Create Visualizations Part 1

Bar Charts

This is one of the most useful tools for exploring and understanding data. A ***bar chart***, also called a ***bar graph*** or ***column chart***, represents ***numeric values*** for ***different categories*** as a ***series of*** **bars**. The **numeric values** are plotted on **one axis** of the chart, with ***individual categories*** on the ***other axis***.

Since the ***length of each bar*** indicates its ***value*** and because the bars are plotted on a ***common baseline***, it's easy to compare the values. Power BI **sorts** the bars from **largest** to **smallest.**

Create a bar chart

1. Open power bi file named **Bar Chart.pbix.**
2. Click **Build Visual**, the Build Visuals controls appear in the **visualization pane.**
3. Click **clustered bar chart.**
4. Expand the **Transaction table** in the **fields / Data pane**.
5. Click **country**, country should be added to visual.
6. Click **sales**, sales should be added to visual.
7. Drag the lower frame handle down to the right to expand.
8. **Take a screenshot.**
9. Click **save and close**.

Apply filters to visuals

1. Open file **Apply Filters.pbix.**
2. Click the **Bar chart** in the Report View.
3. Expand the **fields / Data pane.**
4. Click collapse **(>>)** to collapse the **Visualizations pane.**
5. Expand the filters pane click **<<**
6. From the **Transaction Table** Click **country** and drag it to the **Add Data Fields Here box** in the filters on this Visual Section
    a. A second country filters appears with its box expanded)
7. Click **Canada, France,** and **USA** (Visual only shows this data)
8. Take a screenshot.

Apply Filters to more than one Visual at a time

9. To apply a filter to all visuals on a Page:
10. Create another **Bar Chart** using the fields Country, Product, Profit
    a. Click **the fields you want to filte**r from the Field List

    b. Drag the field to the **Add Data Fields Here box** in the Filters on This Page Section of the Filters Pane
11. Take a screenshot
12. To apply a filter to all the visuals in a Report:
    a. Click the fields in the **Fields List**
    b. Drag the field to the **Add Data Fields Here** box in the Filters on All Page Section of the **Filters pane.**

Remove filter

1. Move the pointer over the box of the filter you want to remove.
2. Notice that controls appear at the top of the filter box.
3. Click **Remove filter (X),** power Bi removes the filter and your visual shows the unfiltered data.
4. **Take a screenshot.**
5. Click save and close.

Format the Y-axis of a bar chart

1. Open **Bar Chart.pbix** file you save from the previous section **(Create Bar Chart)**
2. Click the **bar chart**, selection handles appear.
3. Expand **Visualization pane** if collapsed.
4. Click on **Format Visual**
5. Click on the visual
6. Click **y-axis**, this expands the Y-axis section.
7. Click **Font**, select the font type.
8. Click **Font Size**, select font size.
9. Observe the changes to the **Y-axis values labels.**
10. Click the **Switch axis Position** from **OFF** to **ON**, axis labels move from left to right side of chart.
11. Click **Title,** expands the Title section.
12. Click **font**, select the font type.
13. Click the **font Size**, to specify size.
14. Click **Color,** to select the color.
    a. Notice the Y-axis changes to show the choices made.
    b. You can click Reset to Default to reset all the settings to the default settings in Y-axis.
15. Click **Save**
16. Take a screenshot
17. **Use this for the next exercise.**

Format the X-axis of a bar chart.

1. Using the same **Bar Chart. pbix**
2. Click on the bar chart, selection handles appear.
3. Expand **Visualization pane** if collapsed.
4. Click on **Format Visual**
5. Click on **visual.**
6. Click **X-axis,** this expands the X-axis section.
7. Click **Range t**o expand the range section.
    a. You can **click Minimum** and enter a minimum value.
    b. You can **click Maximum** and enter a maximum value.
    c. You can **click Log Scale** ON or OFF to switch between log and linear scales.
    d. You can **click Invert Range** ON or OFF, this inverts the range to run from **large values** to **small values**.
8. Click **Values**
9. In the values section, **click Font** and select font type
10. Click **Font Size** and specify font size.
11. Click **Color,** and then click **font color.**
    a. You can click Display Units and select the units for display such as **Thousands.**
    b. You can **click** the **Value Decimal places** and specify number of decimal places
12. Click **Title** to expand the title section.
13. Click **Font** and select font type.
14. Click **Font size** and specify font size.
15. Click **Color** and click the font color.
16. For additional formatting click **Bold**, **Italic** or **Underline**
17. **Take a screenshot.**
18. Click **Save** and **Close**

Add and Format the Data Category of a Clustered Bar Chart

1. Open the **Data Category.pbix** file.
2. Click the bar chart.
3. Click the **Build Visual** icon.
4. In the **fields / Data pane** click the ***appropriate field and drag it to the legend field*** in the Visualizations pane. ***This example uses*** *the* ***Discount Category*** *Field*.
    a. Discount category field makes the bar chart show sales by country and Discount category.
5. Click **Format Visual**
6. Click **Visual**
7. Verify that the **legend switch** is set to On. If not, set it to ON position. Notice where the legend appears in the visual.
8. Click **Legend** to expand this section.
9. Click **TEXT** to expand section.
10. Click **Font** and choose a **font type**.

11. Click **Font Size** specify **size.**
12. Click **Color** to select color for legend, notice the change.
13. **Take a screenshot.**
14. Click **Save**
15. Click **Close**

Move a Bar Chart's Legend and Add Gridlines

1. Open **Bar Legend.pbix** file
2. Click the bar chart, the selection handles should appear around the visual
3. Click the Format Visual
4. Click Visual
5. Verify that the **Legend switch** is set to ON.
6. Click **Legend**
7. In the Legends section**, click Options**.
8. In the options section **Click Position**, select **Centre Right**, try various options observe change.

Add Gridlines

1. Click the bar chart, selection handle appears.
2. Click **Format Visual**
3. Click **Visual**
4. Click **Gridlines**. Expand gridline section.
5. Verify that the **Vertical switch** is set to **ON**.
6. Click **Style**, then pick options **Dashed, Solid** or **Dotted**. Choose **Solid.**
7. Click **Color** and pick a **color.**
8. Click **Width**, enter **a width**.
9. Try **changing** the **Title of the Legend**
10. **Take a screenshot.**
11. Click **Save**
12. *Use this Visual for the exercise below.*

Question: **What controls the spacing between the gridlines?**

Add a Zoom slider and Update Bar Colors

1. Click the bar chart, selection handle appears.
2. Click **Format Visual**
3. Click **Visual**
4. Click **Zoom slider,** to expand zoom slider section.
5. On the **Zoom slider heading**, **click to switch** to ON.
6. Click the **X-axis**, **switch** to ON, **zoom slider** appears on the X-axis.
7. Click **Slider label,** notice labels appear on the X**-axis.**

8. Click Slider Tooltips, displays the current value as you drag the slider.

Update the Bar Colors

1. Click the bar chart, selection handles appear.
2. Click **Format Visual**
3. Click **Visual**
4. Click **Bars** to expand the Bars section.
5. Under **Apply Settings to Series**
6. Click **High**
7. Click **Color** to expand the **color category.**
8. Pick **Color** from the drop-down list.
9. Slide the **transparency bar,** observe the effect on the **High bar.**
10. Click **Low,** repeat steps 8 and 9.
11. Click **Medium**, repeat steps 8 and 9.
12. Click **None**, repeat steps 8 and 9.
13. **Take a screenshot.**
14. Click **save.**
15. Click **close**.

Add Data labels to Bar Chart

1. Open **Data Labels.pbix** file
2. Click the bar chart, selection handles appear.
3. Click **Format Visual**
4. Click **Visual**
5. On the **Data labels heading**, click the **switch** to turn ON.
    a. Default data labels displayed.
6. Click **Data Labels**
7. Click **Apply settings.**
8. Click **Options**
9. Click **Position**, **the drop-down list** displays options, ***for this example*** *use* **AUTO.**
    a. Click the **Overflow text**, **switch** to ON. Here the labels show in full even if they overflow the space available.
10. Click **Value category**, switch to ON.
11. Click **Field** and then **Aggregation.** Observe the options under aggregation **SUM** is **default.**
    a. Select **Average**, note the change then ***change back*** to **SUM.**
    b. Click **Font**, select **Font type.**
    c. Click **Size**, select **size.**
    d. Click **Color,** select **color.**
    e. Click **Display units** and **change** the units displayed.
    f. Click **Value decimal places** to change decimal places.

12. Click **Background**, switch to ON.
    a. Click **color**, select the **background color** to apply to the **data labels**.
    b. Click **Transparency**, set the percentage **using the slider.**
13. **Click Save,**
14. **Take a screenshot.**
15. ***DO NOT CLOSE file,*** *you will use for next exercise below*.

Add an Image to the Plot Area Background

1. Click the bar chart, selection handles appear.
2. Click the **Format Visual** icon.
3. Click **Visual**
4. Click **Plot area background.**
    a. Click **Browse**, the dialog box appears.
5. Navigate to a folder that has **an image file.**
6. Click the **image file.**
7. Click **Open**, dialog box closes, and Image appears in the background of the visual
8. Click the **Image fit**, options are ***Normal***, ***fit*** or ***Fill***. **Select** Fit.
9. Click **transparency** use slider to **adjust percentage.**
10. Click **save.**
11. **Take a screenshot.**
12. Click **Close.**

Line Chart and Area Chart, when to use them

Use line or area charts when you need to show changes in the data across a period of time.

Choose a line chart:

1. when you need to show changes in a single data series such GDP
2. To compare several data series that together does not contribute to a whole. For example, how the prices of two products changed over time.

Choose an Area Chart:

1. To show when the data series are related.
2. To show when they have a summation relationship. For example, the contribution of two products to a company's annual revenue

Create a line Chart or Area Chart

1. Open the **Area Chart.pbix** file.
2. Click **Build Visual** icon.

3. Click **Area chart**, visual placeholder appears.
4. In fields / Data pane, Click to Expand the **TransactionTable**
5. Click **Sales** and **drag it** to the **visual placeholder.**
    a. Sales data appears in the Visual
6. In the fields / Data pane, Click to Expand the **DimDateTable**
7. Click **Date,** the Year appears on the **X-axis** along with the **Date labels.**
8. Click **Save**
9. **Take a screenshot.**
10. ***DO NOT CLOSE*** *file, we will use for next exercise.*

Creating a Drill Down through the Hierarchy

1. Click the Area Chart, selection handles appear.
2. In the **Build a Visual** pane, go to **X-axis box.**
3. Click **Date,** then **click Date hierarchy** on the drop-down menu.
4. Click **Drill Down (** ↓ changes to ↓)
5. Click on the ↓ ↓ to drill down to year ↑ to drill up for month and Day.
6. **Take a screenshot.**
7. Click **Save** and **Close**

Example 2: Refer to example done in class.

Format the Axes of a Line or Area Chart

1. Open the **Area Axes.pbix** file.
2. Click the Area Axes chart, selection handles appear.
3. Click **Format Visual** icon.
4. Click **Visual**, then Click **X-axis**
5. Turn the **X-axis switch** to ON.
6. Click **Value**
7. Click **Font** and select **font type.**
8. Click **Font Size** to specify s**ize.**
9. Click **Color** and select a **color.**
    a. The X-axis Value labels changes accordingly.
10. Click **Title**
11. Click **Font**, select **font type.**
12. Click **Font Size**, specify the **size.**
13. Click **Color** and select **color**.
    a. X-axis Title changes to reflect selections made.
14. Click the **Y-axis**, verify **switch** is set to ON.
15. Click **Value** to expand this section.
16. Click **Font**, select **font type.**
17. Click **Font Size**, specify the **font size**.
18. Click **Color**, select color.

19. Click **Title**
20. Repeat **steps 16 to 18** to format **Title.**
    a. Y-axis title and Values changes to reflect choice.
21. Click **Save**
22. **Take a screenshot.**
23. ***DO NOT CLOSE*** *file, we will use for next exercise.*

Adding a Legend to a line or Area Chart

1. Click the Area Chart, selection handles appear.
2. Expand the **Transaction Table**
3. Select the **appropriate field**, for **this example** use **Discount Category** field.
4. Drag the **Discount Category field** to the **Legend Field**.
5. ***Spend Time to Observe the following****:*
    a. Notice carefully how selections changes the Visual
    b. Visual Title changes. What was previous Title and what did it change to.
    c. Where does the Legend appear and what are its features (font, size, color, position etc.)

Format the Legend

1. Click the area chart, selection handles appear.
2. Click **Format Visual** icon.
3. Click **Visual**
4. Click **Legend** to expand this section.
5. Click **Text** option to expand section.
6. Click **Font**, select **font type.**
7. Click **Font Size**, specify **size.**
8. Click **Color**, select **color** option.
    a. Legend values reflect the options selected.
9. Click **Save**
10. **Take a screenshot.**
11. Click **Close**

Question: **How does the Legend in a Line or Area chart differ from the legend in a bar chart?**

Move the Legend and Add Gridlines to a Line or Area chart

1. Open the saved **Area Axes.pbix** chart.
2. Click the area chart, selection handles appear.
3. Click **Format Visual**
4. Click **Visual**
5. Click **Legend,** verify **legend switch** is ON
6. Click **Options**
7. Click **Position**, note the range of position options. ***Select*** **Center Right**
    a. Click **Style**, to adjust the **legend style.**

b. Click **Title,** In the **Title Box**, type a **different** Legend title.

Add Grid Lines

1. Click the area chart, selection handles appear.
2. Click **Format Visual**
3. Click **Visual**
4. Click **Gridlines**, to expand these sections.
5. Set **Horizontal switch** to ON.
6. Click **Style,** options should be visible. *Select* **Dotted option.**
7. Click **Color**, select a **color**.
8. Click **Width**, adjust the with, increase or decrease.
9. **Take a screenshot.**

Question: *What does the* ***fx*** *Button to the right of the Color selector do?*

- It enables you to apply conditional formatting.
- The formatting (i.e. color) of the series changes depending on the conditions you specify.
- For example, you may the gridlines change color if a field is particularly high or Low.

Task*: Explore the* **fx** **options and take a screenshot** *of your changes***.**

Question: Apply the following formatting options to the Area Chart. Take screen shots for each adjustment.

1. Add Data Markers
2. Add Data labels.
3. Change the Display units to (***Thousands***) for the Data Labels.