LESSON HANDOUT

Exploratory Analysis with Pivot tables, Pivot Charts and Slicers

Why

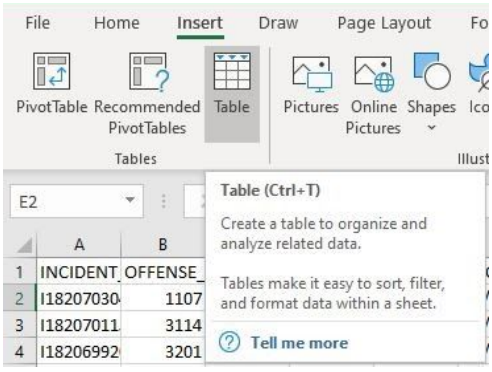
Exploratory analysis is summarising the data to observe patterns (or trends). When these patterns or trends are found to be valuable or significant, these observations are explained as insights or findings. Conducting exploratory analysis in Excel can be achieved easily with the use of Pivot tables, Pivot Charts and Slicers.

Creating a table

Why: Turning your dataset into an excel table makes the boundaries 'flexible', meaning than any pivot tables created from that table can easily refresh if new columns or rows are added later on.

How:

- Select any cell in the dataset
- Insert > Table or Ctrl + T



- Ensure 'My table has headers' is checked in order to make the first row of the table the column names

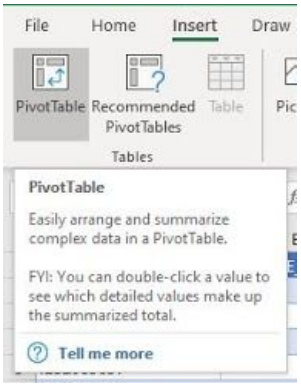
Creating a Pivot table

Why: Pivot tables enable quick aggregation of data in a format that can be refreshed to recalculate when the source data set is changed.

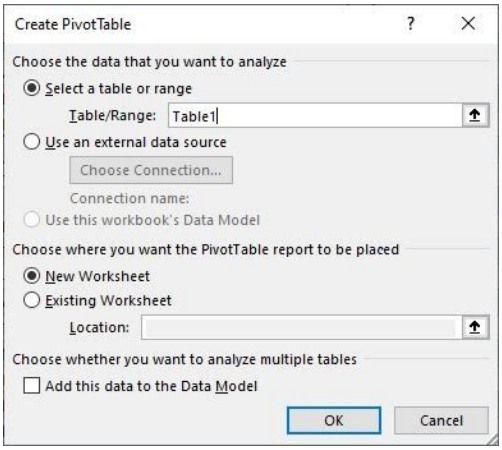
How:

- Select any cell in the dataset/table

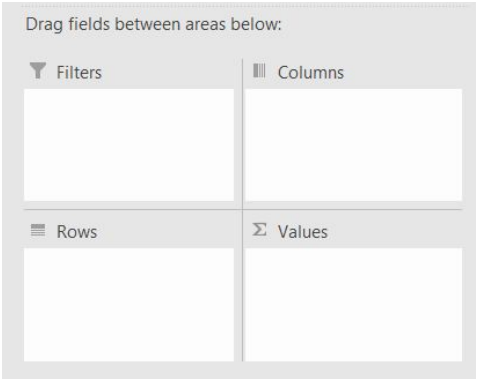
- Insert > Pivot Table



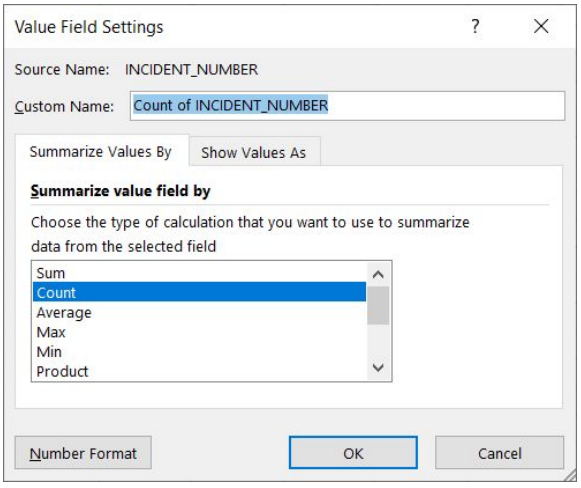
- Configure your pivot table:
  - The table/range shows the range of your dataset (automatically calculated) or the name of the table selected.
  - Second, choose a cell reference to place your pivot table into or select 'New Worksheet' to place the pivot table on a new sheet.



- **Building a pivot table**. A pivot table is a custom grouping of columns, rows and values. You can easily build a pivot table by dragging column names into the following boxes, which are explained in detail below.

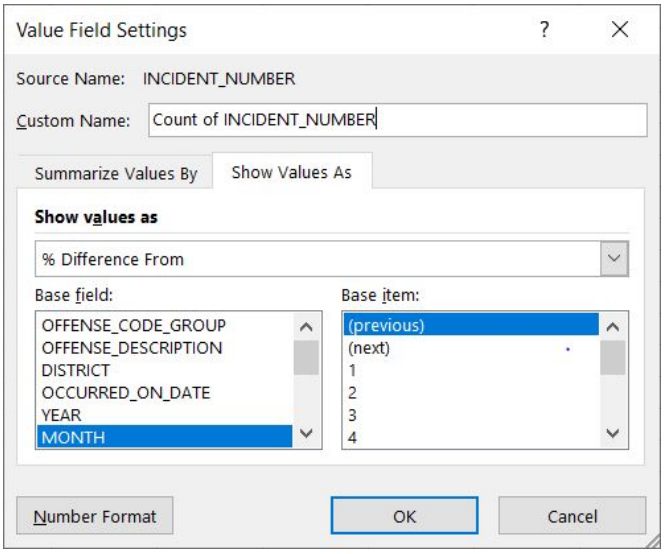


- **FILTERS** - Dragging a column into this box will allow you to filter what is shown in the pivot table, for example, if you only need to show a particular date range.
- **ROWS** - Dragging a column into this box will build the rows of your table. Only unique values will show and you can drag multiple columns into this box in any order (if columns are parents/ child of each other, they will automatically group together).
    - Example - dragging OFFENSE CODE GROUP from the Boston Crime dataset into the rows box would show all of the unique offence codes as the rows of the table.
- **COLUMNS** - Dragging a column into this box will build the columns of your table.
- **VALUES** - The columns dragged into the values box will are those that you wish to calculate in the table (those values that will make up the centre of your table).
    - Example - dragging INCIDENT NUMBER from the Bostom Crime dataset into the values box automatically produces a count calculation.
    - You may change the calculation applied by clicking on the value and selecting 'Value Field Settings'.

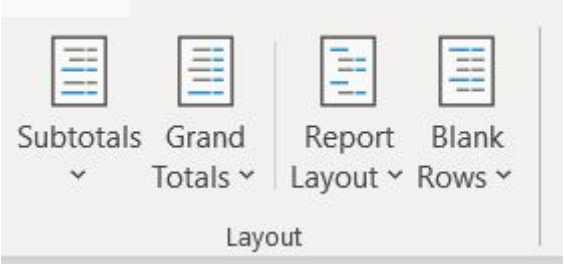


Advanced pivot table settings

- **Show values as.** Within **Value Field Settings** you may also change the way values are calculated. For example, you may choose to display the values as a % difference from the previous value, as in the example below. A full explanation of calculations are described at this link - Microsoft help - custom calculations



- **Format.** Clicking into a pivot table opens up the design tab, within which the layout section allows you the following options:

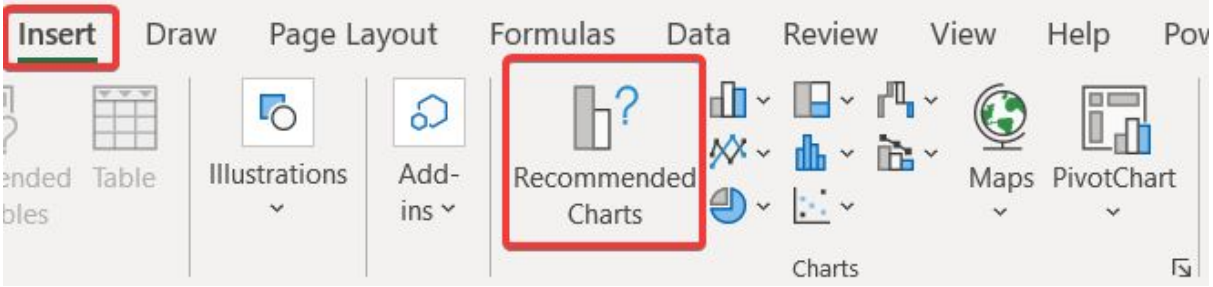


  - **Subtotals** and **Grand totals** allow you to toggle **totals** on and off by column and row.
  - **Report layout** allows you to change how your pivot tables operates.
- **Selected source data.** Double-clicking on a cell within a pivot table with the relevant rows from the source data.

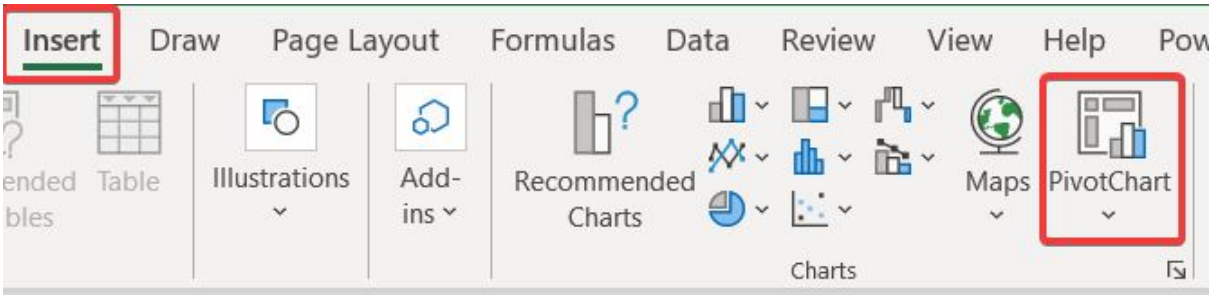
Pivot Charts

Why. Pivot charts are linked to pivot tables, which means they will dynamically update as the pivot table is changed.

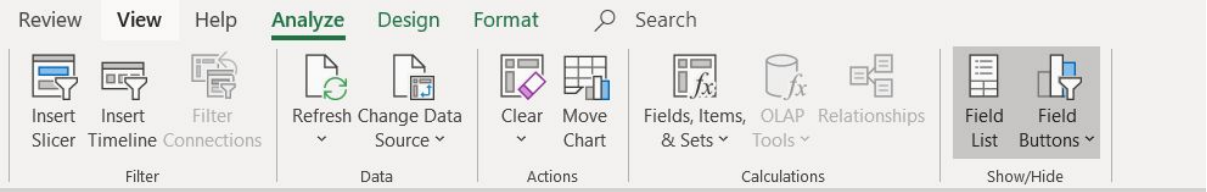
How. Click into a Pivot table, then in the ribbon click on Insert > Recommended Charts.



You can also create a pivot chart directly from a data table by clicking into your table, then selecting Insert > PivotChart.



- To hide or show your Pivot Tables' Field List or Field Buttons, go to the Analyze tab, where these can be toggled on or off.

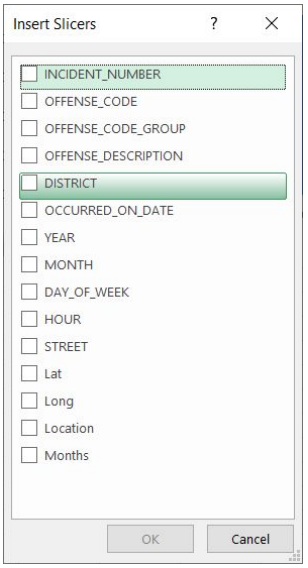


Slicers

Why. Slicers are an easy interface for filtering multiple pivot tables and charts. By using slicers, we can easily create dashboards.

How.

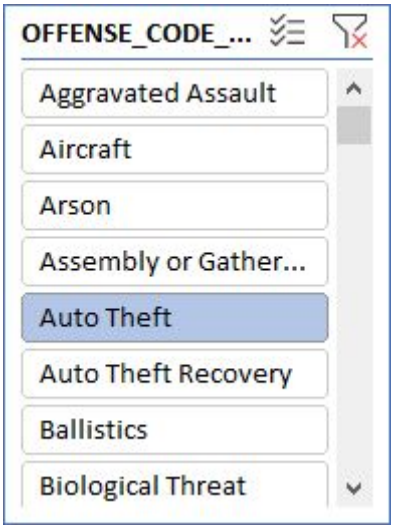
- **Method one.** With your pivot table or datasource selected - On the ribbon, navigate to the 'Insert' tab, then under 'Filters' select 'Slicer'. You can then check which column(s) you wish to slice with.



- **Method two.** With your pivot table selected - On the ribbon navigate to the 'Pivot Table Analyse' tab, then under 'Filter' select 'Insert Slicer'. Select the column(s) you wish to slice with. Note: the 'Pivot Table Analyse' tab only shows on the ribbon when you have a pivot table selected.

Using a slicer.

- Clicking on a button within the slicer will filter any linked pivot tables by those buttons. In the example below, we've used the slicer to filter by Auto Theft in the OFFENSE_CODE_GROUP field.



- Holding CNTL allows the selection of multiple filters.
- Use the  button found on the top right of the slicer to clear all filters.
- To change which pivot tables a slicer is linked to, right-click on the slicer and select "Report Connections" and then check or uncheck the required pivot tables.