Data Visualisation and Insights

WEEK 2 – EXCEL DASHBOARDS

Introduction

Microsoft Excel is the most widely used analytics tool across many domains including business, finance and engineering. It includes powerful graphical and programmable features that enable the construction of dashboards which can be used to explore, analyse and communicate information.

If you have not Excel installed on your machine, you can use it for free through DkIT: https://www.dkit.ie/computer-services/support-services/computer-services-information-students/student-software

In this class you will create an integrated dashboard.

So, what is an Excel Dashboard?

An Excel Dashboard provides insight, analysis and alerts. They're fully interactive and dynamic and can help with project management, customer service, retail management, financial forecasting and much more.

A dashboard is a visual representation of key metrics that allow you to quickly view and analyse your data in one place. Dashboards not only provide consolidated data views, but a self-service business intelligence opportunity, where users are able to filter the data to display just what's important to them. In the past, Excel reporting often required you to generate multiple reports for different people or departments depending on their needs.

Key features

- Usually fits on one page (though the data and other information can be in separate sheets)
- Displays key trends, comparisons and data graphically or in small tables
- Provides the reader with conclusions to their objectives
- Is often interactive allowing the user to filter data and switch views themselves
- Employs best practices that enable the report to be updated quickly and easily (often at the click of just one button)

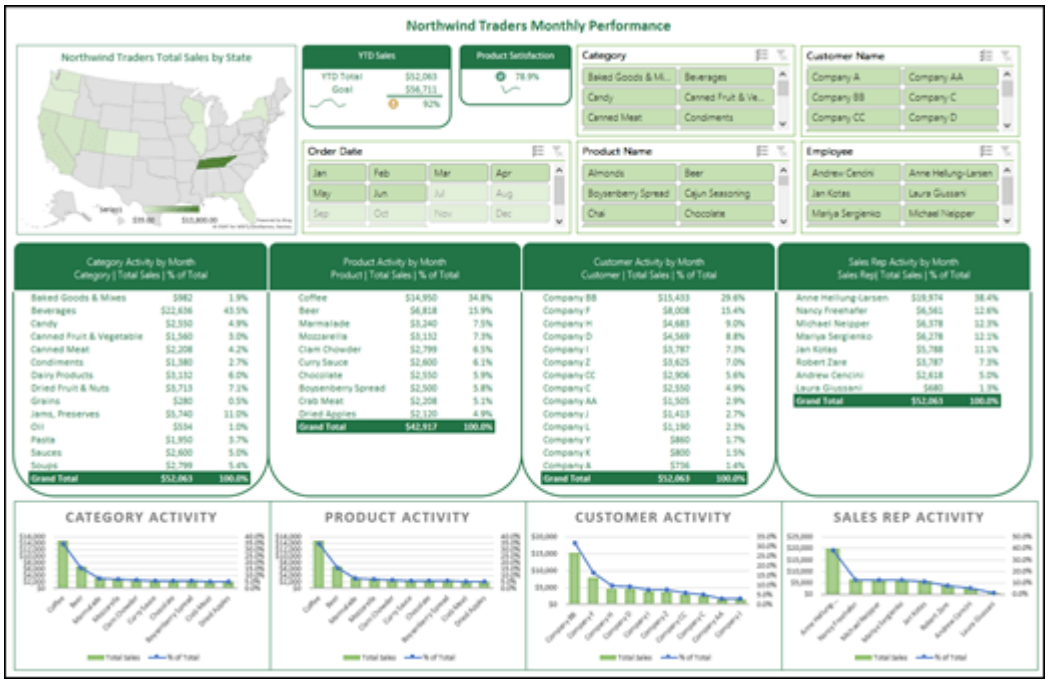
Acknowledgement

The dashboard in this example is taken from the following:

https://support.office.com/en-ie/article/create-and-share-a-dashboard-with-excel-and-microsoft-groups-ad92a34d-38d0-4fdd-b8b1-58379aae746e

Dashboard Tasks

The aim is to create the dashboard below from the data provided in DashboardData.xlsx available on Moodle.



Overview

In this topic, we'll discuss how to use multiple PivotTables, PivotCharts and PivotTable tools to create a dynamic dashboard. Then we'll give users the ability to quickly filter the data the way they want with Slicers and a Timeline, which allow your PivotTables and charts to automatically expand and contract to display only the information that users want to see. In addition, you can quickly refresh your dashboard when you add or update data. This makes it very handy because you only need to create the dashboard report once.

For this example, we're going to create four PivotTables and charts from a single data source and control these with slicers and a timeline. The key steps are:

Steps

1. Copy and paste the data directly into Excel (or you can set up a query from a data source if you like). Verify your data is structured properly, with no missing rows or columns. Each row should represent an individual record or item. Dates should be formatted correctly.

2. Convert the data into a table form. This makes it easier to generate the required pivot tables and charts.

3. Next, create a PivotTable to show the top-level summary of sales by product category, and sorted by the Sales field in descending order. To do this select any cell within your data range, and go to Insert > PivotTable > New Worksheet. Add the PivotTable fields that you want, then format as desired. This PivotTable will be the basis for others, so you should spend some time making any necessary adjustments to style, report layout and general formatting now so you don't have to do it multiple times.

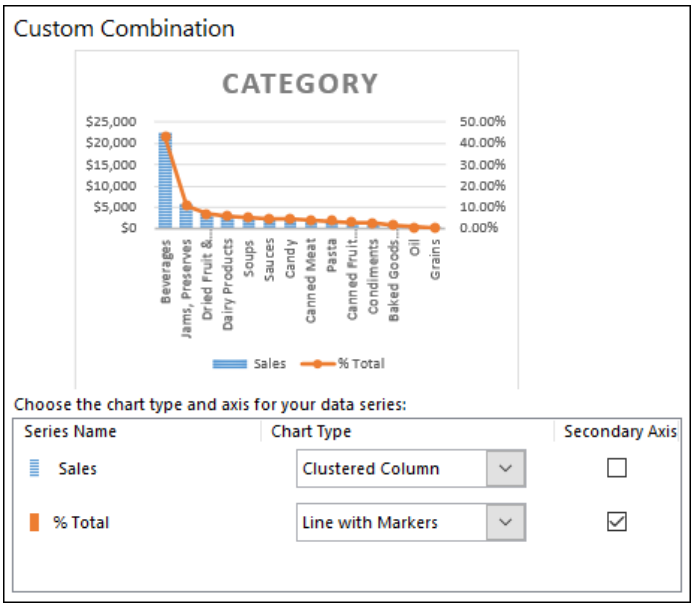
Category	Sales	% Total
Beverages	$22,636	43.48%
Jams, Preserves	$5,740	11.03%
Dried Fruit & Nuts	$3,713	7.13%
Dairy Products	$3,132	6.02%
Soups	$2,799	5.38%
Sauces	$2,600	4.99%
Candy	$2,550	4.90%
Canned Meat	$2,208	4.24%
Pasta	$1,950	3.75%
Canned Fruit & Vegetables	$1,560	3.00%
Condiments	$1,380	2.65%
Baked Goods & Mixes	$982	1.89%
Oil	$534	1.03%
Grains	$280	0.54%
Grand Total	$52,063	100.00%

4. Once you've created your master PivotTable, select it, then copy and paste it as many times as necessary (in this case you need 4 in total) to empty areas in the worksheet. It is wise to leave a column between the tables to allow better control of the layout. Adjust the details of each PivotTable to match the required element in the dashboard.

   It is also wise at this point to give your PivotTables meaningful names, so you know what they do. Otherwise, Excel will name them PivotTable1, PivotTable2 and so on. You can select each one, then go to PivotTable Tools > Analyze > enter a new name in the PivotTable Name box. This will be important when it comes time to connect your PivotTables to Slicers and Timeline controls as we will do later.

Lastly you will want to prevent PivotTables from resizing on any changes or refreshes. You can do this through the PivotTable Options.

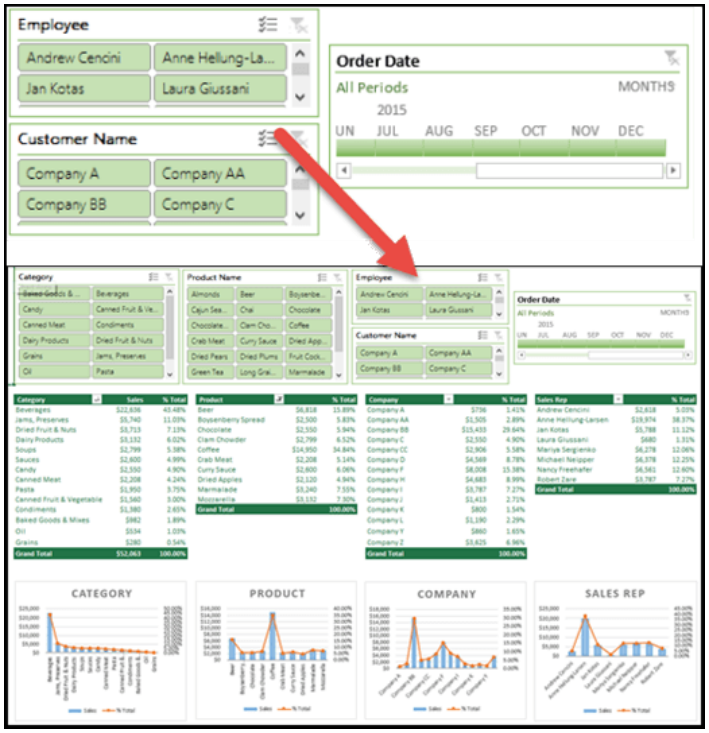
5. Create a PivotChart linked to the PivotTable. Do this by clicking anywhere in the first PivotTable and go to PivotTable Tools > Analyze > PivotChart > to select a chart type. We chose a Combo chart with Sales as a Clustered Column chart, and % Total as a Line chart plotted on the Secondary axis.



Select the chart, then size and format as desired from the PivotChart Tools tab. Repeat for each of the remaining PivotTables. You will also need to remove the PivotTable Field buttons shown and add a title.

Now is a good time to rename your PivotCharts too. Go to PivotChart Tools > Analyze > enter a new name in the Chart Name box.

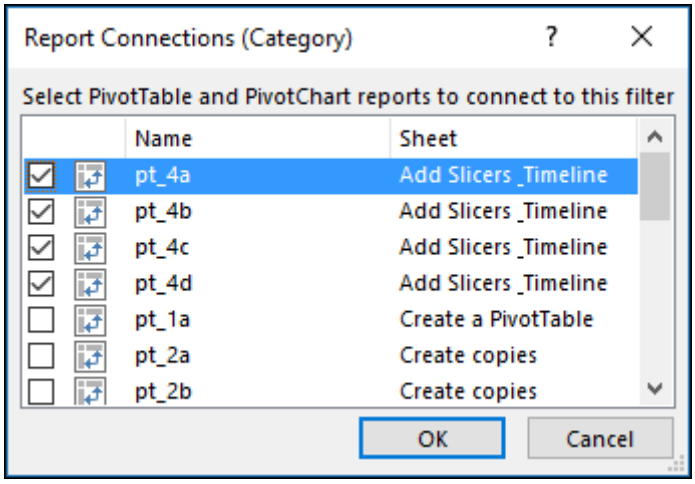
6. Add Slicers and a Timeline. Slicers and Timelines allow you to quickly filter your PivotTables and PivotCharts, so you can see just the information that's meaningful to you. These are the key element of most dashboards.



Select any PivotTable and go to PivotTable Tools > Analyze > Filter > Insert Slicer, then check each PivotTable name you want to use for a slicer. For this dashboard, we selected Category, Product Name, Employee and Customer Name fields. When you click OK, the slicers will be added to the middle of the screen, stacked on top of each other, so you'll need to arrange and resize them as necessary.

Slicer Options – If you click on any slicer, you can go to Slicer Tools > Options and select various options, like Style and how many columns are displayed. You can align multiple slicers by selecting them with Ctrl+Left-click, then use the Align tools on the Slicer Tools tab.

Slicer Connections - Slicers will only be connected to the PivotTable you used to create them, so you need to select each Slicer then go to Slicer Tools > Options > Report Connections and check which PivotTables you want connected to each. Slicers and Timelines can control PivotTables on any worksheet, even if the worksheet is hidden.



Your dashboard should now be interactive with graphs and tables responding to selections made through the slicers.

7. Timelines are similar to Slicers. Add a Timeline – Select any PivotTable and go to PivotTable Tools > Analyze > Filter > Insert Timeline, then check each item you want to use. For this dashboard, we selected Order Date.

   Timeline Options – Click on the Timeline, and go to Timeline Tools > Options and select options like Style, Header and Caption. Select the Report Connections option to link the timeline to the PivotTables of your choice.

8. Final Steps

   Your dashboard is now functionally complete, but you probably still need to arrange it the way you want and make final adjustments. For instance, you might want to add a report title, or a background or add a map image. You can also use formula links to show for example the highest performing salesperson. You can explore some of these through the solution provided.

   For our dashboard, we added shapes around the PivotTables and turned off Headings and Gridlines from the View tab. You can also hide unnecessary sheets and even lock the spreadsheet to prevent unwanted changes.

   Make sure to test each of your slicers and timelines to make sure that your PivotTables and PivotCharts behave appropriately. You may find situations where certain selections cause issues if one PivotTable wants to adjust and overlap another, which it can't do and will display an error message. These issues should be corrected before you distribute your dashboard.

Workthrough

There is a spreadsheet provided online which shows the steps to build the dashboard as well as the final dashboard.

Resources

You can explore the construction of another dashboard in Excel through the following link.

https://www.youtube.com/watch?v=K74_FNnlIF8