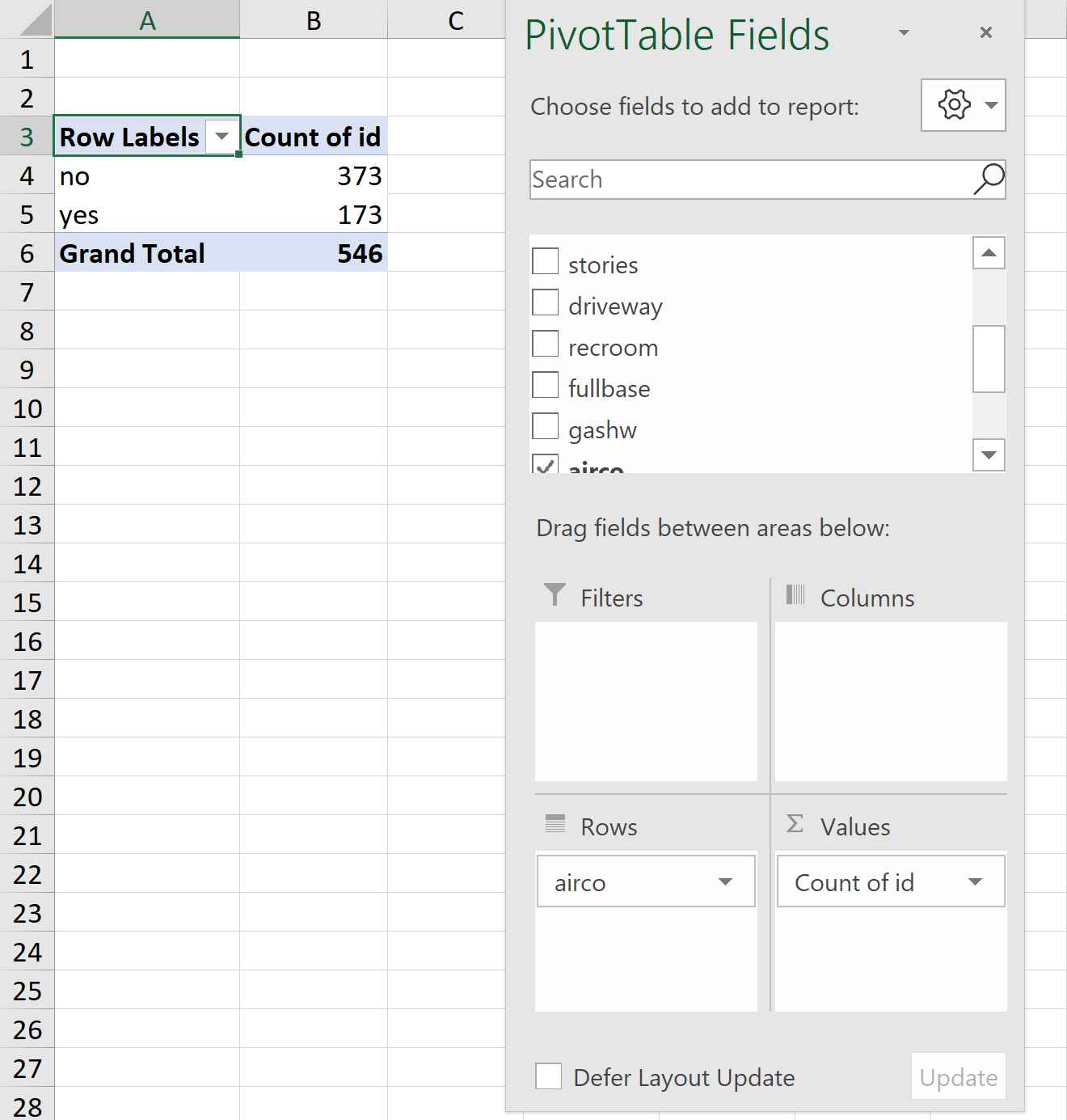
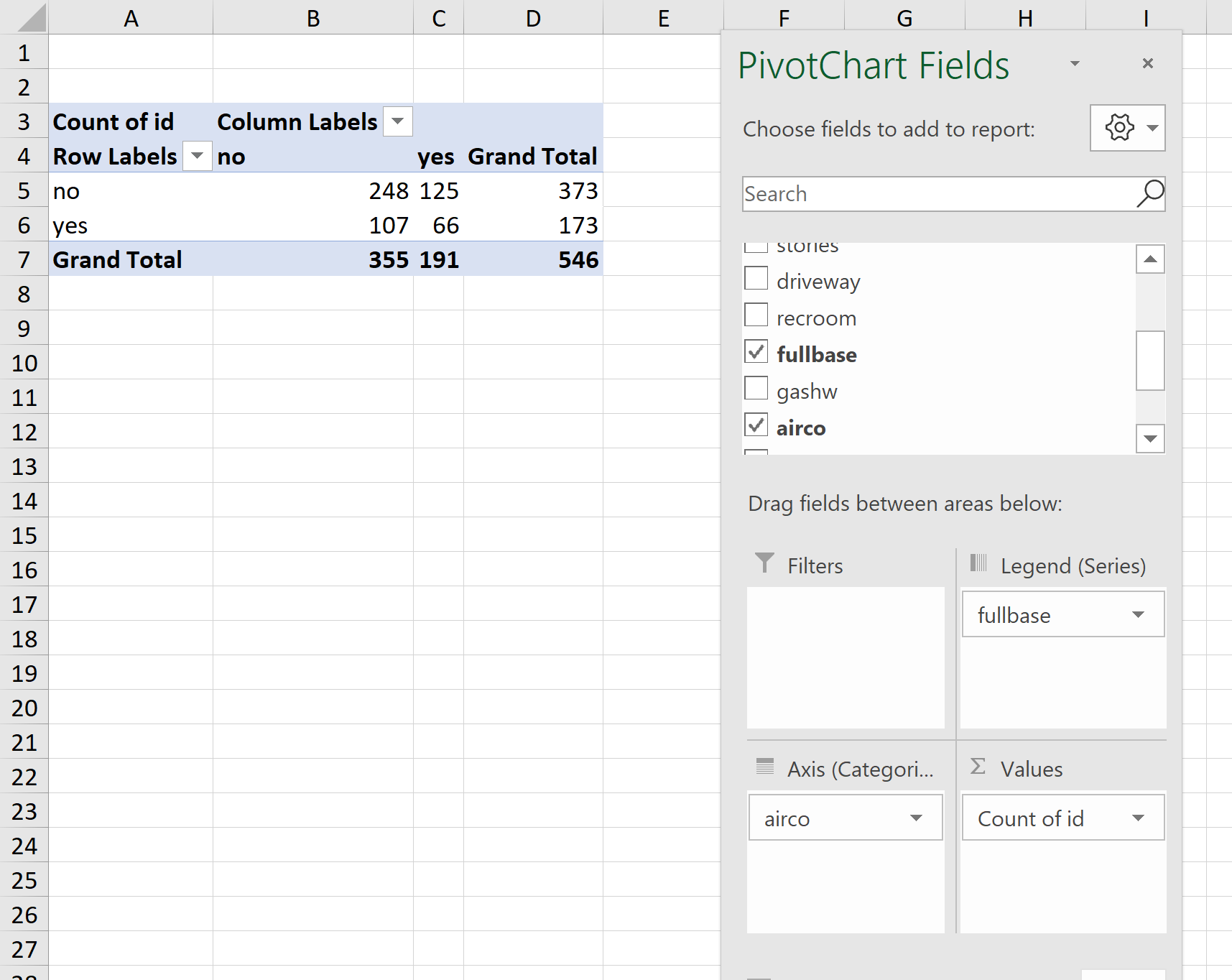
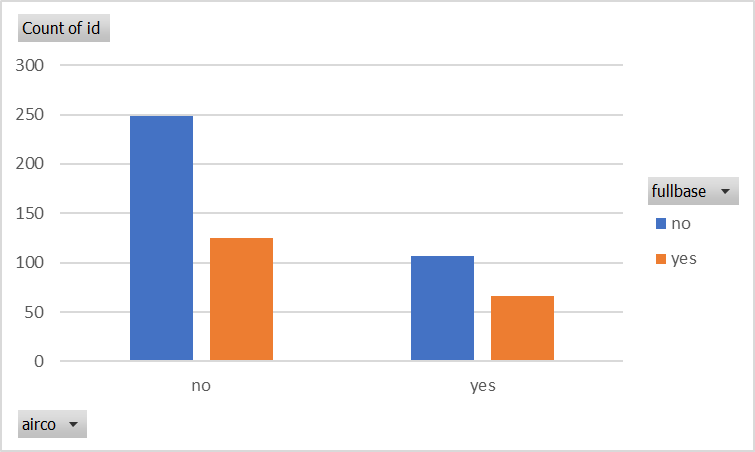
***Advancing into Analytics*  Foundations: Demo notes**

**Frequencies**

Create a PivotTable from the source data.

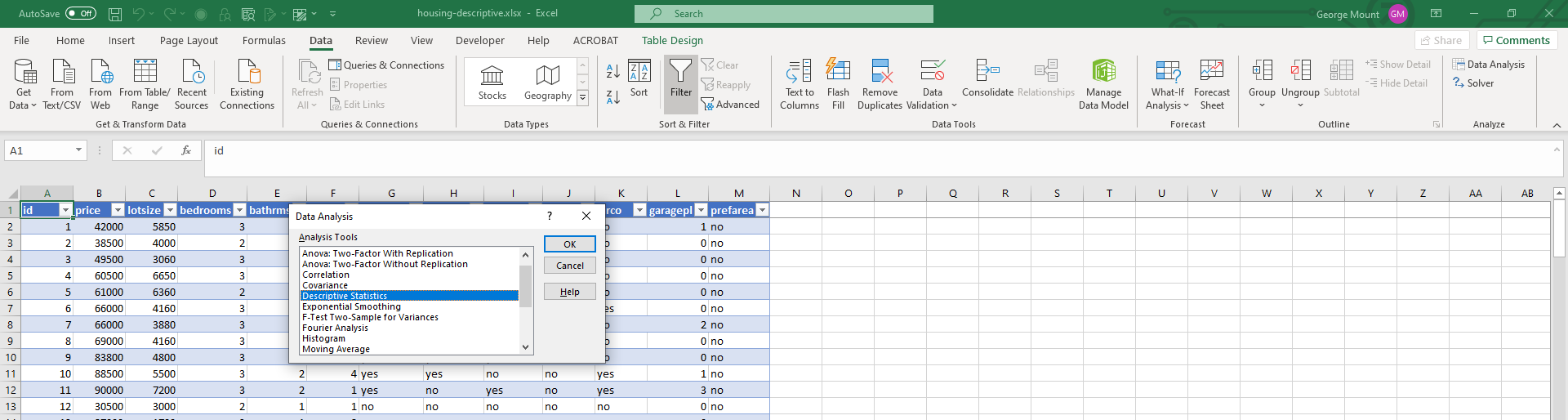
1. Make a one-way frequency table by selecting categories of interest in the Rows/Columns field, then place a Count of the ID field in the Values section.
   1. To convert a field from a Sum to a Count, double-click on that variable header, and select Count in the “Summarize value field by” menu.   
      
2. Make a two-way frequency table by dragging another categorical variable along the Columns area:  
   
   1. Select Insert > Recommended Charts > Clustered Column to visualize the frequencies:  
      

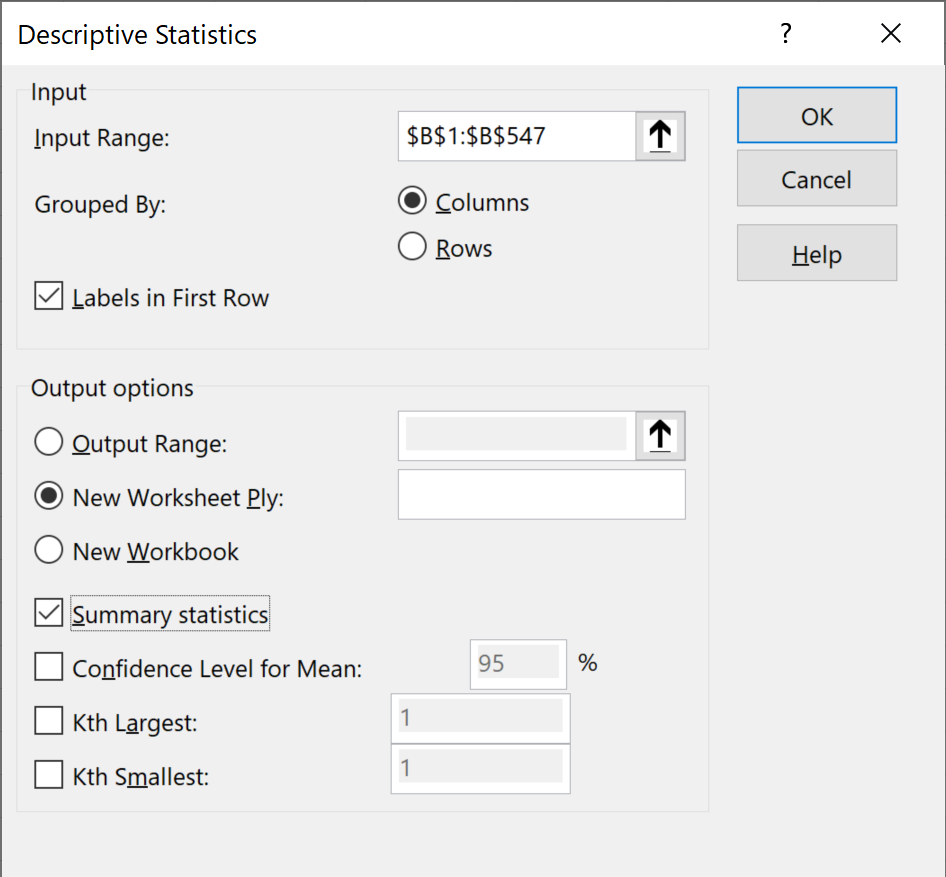
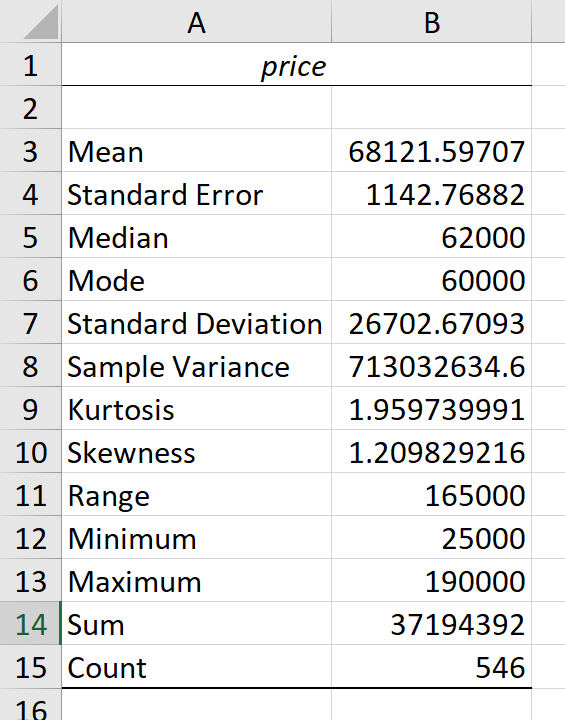
**Downloading the Analysis ToolPak**

[See instructions from Microsoft here](https://support.office.com/en-us/article/Load-the-Analysis-ToolPak-in-Excel-6a63e598-cd6d-42e3-9317-6b40ba1a66b4). Note the process is different for Windows and Mac.

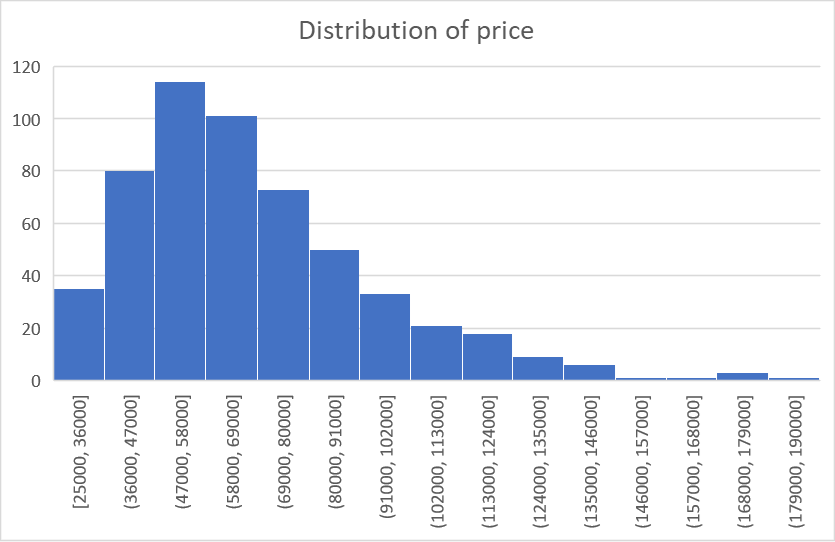
**Descriptive Statistics**

1. Go to the Data tab on the home ribbon.
2. Select Data Analysis from the Analyze group (far right of the menu).
3. Select Descriptive Statistics from the menu.

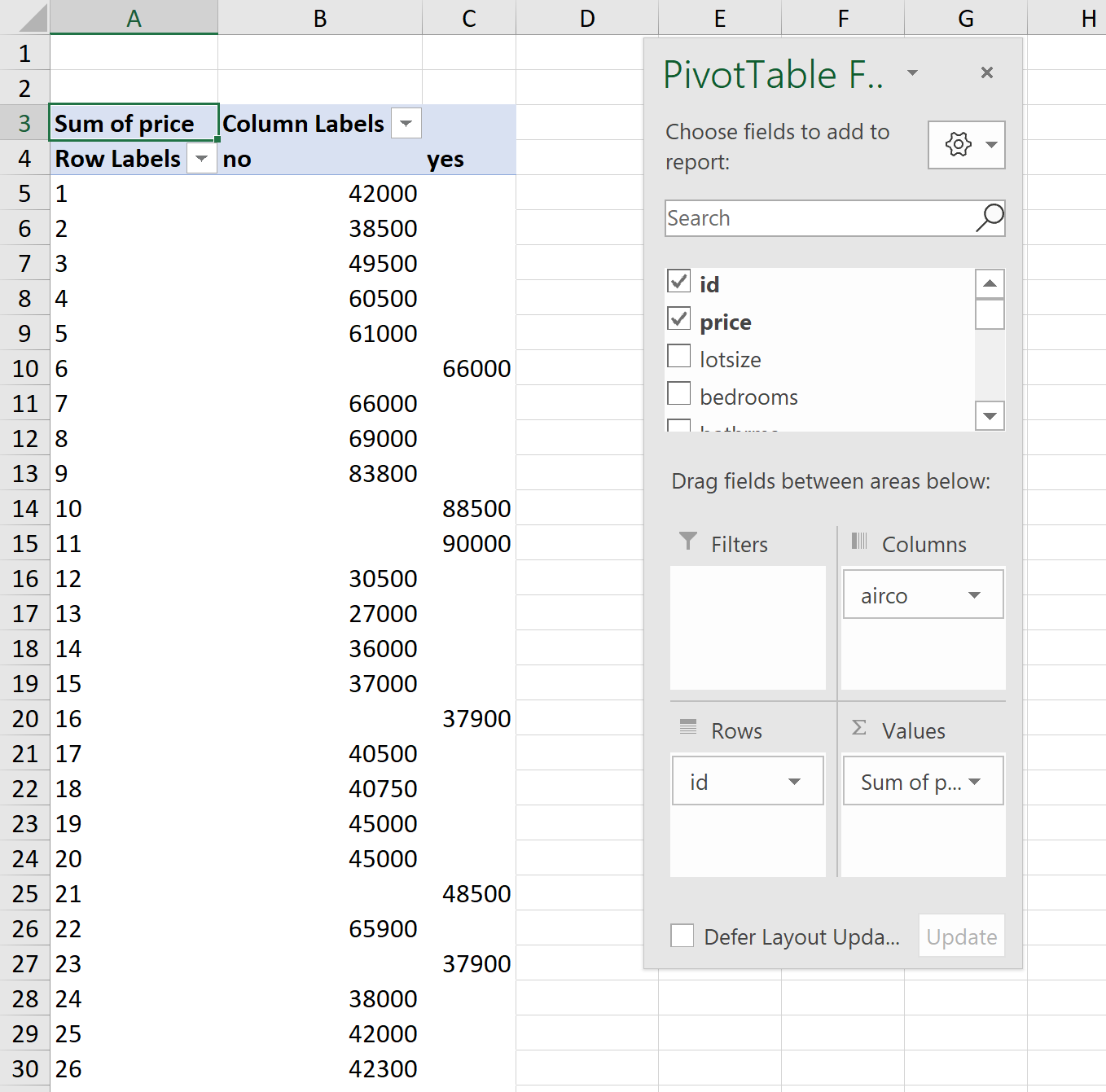
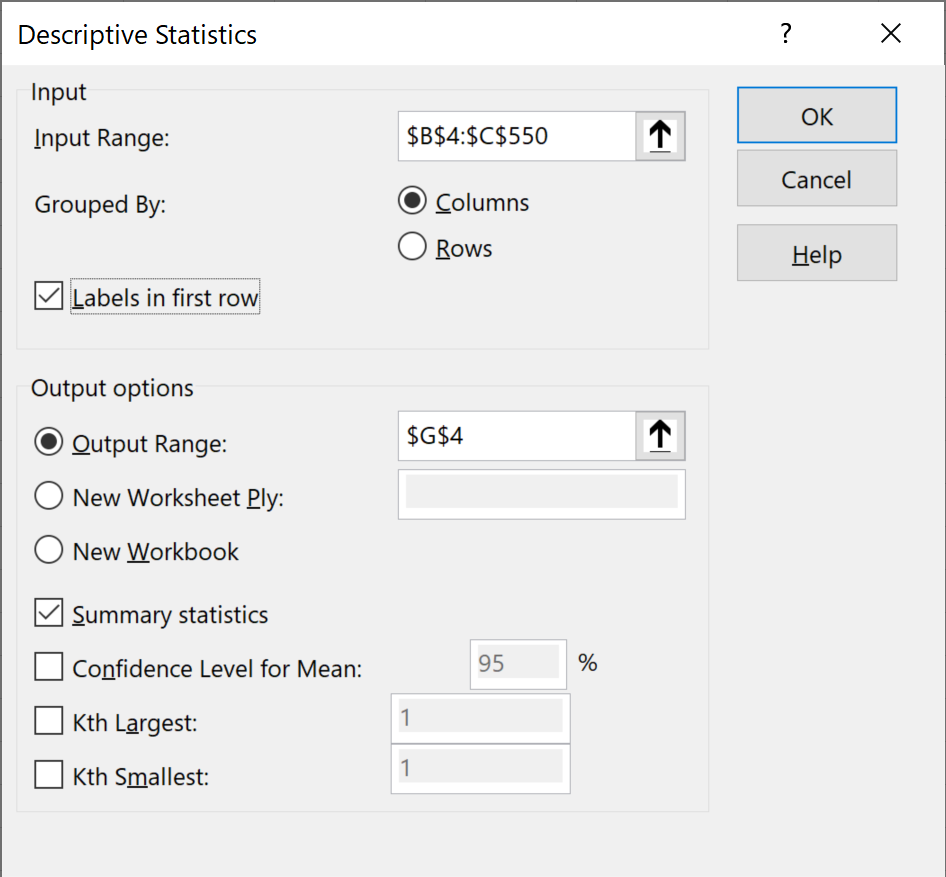


1. Select your Input Range. This will be Column B, price. If your selection includes a header row, make sure to check on the “Labels in First Row” option.
2. By default, the output will be placed in a new worksheet. If you want it elsewhere, click inside “Output Range.” Make sure to double-click inside the dialog box before selecting a new range, otherwise the input range will be re-written.
3. Check on “Summary Statistics.”   
   
4. We find that the average sale price is about $68,122 with a standard deviation of $26,702.   
   

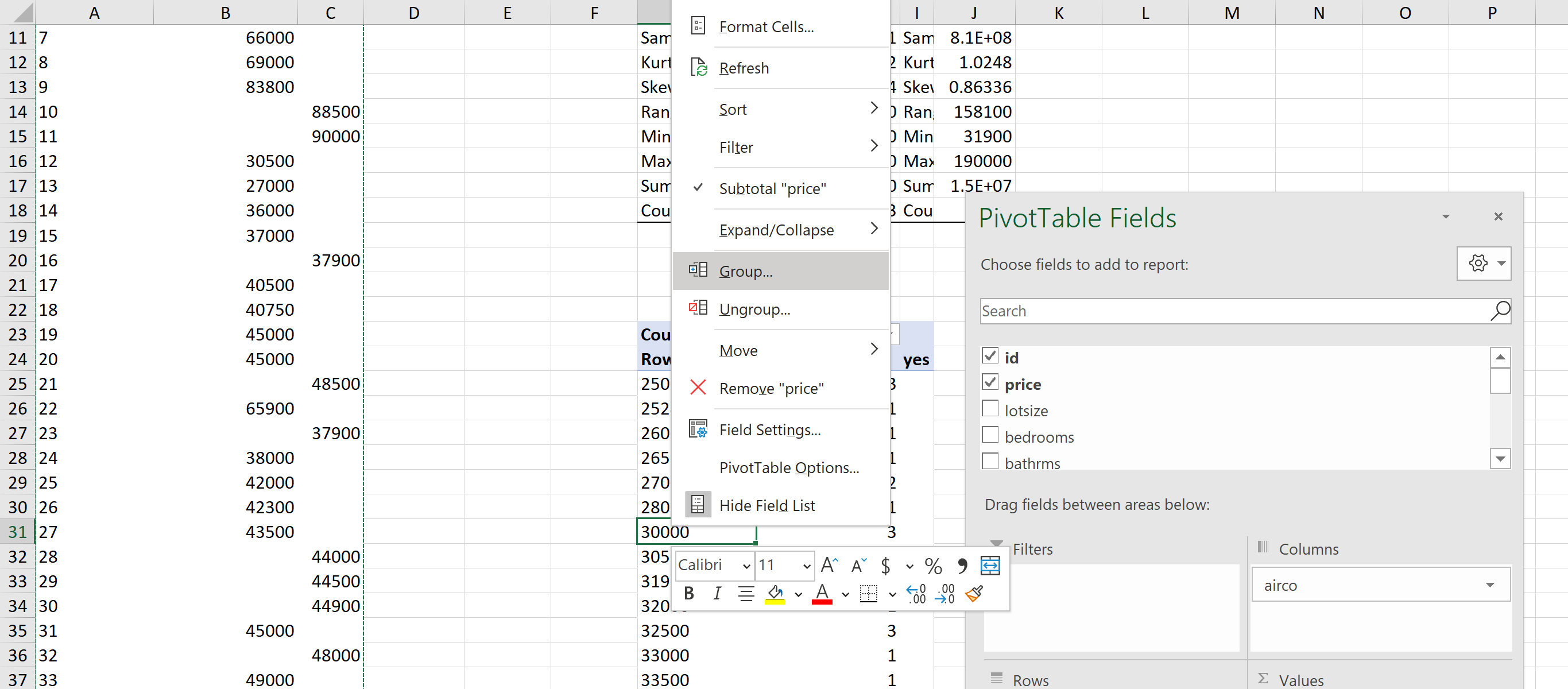
**Histograms**

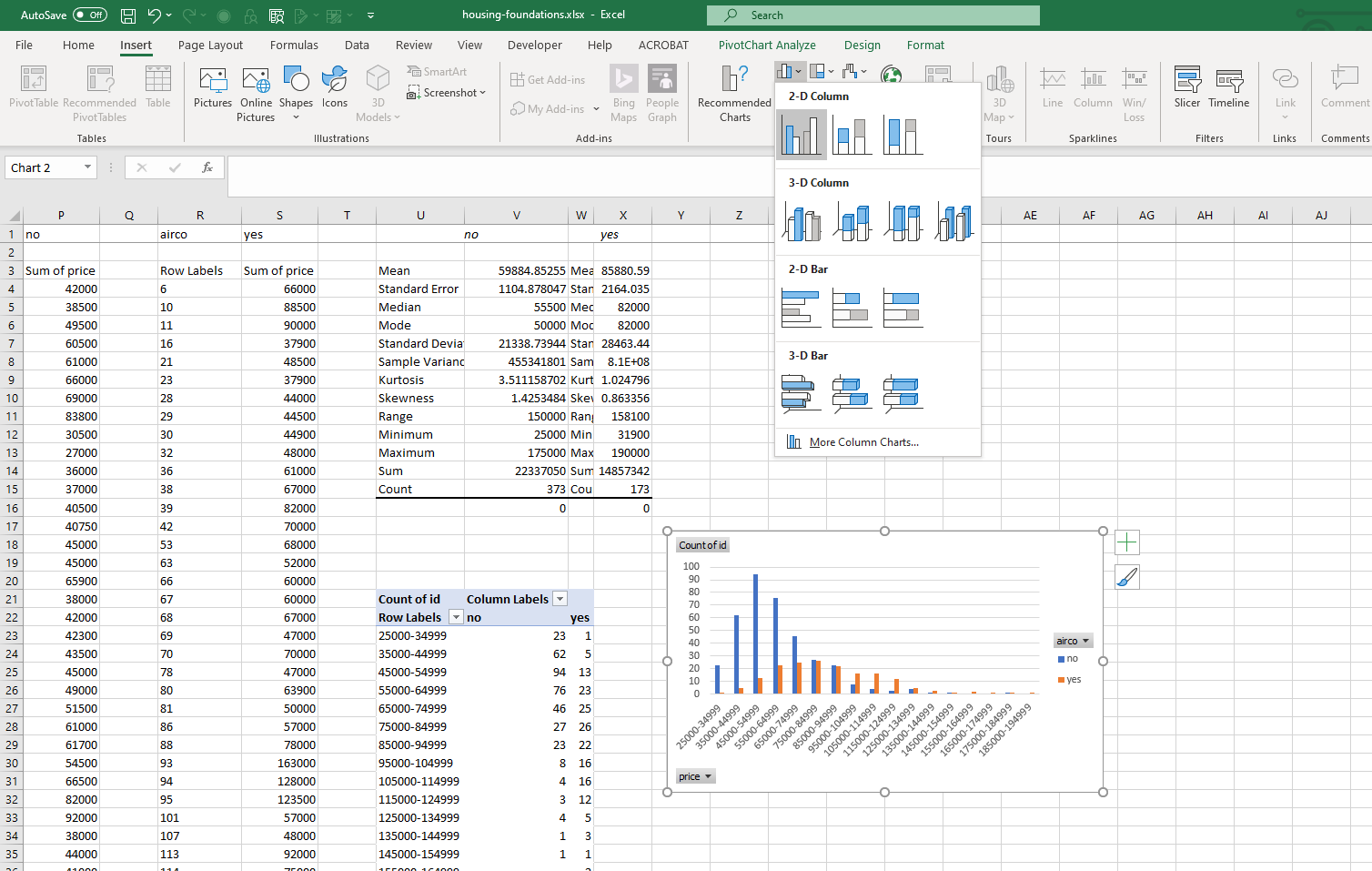
1. Select your input range (the price column) and go to Insert -> Charts. Histogram should be your third option. Select that. You can cut and paste the resulting histogram elsewhere in the workbook.  
   
2. To change the number of bins in the histogram, right-click on the X-axis and select Format Axis. You can then customize the X-axis on the side menu. *Note: these features are not available on Excel for Mac.*

**Descriptive statistics for two categories**

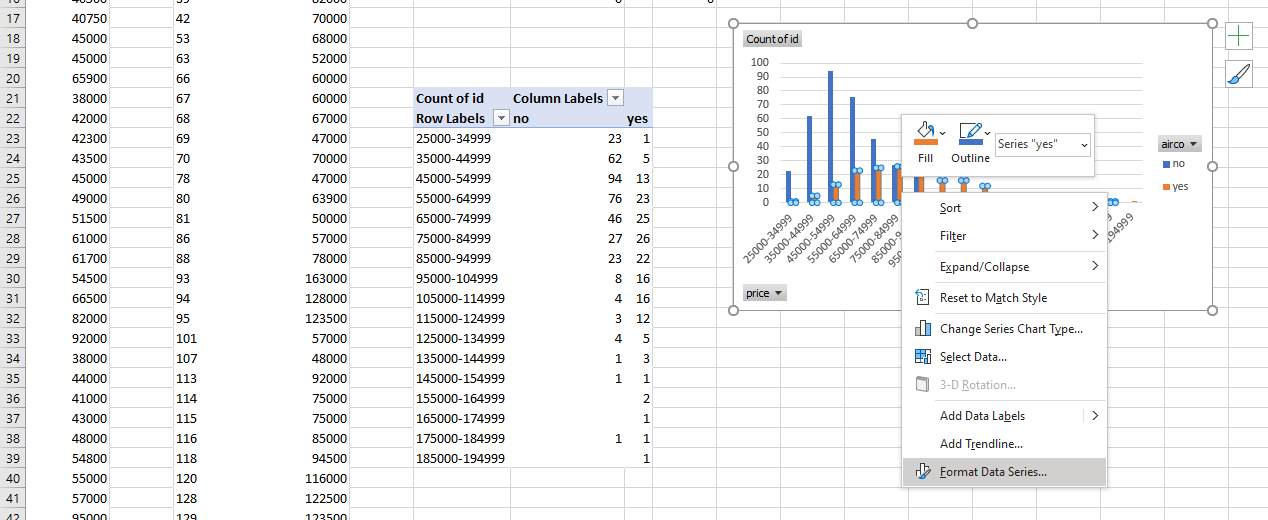
1. Create a PivotTable containing ID in the rows, airco in the Columns and Sum of price in the Values.
   1. Design > Grand Totals > Off for Rows and Columns  
      
2. Run the descriptives for each category using the Analysis ToolPak.   
   

**Plot a histogram for two categories**

1. Create another PivotTable (copy-paste the old one)
2. Place the two categories along the Columns, the continuous variable of interest down the Rows, and the Count of the ID variable in the Values.
3. Right-click the Rows area and select Group.   
   
4. Go to Insert on the home ribbon and select a 2-D Column chart.



1. Right-click on any of the bars in the resulting bar chart. Select Format Data Series.



1. Adjust the Series Overlap to 100% and the Gap Width to 0%.

