CGT 575 Data Visualization Tools & Applications

Week 7

Spring 2023

Announcements

- No in-class presentation of visualization tool.
- Make sure you post your video to the discussion board.

Excel Dashboards

Working Example

Step 1: Bring data into Excel

- The most suitable way will depend on your data file type.
- For this exercise, the data has been provided on the Raw Data tab

	A	B	C	D
1	Project Name	Month of completion	No. of team members	Budget
2	A	january	8	$ 18,402.00
3	B	april	18	$ 84,024.00
4	C	august	5	$ 5,638.00
5	D	november	11	$ 33,922.00
6				
7				

Step 2: Set up your workbook

- The Excel workbook provided includes a Raw Data tab
- Create two (2) new tabs:
  - Chart Data
  - Dashboard

Raw Data | Chart Data | Dashboard
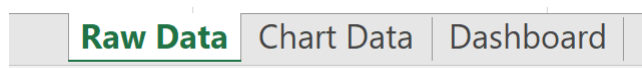
Step 3: Add raw data to a table

- The 'Raw Data' worksheet must be in an Excel table format.
- At this point, you would "clean your data" because this is the time to spot any typos or in-your-face errors.
- Do not skip this step, or you won't be able to use any Excel formulas later on.

Step 4: Data analysis

- Take a look at the raw data you've gathered, study it, and determine what you want to use in the dashboard sheet.
- Add those data points to your 'Chart Data' worksheet.
  - We want our chart to highlight the project name, the month of completion, and budget.
  - Copy these three Excel data columns and paste them into the **Chart Data** tab.

	A	B	C
1	Project Name	Month of completion	Budget
2	A	january	$18,402.00
3	B	april	$84,024.00
4	C	august	$ 5,638.00
5	D	november	$33,922.00
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Raw Data | **Chart Data** | ⊕

Ask yourself

- What is the purpose of the dashboard?
- For this exercise:
  - We want to visualize the expenses of different projects.
  - Knowing the purpose should ease the job and help you filter out all the unnecessary data.
- Analyzing your data will also help you understand the different tools you may want to use in your dashboard.

Some Options

- **Charts:** to visualize data
- **Excel formulas:** for complex calculations and filtering
- **Conditional formatting:** to automate the spreadsheet's responses to specific data points
- **PivotTable:** to sort, reorganize, count, group, and sum data in a table
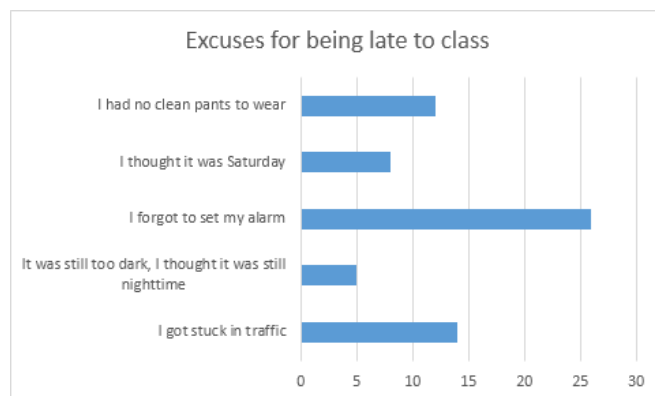- **Power Pivot:** to create data models and work with large data sets.

Step 5: Determine the visuals

- Determine the visuals and dashboard design that best represents your data

Excel offers many different chart types

- **Bar chart:** compare values on a graph with bars
- **Waterfall chart:** view how an initial value increases and decreases through a series of alterations to reach an end value
- **Gauge chart:** represent data in a dial. Also known as a speedometer chart
- **Pie chart:** highlight percentages and proportional data
- **Gantt chart:** track project progress
- **Dynamic Chart:** automatically update a data range
- **Pivot chart:** summarize your data in a table full of statistics.

Bar chart: compare values on a graph with bars
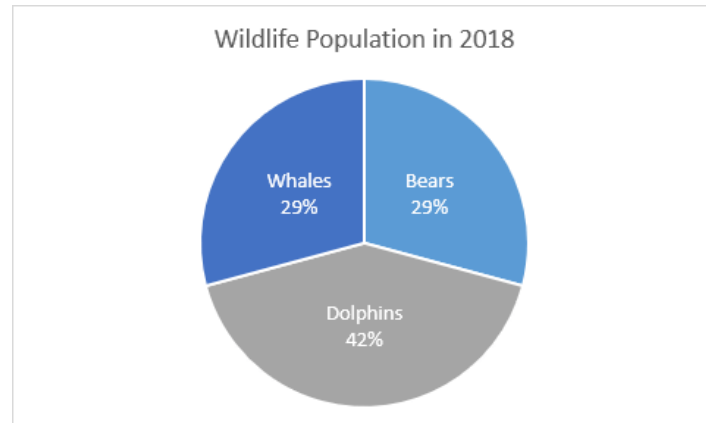
Waterfall Chart

- https://corporatefinanceinstitute.com/resources/financial-modeling/excel-waterfall-chart-template/
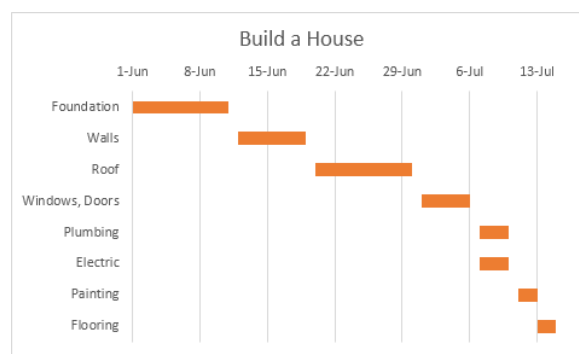
Gauge Chart

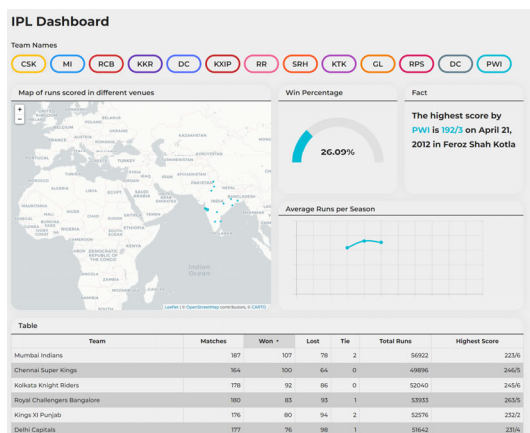- https://www.excel-easy.com/examples/gauge-chart.html

Pie Chart

Wildlife Population in 2018

- https://www.excel-easy.com/examples/pie-chart.html

Gantt Chart

Build a House

- https://www.excel-easy.com/examples/gantt-chart.html

Dynamic Chart in Excel

- https://sawlachintan.github.io/iplDash/

https://sawlachintan.github.io/iplDash/

Dynamic Chart Example

Pivot Chart

- https://www.excel-easy.com/examples/pivot-chart.html
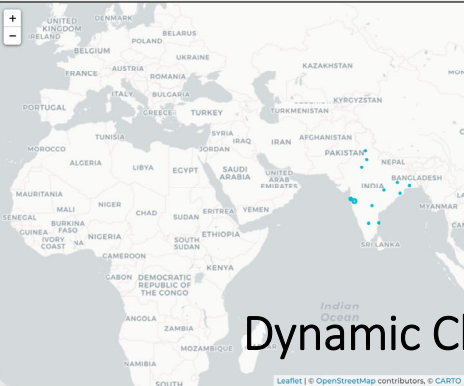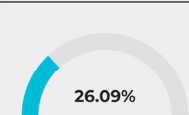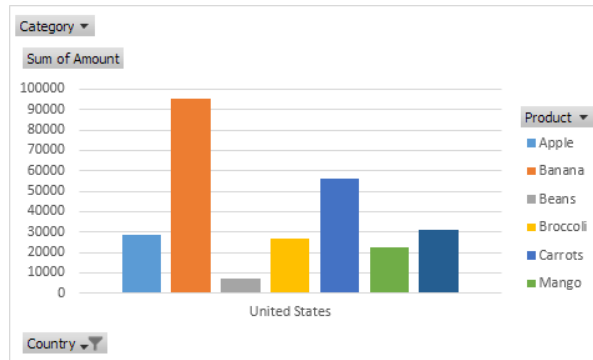

# Step 6: Create your Excel Dashboard

- You now have all the **data** you need, and you know the **purpose** of the dashboard.
- The only thing left to do is **build** the Excel dashboard.
- To explain the process of creating a dashboard in Excel, we'll use a **clustered column chart**.

Clustered Column Chart

- A clustered column chart consists of clustered, horizontal columns that represent more than one data series.
- Start by clicking on the **dashboard worksheet** or tab that you created in your workbook.
- Then click on '**Insert**' > '**Column**' > '**Clustered column chart**'.

Clustered Column Chart

- See the **blank box**? That's where you'll feed your spreadsheet data.
- Just right-click on the blank box and then click on '**Select data**'
- Then, go to your 'Chart Data' tab and select the data you wish to display on your dashboard.
- Make sure you **don't** select the column headers while selecting the data.
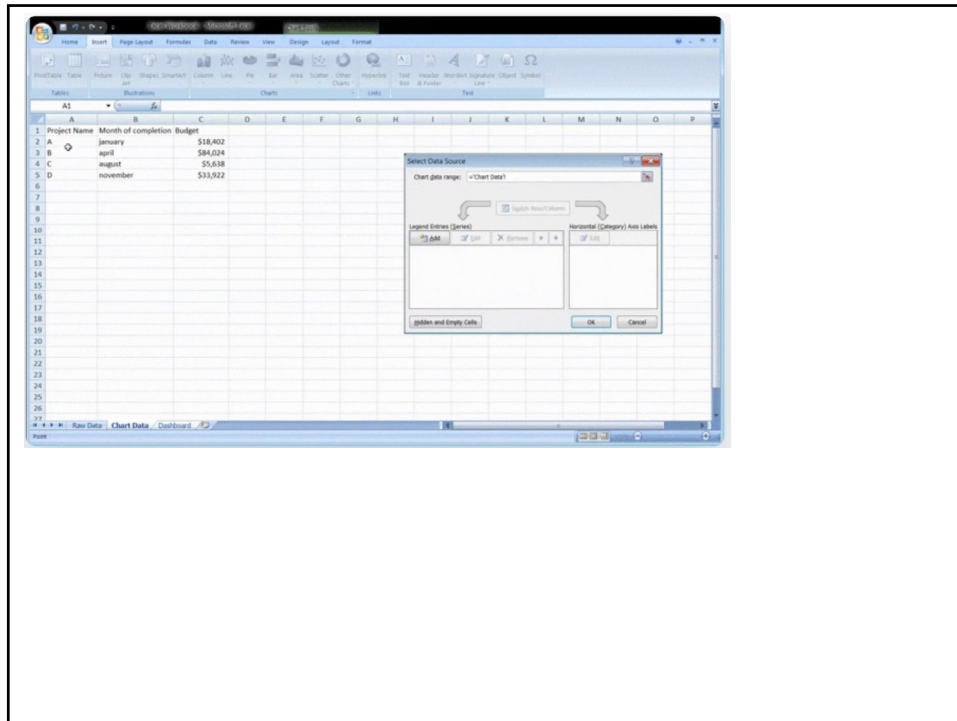
Clustered Column Chart

• Hit **enter**, and voila, you've created a column chart dashboard.
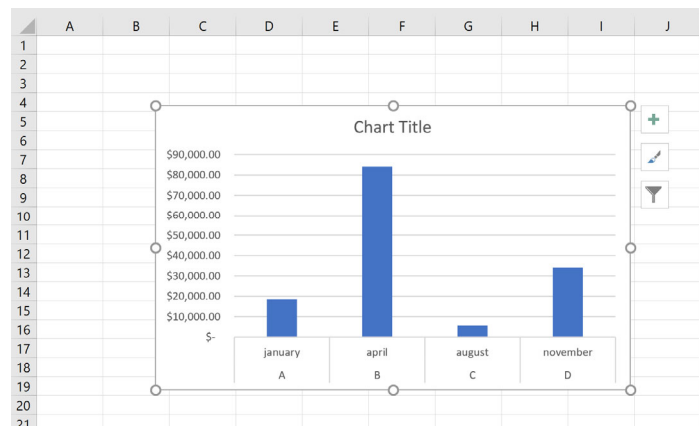
- If you notice your horizontal axis doesn't represent what you want, you can edit it.
- All you have to do is: select the chart again > right-click > select data.
- The **Select Data Source** dialogue box will appear.

Here, you can click on '**Edit**' in the '**Horizontal (Category) Axis Labels**' and then select the data you want to show on the X-axis from the 'Chart Data' tab again.
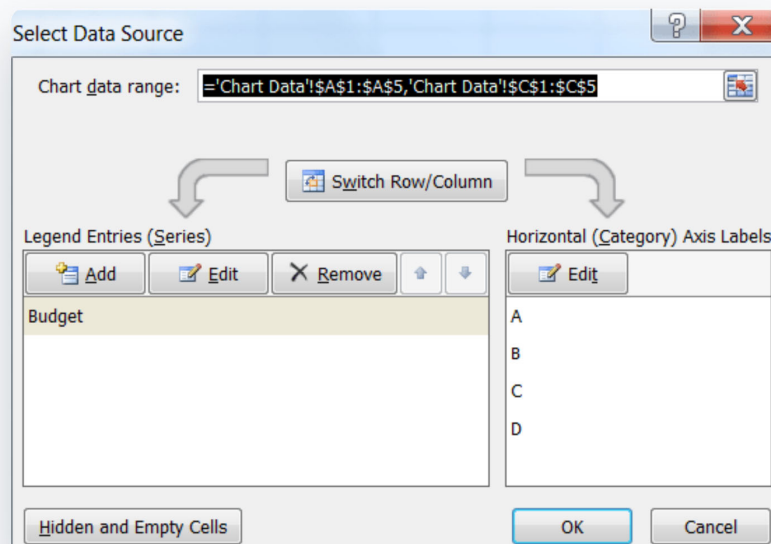
- Give your chart a title
- Select the chart and then click on Design
  > **chart layouts**. Choose a layout that has a chart title text box.
- Click on the text box to type in a new title.

Step 7: Customize your dashboard

- You can also customize the colors, fonts, typography, and layouts of your charts.
- Additionally, if you wish to make an interactive dashboard, go for a dynamic chart.
- A dynamic chart is a regular Excel chart where data updates automatically as you change the data source.

Step 7: Customize your dashboard

- Add an additional chart to your dashboard.
- The chart should be different from the chart type created in the previous step.
- Make sure ALL of your charts demonstrate data visualization best practices.
- Add to your final dashboard: My First Excel Dashboard in cell A1.

Bring interactivity using Excel features

- **Macros**: automate repetitive actions (you may have to learn Excel VBA for this)
- **Drop-down lists**: allow quick and limited data entry
- **Slicers**: lets you filter data on a Pivot Table

Excel Dashboard Templates

- Excel can be scary with formulas.
- Don't worry.
- There are several templates available

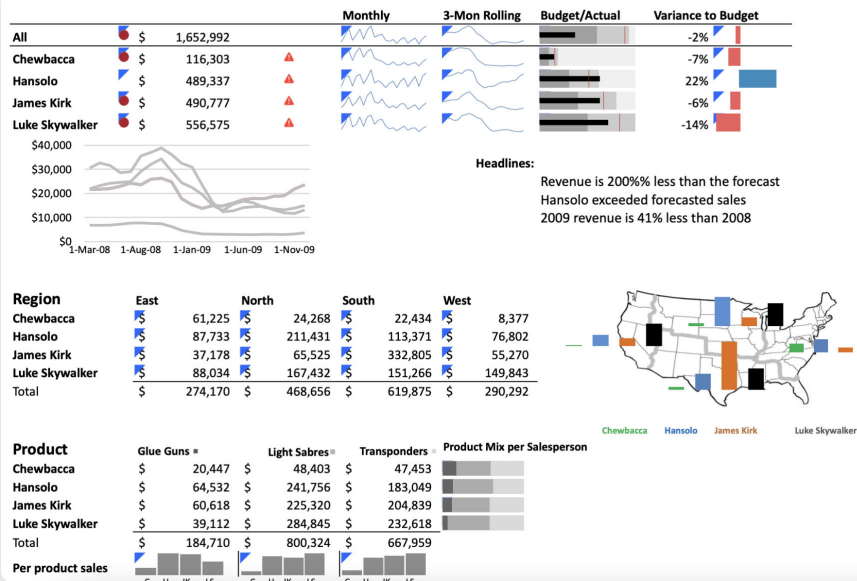## 1. Excel **KPI dashboard template**
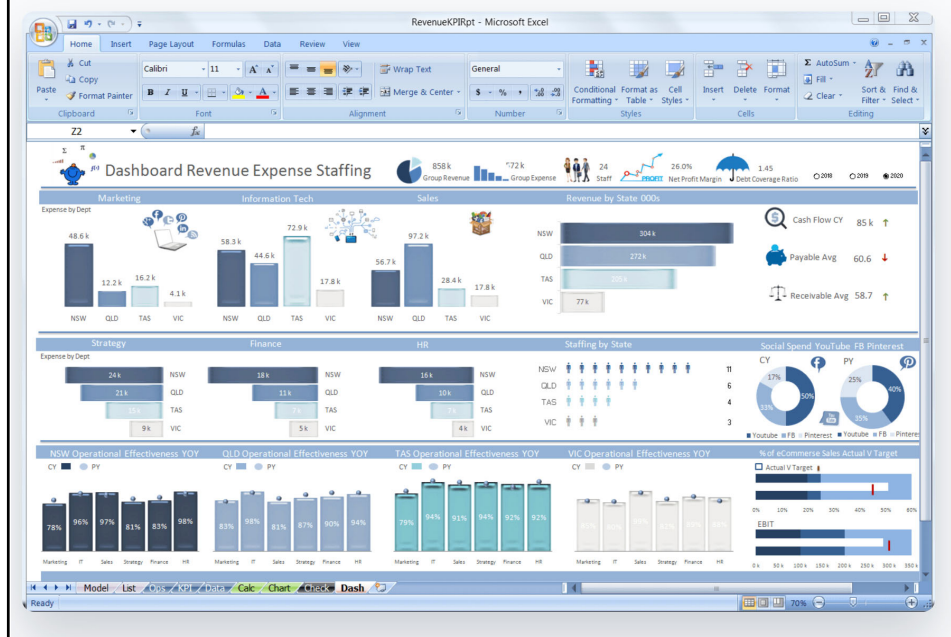
2. Excel Project management dashboard template

3. Sales dashboard template

- However, note that most Excel templates available on the web aren't reliable, and it's difficult to spot the ones that'll work.

- Most importantly, **Microsoft Excel isn't a perfect tool for creating dashboards**.

Limitations of Using Excel Dashboards

- A ton of manual data feeding
- High possibilities of human error
- Limited integrations

Source

- https://clickup.com/blog/how-to-create-a-dashboard-in-excel/

Save your work

- Save your excel spreadsheet with your three tabs as LastnameFirstInitial_MyExcelDashboard.xlsx and upload the file in Brightspace.