and use it on any or all pages in a report.



With the Sync slicers pane, you can sync the Continent slicer to these pages, so that slicer selections on any page affect visualizations on all pages.

If you sync a slicer to a page but don't make it visible on that page, slicer selections made on the other pages will still filter the data on the page.



Visual Reference

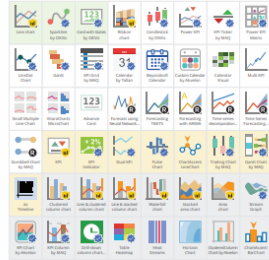
COMPARISON

To compare the magnitude of measures



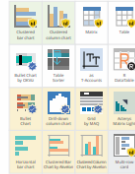
CHANGE OVER TIME

To display the changing trend of measures



RANKING

To rank measures in an order



SPATIAL

To display measures over spatial maps



FLOW

To display a flow or dynamic relations



PART-TO-WHOLE

To identify the parts making up a measure total



DISTRIBUTION

To display the distribution of values



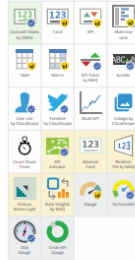
CORRELATION

To show correlations between measures



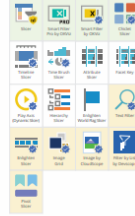
SINGLE

To present single values



FILTER

To control report filters

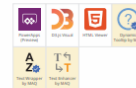


NARRATIVE

To tell a story with data



MISCELLANEOUS



Recommended (green square) There is a better alternative (yellow square) Don't use in the category (grey square) Built-in visual (blue square) Certified visual (blue square with 'C') R required (red square with 'R')

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<https://www.sqlbi.com/wp-content/uploads/visuals-reference-sep2018-A3.pdf>

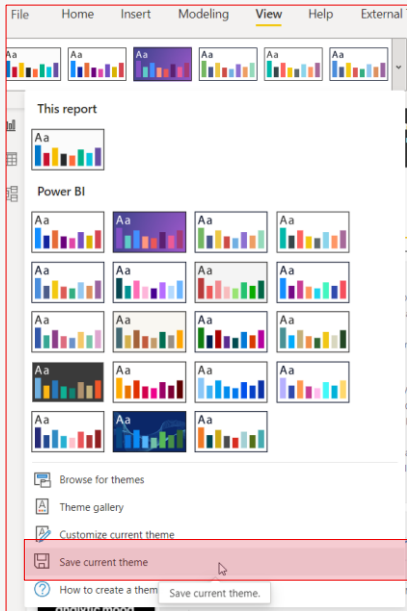


Exercise 2.4



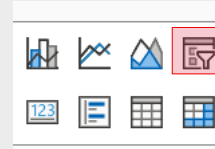
Exercise 2.4: Change theme and add slicers. Open the file *Exercise2.4.pbix*

- 1 Change the current theme by importing one from the folder: Visual gallery → VisualTheme.json
(Location: "C:\PowerBIBootcamp\Week02\Visual Galery\VisualTheme.json")

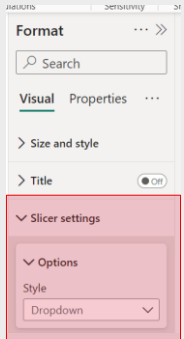


- 2 On the "**Product**" page, add slicers for the following categories:

1. Slicer:

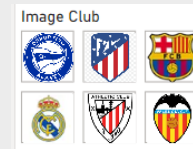
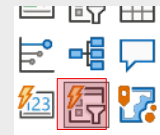


- Season (Slicer settings = **Dropdown**)
- Date (Slicer settings = **Between**)
- Product (Slicer settings = **Dropdown**)

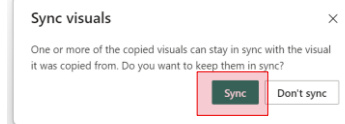


2. Slicer (New):

- Image Club



- 3 Duplicate all slicers to the "**Customers**" page and ensure they are synchronized across both pages.





Poll

If there is more than one visual on a Power BI page, which of the following is true?

- All visualizations should be different
- Interacting with one visual may filter the others
- You can't have more than one visual on the same Power BI page
- The maximum number of visualizations is 10 per page.



Q&A



- Write your questions in the chat so that we can answer them and discuss them together.



The image features the O'Reilly logo in white, bold, sans-serif capital letters, with a registered trademark symbol (®) at the end. The logo is centered horizontally and positioned in the middle of the frame. The background is a vibrant gradient transitioning from deep red on the left to bright yellow on the right. Overlaid on this background are several large, semi-transparent circles in shades of orange and red, creating a layered, abstract effect.

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