

# **Power BI & Excel better together – Creating an Excel report using a Power BI Dataset**

## **Overview**

**The estimated time to complete this lab is 30 minutes.**

In this lab, you will complete the following tasks:

1. Publish a Power BI Desktop Dataset & Report to the Power BI service
2. Download, Install, and Use Analyze in Excel
3. Build an Excel Report using a Power BI Dataset

# Exercise 1: Publish a Power BI Desktop Dataset & Report to the Power BI service

In this exercise, you will use Power BI Desktop to publish your Dataset and Report to My workspace in the Power BI service.

## Task 1: Launch Power BI Desktop

In this task, you will launch Power BI Desktop and open a PBIX file.

1. Launch **Power BI Desktop**.



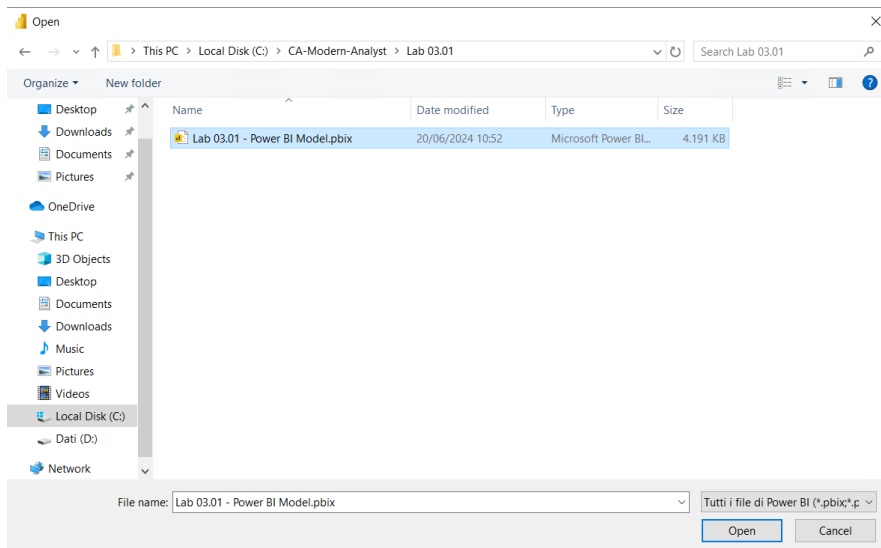
## Task 2: Open the PBIX file

In this task, you will navigate and open the starting PBIX file with the Dataset and Report created from Lab 02.

3. From the ribbon at the top of the screen, select the **File** tab. Then, select the **Open report** option from the list to the left of the screen.
4. Select the **Browse reports** button.



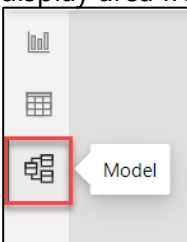
5. Navigate to the <C:\CA-Modern-Analyst\Lab 03.01\ folder.
6. Select the file **Lab 03.01 - Power BI Model.pbix** and select **Open**.



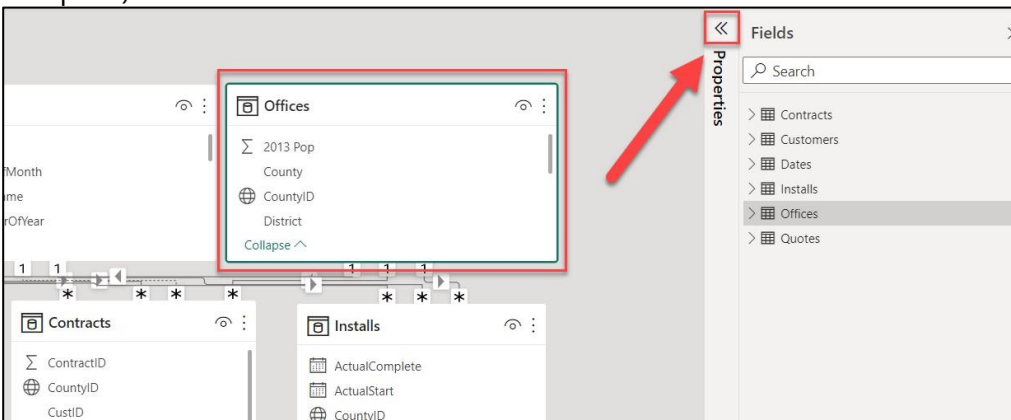
### Task 3: Identify a featured table

In this task, you will identify a featured table to utilize as an organizational data type in Lab 03.02.

- From the navigation menu to the left of the screen, select the **Model** view icon. This changes the display area from the default Report view to the Model view to show the data model diagram.

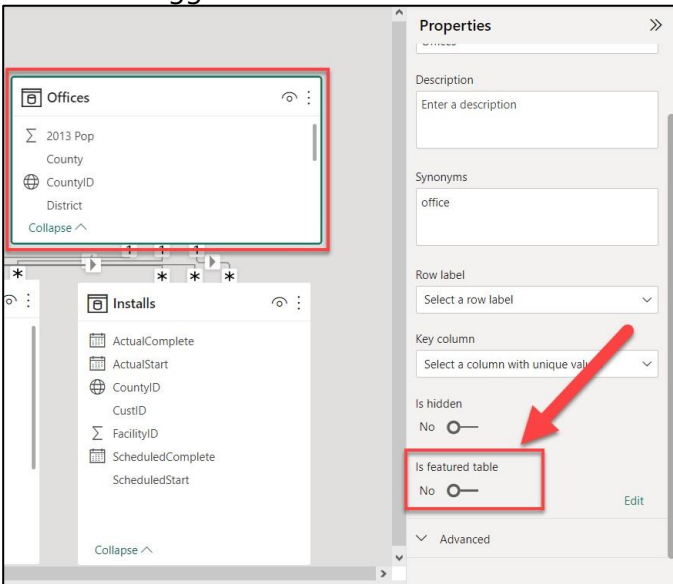


- Select the **Offices** lookup table and expand the **Properties** pane to the right of the screen (if collapsed).



- Within the Properties pane, expand the **General** properties menu. Then, scroll to locate the **Is featured table** section.

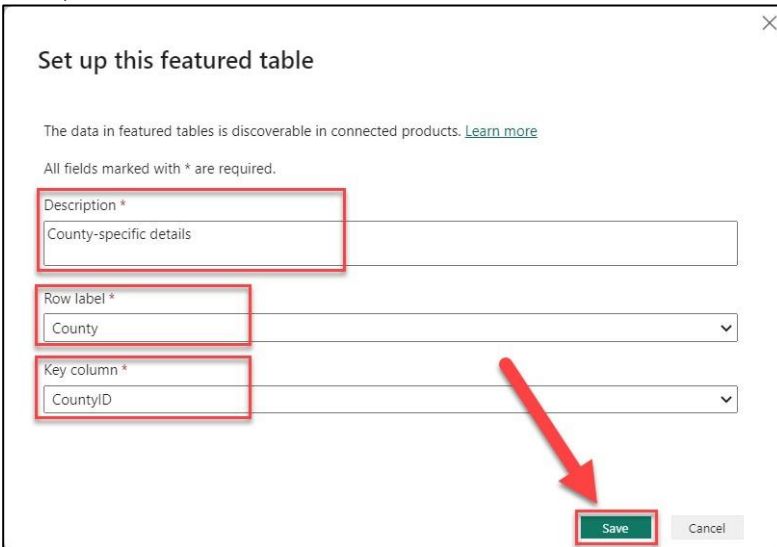
10. Switch the toggle from No to **Yes** to launch the **Set up this featured table** dialogue.



11. Fill the three required fields in the dialogue box with the following values:

- 1) Description > Enter the text **County-specific details**
- 2) Row Label > Select **County** from the drop-down menu
- 3) Key Column > Select **County ID** from the drop-down menu

12. Then, select **Save**.



13. From the dark colored ribbon, at the very top of the screen, select the **Save icon** to save the work and changes you just completed and made.

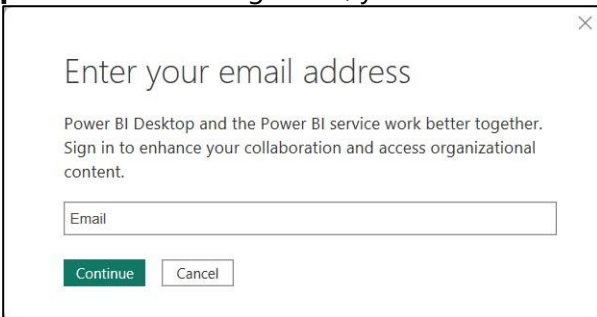
#### Task 4: Publish the PBIX file to the Service

In this task, you will publish the Dataset and Report from the Power BI Desktop file to the Power BI service.

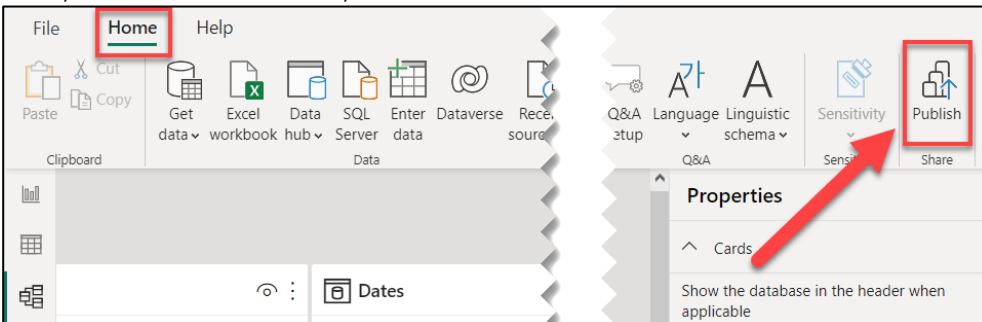
14. First, you will need to sign in to Power BI. Select the **Sign in** button located in the upper righthand corner of Power BI Desktop.



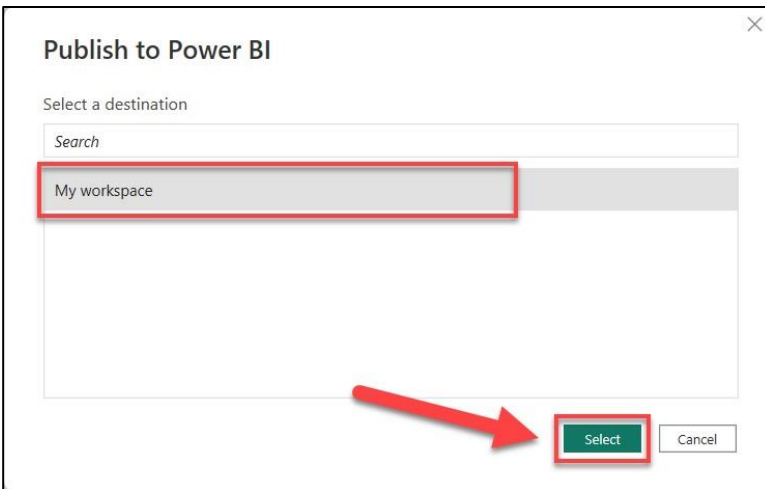
15. Next, you will need to enter your Power BI **username** (usually your **work email address**) and **password**. Once signed in, you will notice the **Sign in** changes to become your name.



16. Select the **Home** tab from the ribbon at the top of the screen.
17. Then, from the main menu, select the **Publish** button.



18. From the **Publish to Power BI** dialog, select **My workspace**. Then, choose the **Select** button at the bottom of the dialog window.

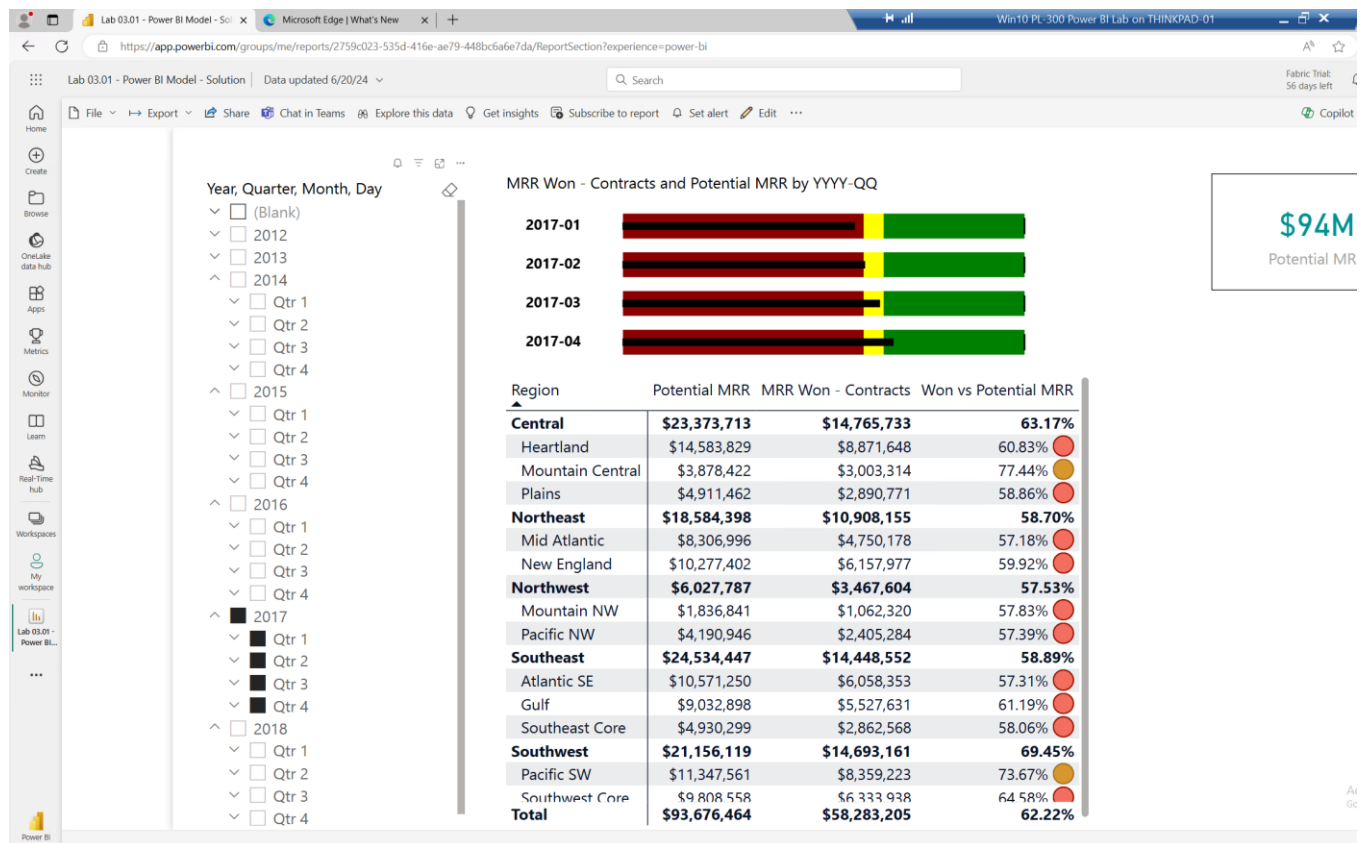


**Note:** All users have My workspace in Power BI service – this is your *personal* sandbox. Every organization has different Workspaces. Workspaces can be created, and users can be added to Workspaces to share Datasets and Reports across the organization.

19. Once the publication is successful, you will see the **Success message** with a link that you can select to open the report in the Power BI service.
20. Select the **Open 'Lab 03.01 – Power BI Model.pbix' in Power BI** link.

After selecting the link, you will navigate to your browser where you will see your report published to Power BI service in your **My workspace** location.

**Note:** To navigate directly to Power BI service enter the URL: <https://app.powerbi.com> in your browser.



**Note:** Selected report page, slicers and filters are captured as default settings when published to the Power BI service.

## Exercise 2: Download, Install, and Use Analyze in Excel

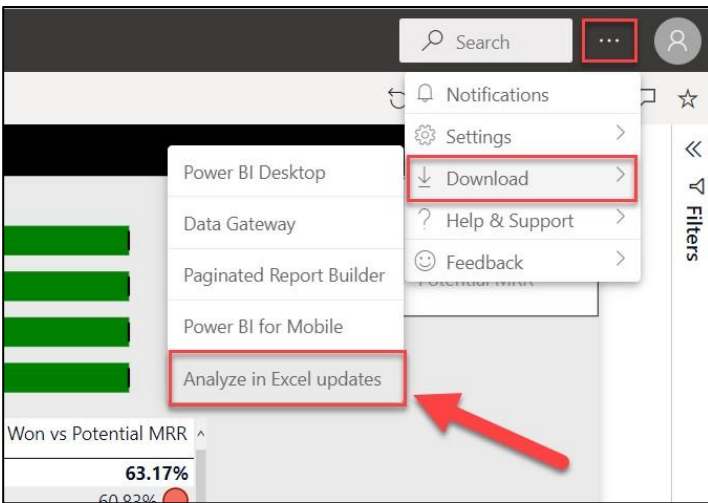
In this exercise, you will download the Analyze in Excel libraries and use Analyze in Excel to connect to the published "Lab 03.01 – Power BI Model" in Power BI from within the Excel application.

**Note:** Analyze in Excel requires the dataset to be in Power BI Premium or for the user to have a Power BI Pro license. If you are new to Power BI, you should have access to a free Pro trial period that you can activate to use this tool.

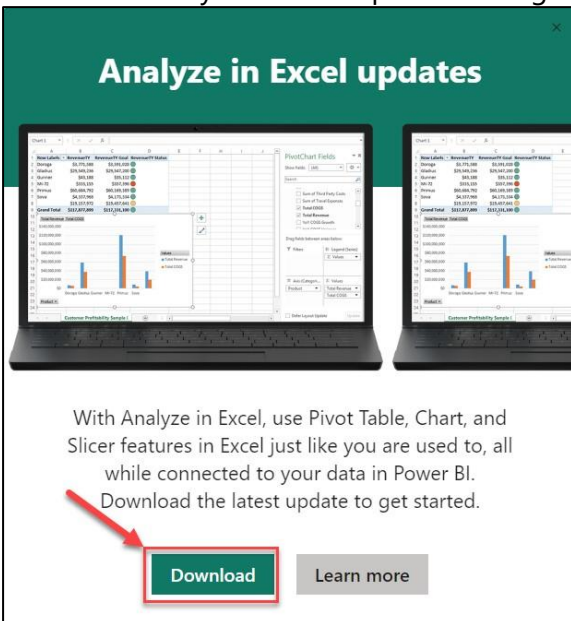
### Task 1: Download Analyze in Excel updates

In this task, you will download a one-time download of Excel libraries that enables Excel to connect to Power BI Datasets.

- From within the Power BI service, select the **ellipses (...)** from the menu in the upper right-hand corner. Then, select **Download > Analyze in Excel updates**.



22. Within the Analyze in Excel updates dialog window, select the **Download** button.



### Why can't I download *Analyze in Excel*?

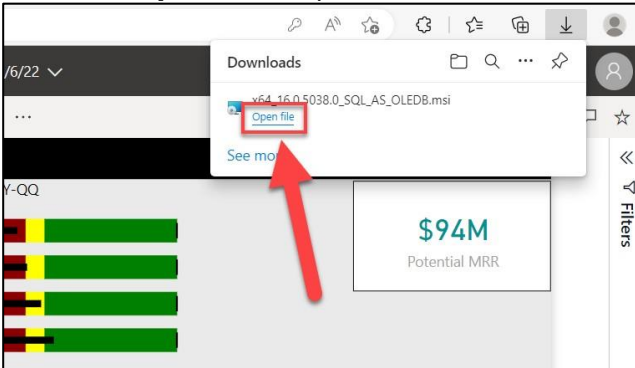
- 1) Some organizations may have Group Policy rules that prevent installing the required updates to Excel. Check with your administrator.
- 2) Administrators for Power BI tenants can disable the use of Analyze in Excel in the Power BI admin portal. When that option is disabled, Analyze in Excel may be disabled. Check with your Power BI Tenant Administrator.

## Task 2: Install Analyze in Excel

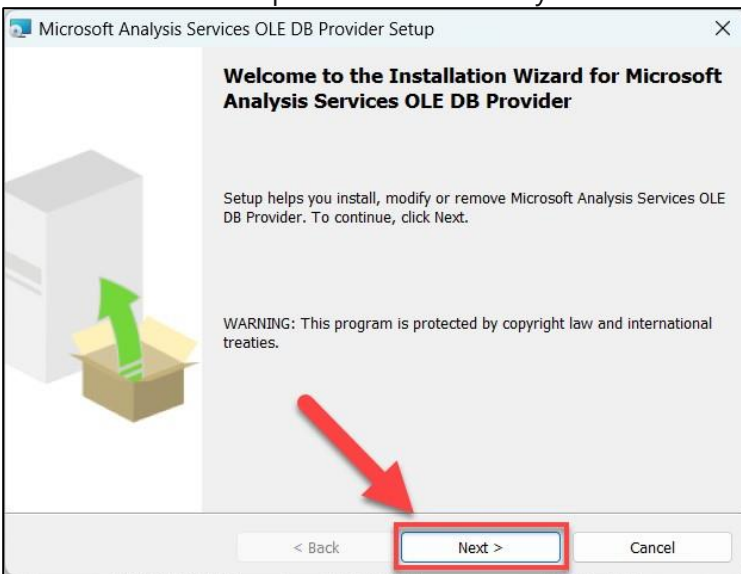
In this task, you will install the Excel libraries that enable Excel to connect to Power BI Datasets.



23. Once the download completes, the installation file will be in top right-hand side of your browser. Select the **Open** menu option on the file to launch the (.msi) installer wizard.



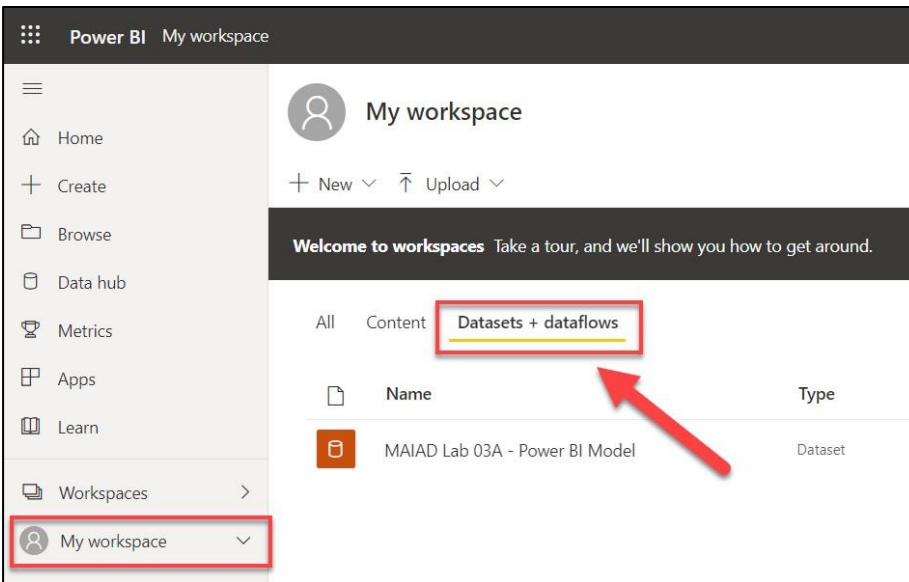
24. Follow the wizard steps to install the Analyze in Excel libraries.



### Task 3: Launch Analyze in Excel from Datasets + dataflows

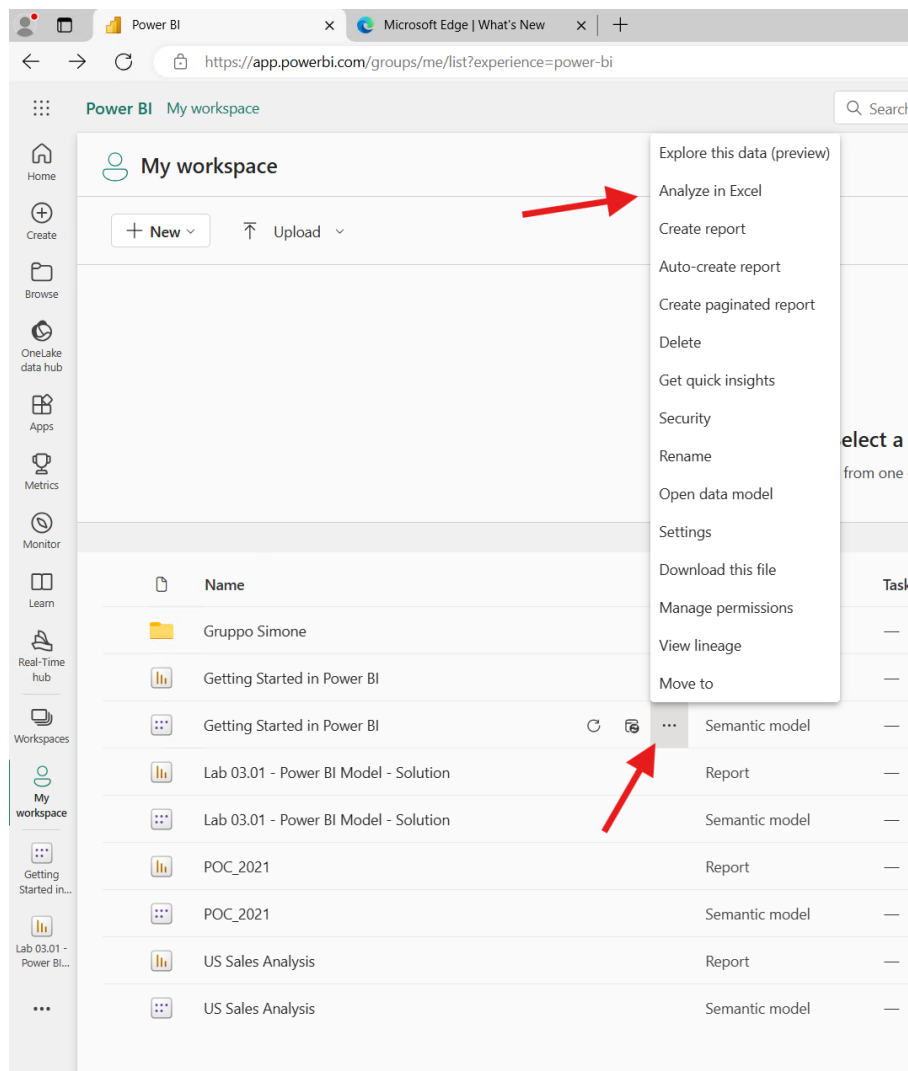
In this task, you will navigate to the Datasets + dataflows location in the Power BI service to launch Analyze in Excel using the "Lab 03.01 – Power BI Model" Dataset.

25. From the navigation menu to the left of the screen, select **My workspace**.
26. Select the **Datasets + dataflows** tab at the top of the **My workspace** page.



**Note:** When you publish your PBIX file to the service, there are two Power BI artifacts created: the Data Model will be in Datasets + dataflows and Report Pages will be in Reports.

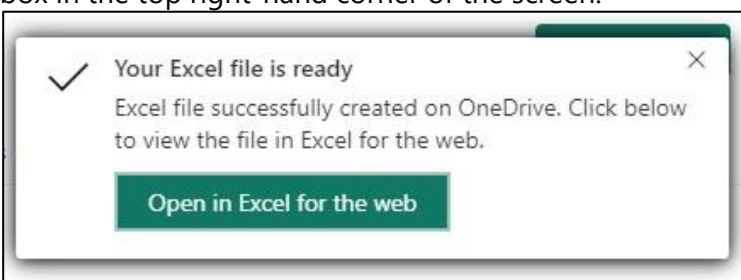
27. Hover your mouse over the **Lab 03.01 – Power BI Model** Dataset, select the **ellipses (...)**, and then choose the **Analyze in Excel** option.



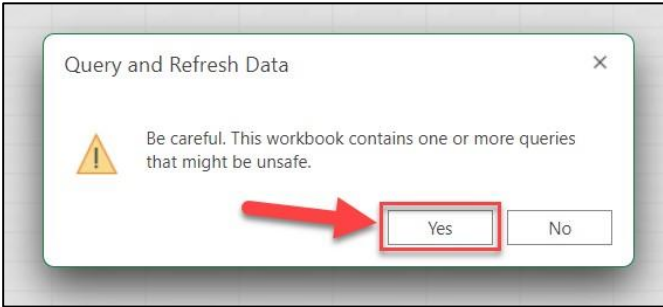
#### Task 4: Launch the Analyze in Excel file

In this task, you will launch the Excel file that has been connected to the “Lab 03.01 – Power BI Model” Data Model.

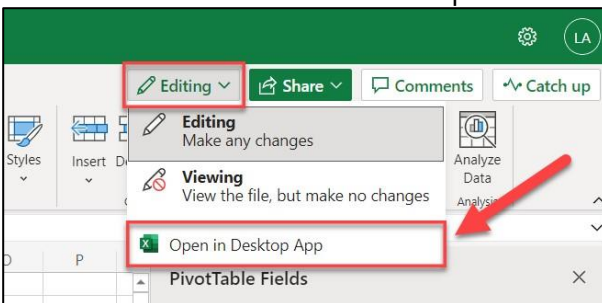
28. The Power BI Service will create the Excel file in OneDrive and indicate when it is ready for you to launch in Excel Online. Select the **Open in Excel for the web** button when it pops up in the dialog box in the top right-hand corner of the screen.



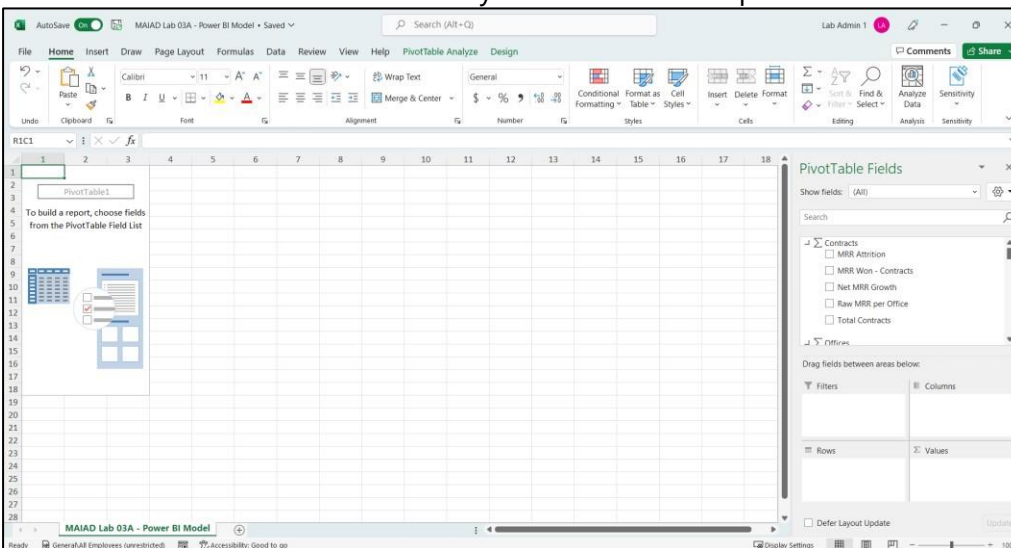
29. Once **Excel Online** launches, you will likely be asked if you trust the queries we have in our data model. Select **Yes**; this allows Excel to connect to the data model published to the Power BI service, which is an external data connection to Microsoft's Azure storage in the cloud.



30. To get the fullest experience, select the **Editing** button from the ribbon and choose **Open in Desktop app**. This will allow us to continue using the Analyze in Excel features with the complete suite of features in Excel for desktop.



31. We will continue our work now in the newly opened **Excel Desktop** app. Before proceeding, make sure to select **Enable Content** in the yellow bar on the top.



**Note:** If you are not prompted with both the Enable Editing and Enable Content messages, you may need to check your Options > Trust Center > Trust Center Settings... to ensure your Message Bar Settings are turned on.

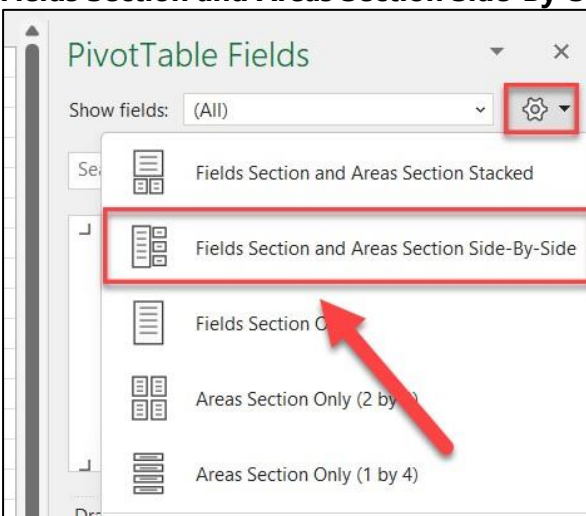
# Exercise 3: Build an Excel report using a Power BI Dataset

In this exercise, you will create a report in Excel using the Power BI Dataset connected to “Lab 03.01 – Power BI Model” created using Analyze in Excel. The Excel report will contain a PivotTable, a PivotChart and CUBE formulas.

## Task 1: Add Measures to the PivotTable Fields Values

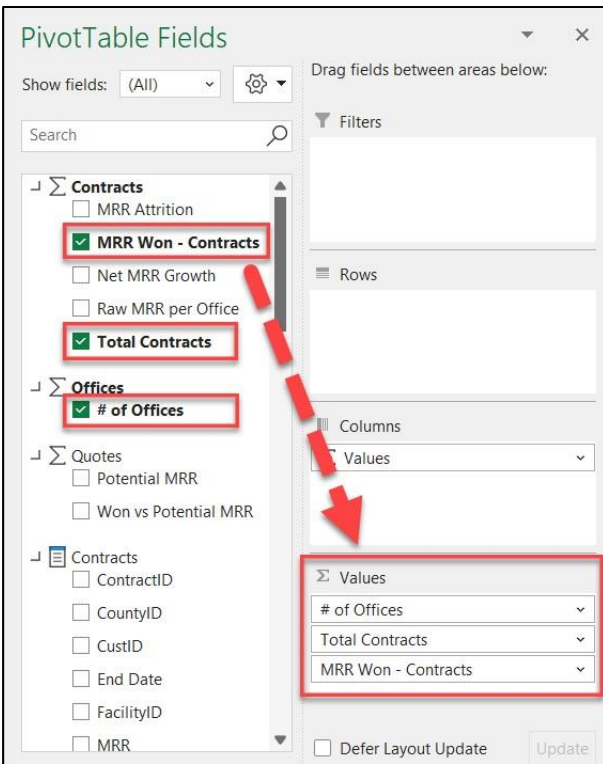
In this task, you will populate the PivotTable with Measure fields from the Power BI Dataset connection.

32. From the **PivotTable Fields** pane to the right of the screen, select the **Gear** icon and select the **Fields Section and Areas Section Side-By-Side** option.



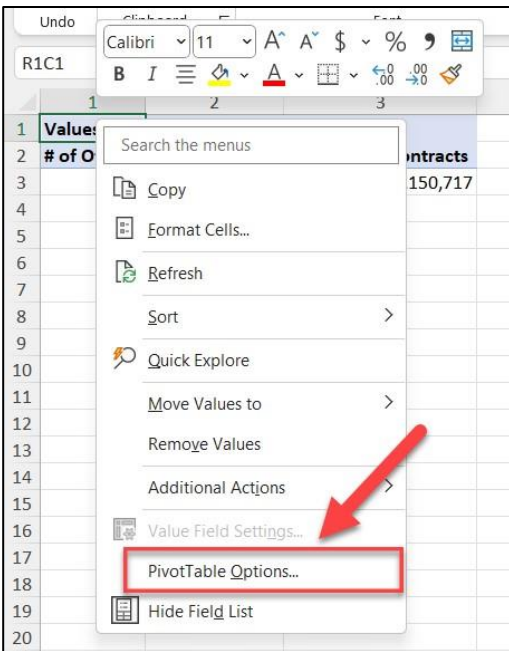
**Note:** By default, the PivotTable Fields are displayed with the *Fields Section and Areas Section Stacked*. The instructions that follow have the Pivot Table Fields displayed as *Fields Section and Areas Section Side-By-Side*.

33. From the **Offices** measure table, drag the **# of Offices** measure to the **Values** section in the **PivotTable Fields** list.
34. From the **Contracts** measure table, drag the **Total Contracts** and the **MRR Won - Contracts** measures to the **Values** section in the **PivotTable Fields** List.



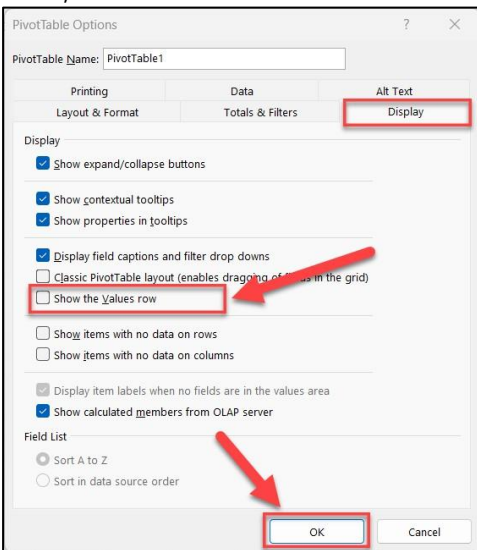
**Note:** When selecting fields from the measure tables, the checkbox will move the field into the Values section by default – this is because only measures can go into the Values section of a PivotTable Field List when connecting Excel to a Power BI service Dataset.

35. Right-click on the **PivotTable**, and then select the **PivotTable Options...**



36. Select the **Display** tab and then **de-select the checkbox** to the left of **Show the Values row**.

37. Then, select **OK**.

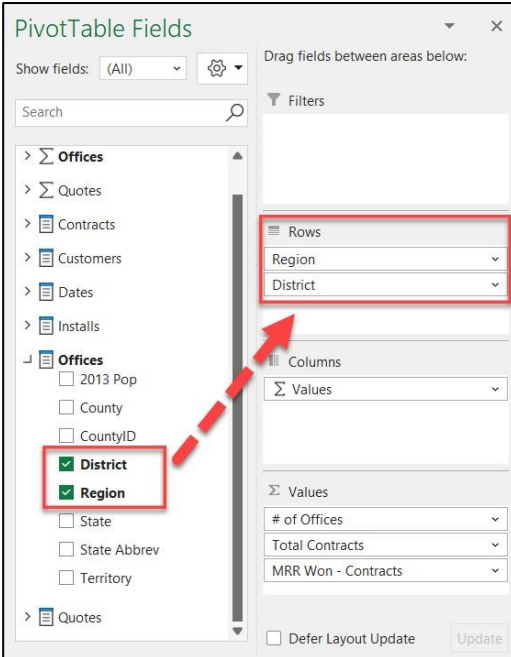


**Note:** This is done for aesthetics purposes to remove the row with "Values" in the heading that happens by default when adding more than one measure into the Values section of the PivotTable Fields.

## Task 2: Add Fields to the PivotTable Fields Rows

In this task, you will populate the PivotTable with Lookup fields from the Power BI Dataset connection.

38. From the **Offices** field table in the **PivotTable Fields** pane, drag the **Region** and **District** columns to the **Rows** section in the **PivotTable Fields** List.



39. Select **Cell A1** and type the name **Region & District** into the cell to change the default heading name.

A1				
	A	B	C	D
1	Region & District	# of Offices	Total Contracts	MRR Won - Contracts
2	Central	1,196	10,238	\$82,904,699
3	Heartland	437	6,184	\$50,077,041
4	Mountain Central	363	1,962	\$16,037,565

### Task 3: Insert a PivotChart

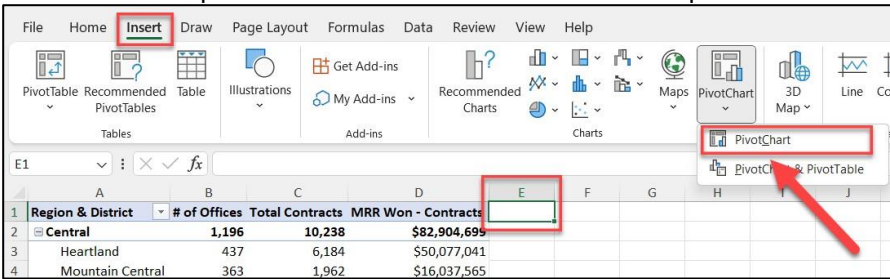
In this task, you will insert a PivotChart workspace into the Excel worksheet to the right of the PivotTable. Then you will add fields to the Axis and Values sections.

40. Select **Cell E1** on the worksheet – this selects the location for the PivotChart.

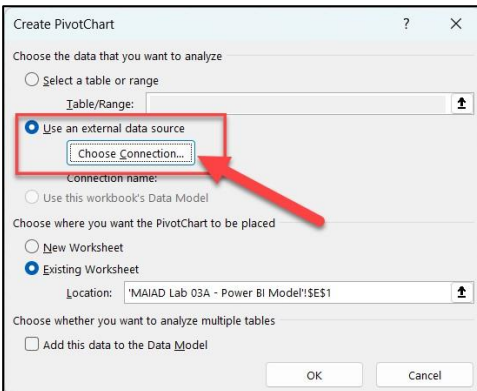


	A	B	C	D	E	F
1	Region & District	# of Offices	Total Contracts	MRR Won - Contracts		
2	Central	1,196	10,238	\$82,904,699		
3	Heartland	437	6,184	\$50,077,041		
4	Mountain Central	363	1,962	\$16,037,565		
5	Plains	396	2,092	\$16,790,093		
6	Northeast	244	8,184	\$66,598,442		
7	Mid Atlantic	115	3,678	\$30,121,666		

41. Select the **Insert** tab from the ribbon at the top of the screen. From the main menu, select the **PivotChart** drop-down and choose the **PivotChart** option.

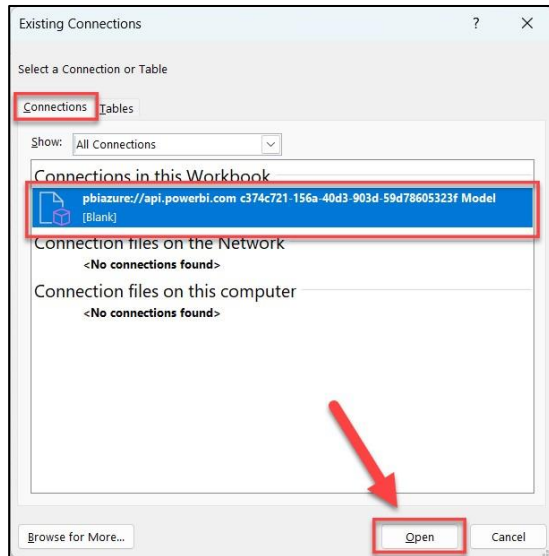


42. Within the **Create PivotChart** dialog window, select the **Use an external data source** radio button.
43. Select the **Choose Connection...** button.

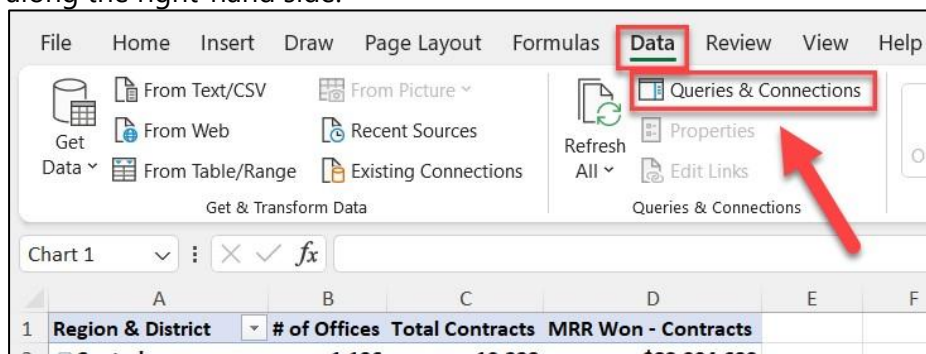


44. Then, from the **Connections** tab and the **Connections in this Workbook** section, select the **pbiazure//api.powerbi.com** connection string path name to connect the PivotChart to the Power BI Dataset external data source.

45. Select the **Open** button.



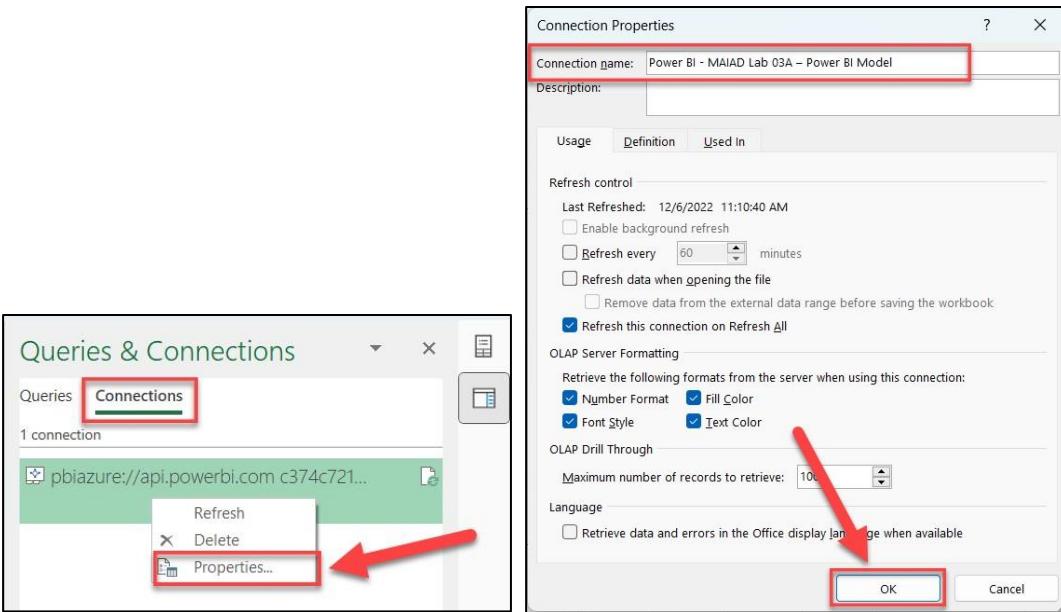
46. Next, we will **rename** the data connection to a friendly name. Select the **Data** tab from the ribbon at the top of the screen. Then, select **Queries & Connections** to open the **Queries & Connections** along the right-hand side.



The exact name of your pbiazure://api.powerbi.com connection string will be different than the one shown in the above image. This is the unique connection location identifier for a published Power BI dataset artifact.

47. Select the **Connections** tab within the **Queries & Connections** pane. Then, right-click on the Connection we just added and choose **Properties** from the options menu. Change the connection name to **Power BI - Lab 03.01 – Power BI Model**.

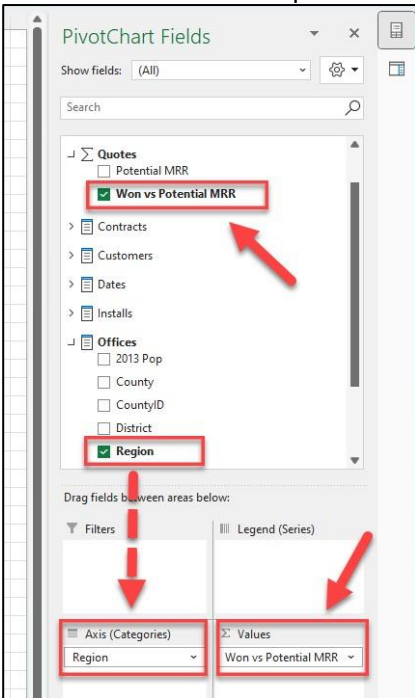
48. Then, select **OK**.



**Note:** Best practice when referencing data models within Excel is to provide user-friendly names for reference and to provide a detailed description about the data connection.

49. Navigate back to the **PivotChart Fields** pane using the navigation icons to the right of the screen.
50. Scroll through the list and locate the **Quotes** measure table. Select the **checkbox** next to the **Won vs Potential MRR** measure within the **Quotes** measure table. Notice that this moves the measure into the **Values** section in the **PivotChart Fields** pane.

51. From the **Offices** field table, drag and drop the **Region** column to the **Axis (Categories)** section in the **PivotChart Fields** pane.



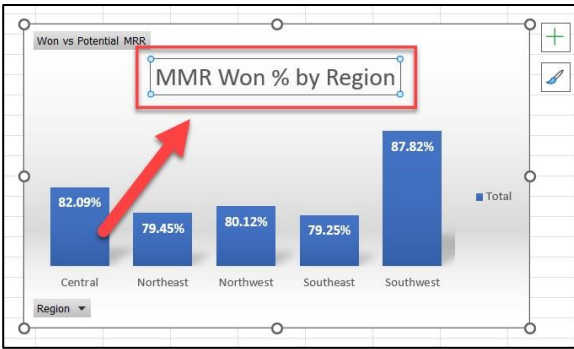
#### Task 4: Format PivotChart

In this task, you will format the PivotChart using some of the familiar formatting options in Excel.

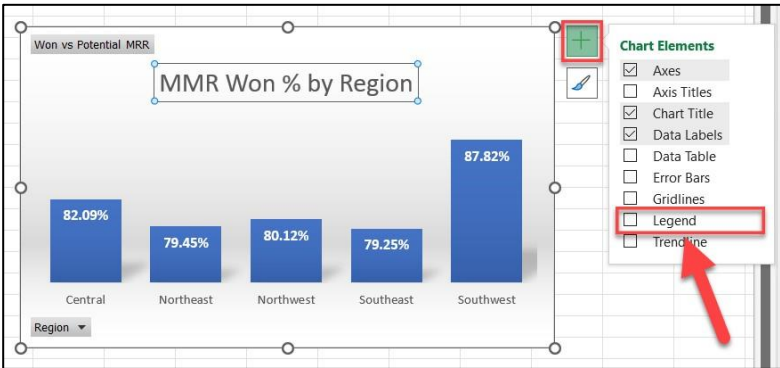
52. Ensure that the **PivotChart** is still selected. Then, select the **Design** tab from the ribbon at the top of the screen.
53. From the **Chart Styles** group, select **Style 4**.



54. Double left-click into the **Chart Title** and change the default **Title** text to **MMR Won % by Region**.



55. Hover over the upper right-hand side of the **PivotChart**. Select the  **plus sign** icon to display the **Chart Elements** options and **de-select** the **Legend** checkbox. This will remove the Legend from the PivotChart.



### Task 5: Add KPIs using CUBEVALUE

In this task, you will use CUBE formulas to create high level KPIs for the report.

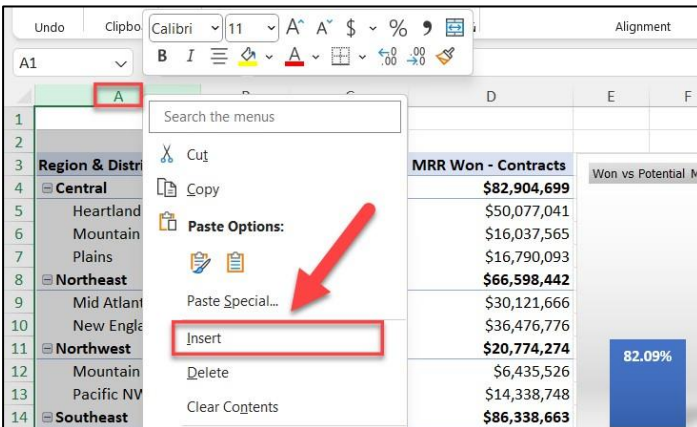
56. At the top of the screen, to the far left of the design space, select **row 1**. Right-click on the highlighted green **row 1**.
57. From the options menu, select **Insert**. Notice that a new, blank row is inserted above the PivotTable and PivotChart.

Region & District	# of Offices	Total Contracts	MRR Won - Contracts
Search the menus	10,238	\$82,904,699	
	6,184	\$50,077,041	
	1,962	\$16,037,565	
	2,092	\$16,790,093	
	8,184	\$66,598,442	
	3,678	\$30,121,666	
	4,506	\$36,476,776	
	2,585	\$20,774,274	
	838	\$6,435,526	
	1,747	\$14,338,748	
	10,546	\$86,338,663	
	4,382	\$35,766,610	
	3,996	\$32,462,434	
	2,168	\$18,109,619	

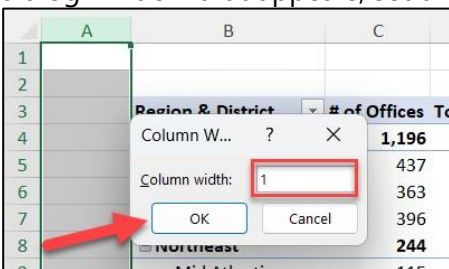
58. On your keyboard, select **CTRL+Y** to **repeat the last step** and **add another row** above the PivotTable and PivotChart.

59. Using the same process as in steps 56 and 57, select **column A**, right-click, and **insert a new, blank column** before (to the left of) the **PivotTable**.

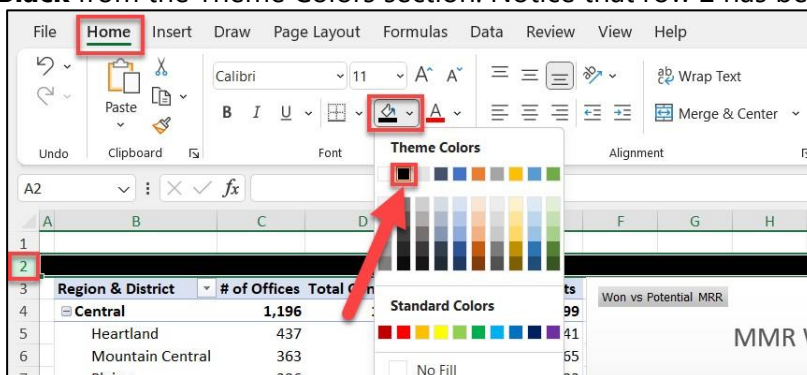
**Note:** This provides a row and column buffer for aesthetics purposes. This also provides a row for a report heading and the KPIs using CUBEVALUE formulas.



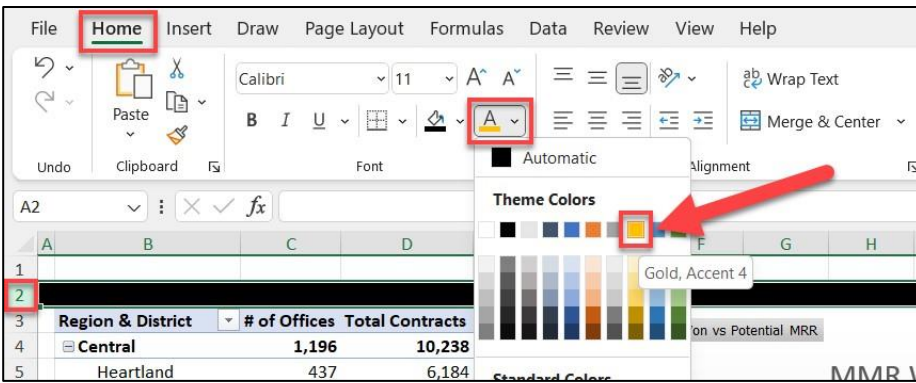
60. Right-click on **column A** and select the **Column Width...** option from the menu. Within the small dialog window that appears, set the column **width** to **1**. Then, select **OK**.



61. Hover over and select **row 2** from the row number column on the left-hand side of the screen. From the **Home** tab of the ribbon, within the menu, select the **Color Fill drop-down** and select **Black** from the Theme Colors section. Notice that row 2 has been filled with a black color.

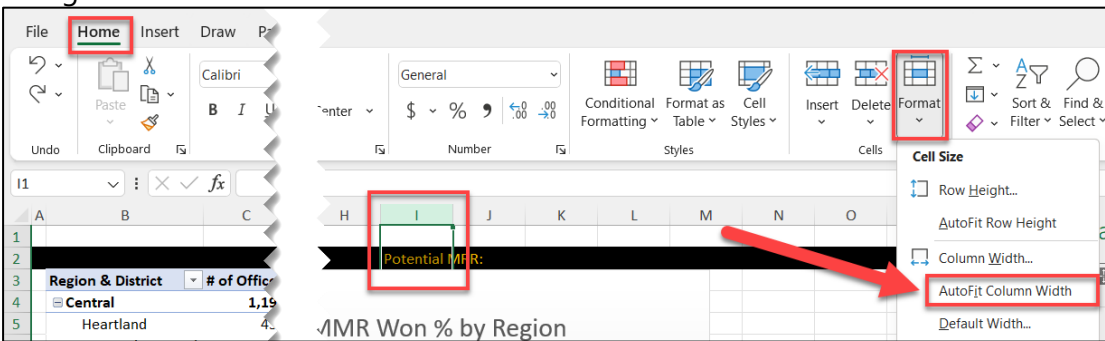


62. With row **2** still selected, from the **Home** tab in the ribbon, select the **Font Color drop-down** located within the Font group. Set the **Font Color** to **Gold, Accent 4** from the Theme Colors section.



63. Select **Cell I2** and enter the text **Potential MRR:** – this will serve as the KPI description.

64. Then, within the **Home** tab of the ribbon, select the **Format drop-down** in the Cells group. From the **Format** group, select the **AutoFit Column Width** option from the menu. Notice how the cell changes to fit the text.

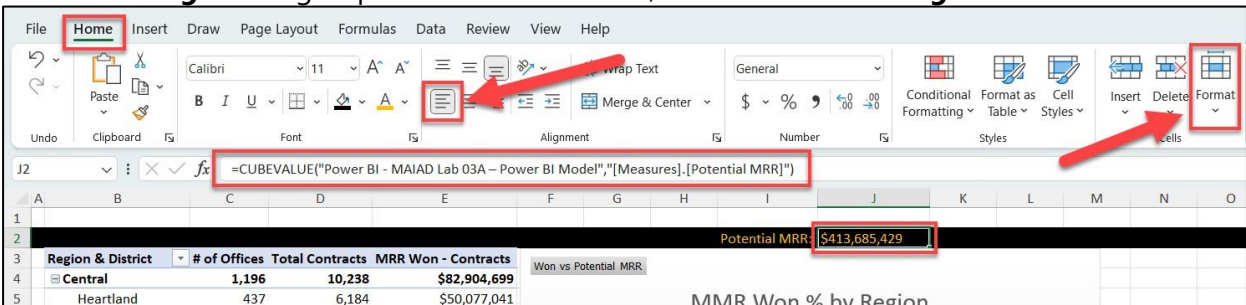


65. In **Cell J2** enter the following CUBEVALUE formula (do not copy and paste this string; type it in and let intellisense finish it for you by selecting the values that appear while typing) and then hit **Enter** on your keyboard:

**=CUBEVALUE("Power BI - Lab 03.01 – Power BI Model","[Measures].[Potential MRR]")**



66. Then, within the **Home** tab of the ribbon, select the **Format drop-down** in the Cells group. From the **Format** group, select the **AutoFit Column Width** option from the menu. Notice how the cell changes to fit the text.
67. Within the **Alignment** group under the **Home** tab, set the text to be **Align Left**.

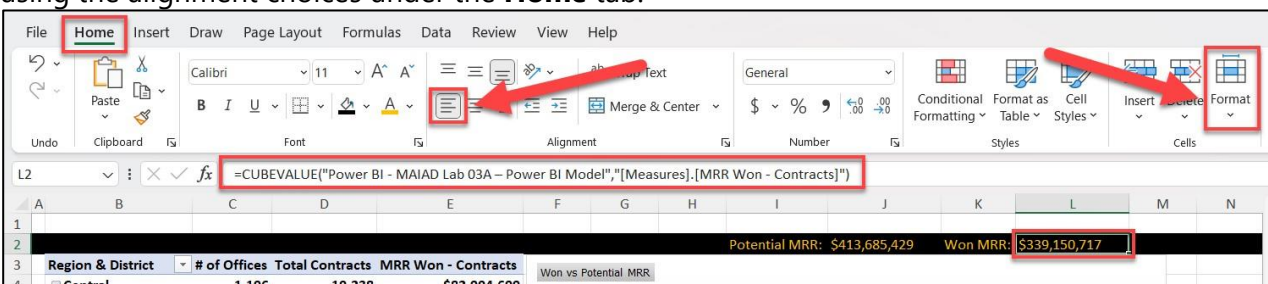


**Tip:** As you type the CUBEVALUE formula, you will notice that Intellisense displays to guide you as to the syntax needed to complete the formula. A CUBEVALUE formula can be combined for use with Slicers.

68. Select **Cell K2** and enter the text **Won MRR:** – this will serve as the KPI description. Then, from the **Format drop-down**, select **AutoFit Column Width** so that the text fits within the cell.
69. Select **Cell L2** enter the following CUBEVALUE formula and hit **Enter** on your keyboard:
- =CUBEVALUE("Power BI - Lab 03.01 – Power BI Model", "[Measures].[MRR Won - Contracts]")**

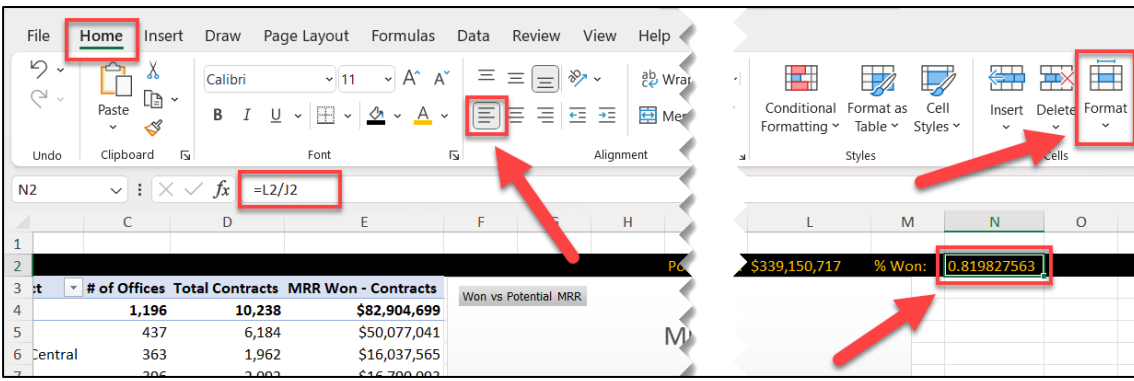
**Note:** Remember to use the Intellisense to fill in the values as you type in the formula.

70. Then, set the cell to **AutoFit Column Width** using the **Format** drop-down menu and **Align Left** using the alignment choices under the **Home** tab.



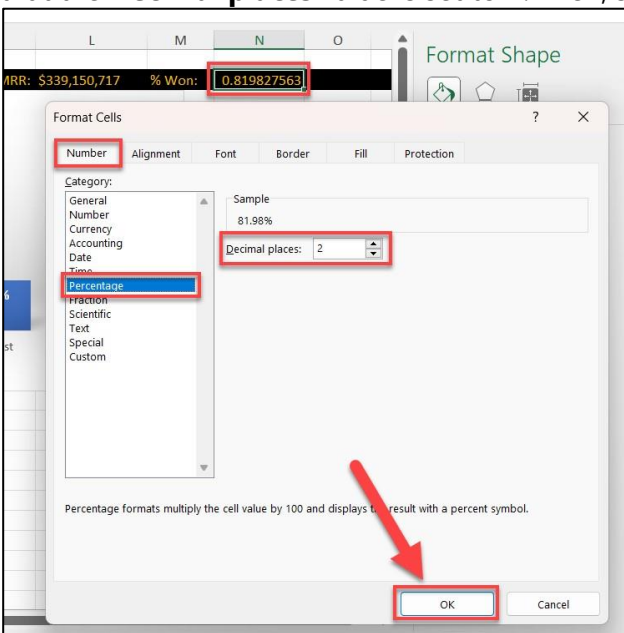
71. Select **Cell M2** and enter the text **% Won:** – this will serve as the KPI description.
72. In **Cell N2** enter the following **Excel formula** and hit **Enter** on your keyboard:
- =L2/J2**
73. Format the cell to **AutoFit Column Width** and set the text to **Align Left**.



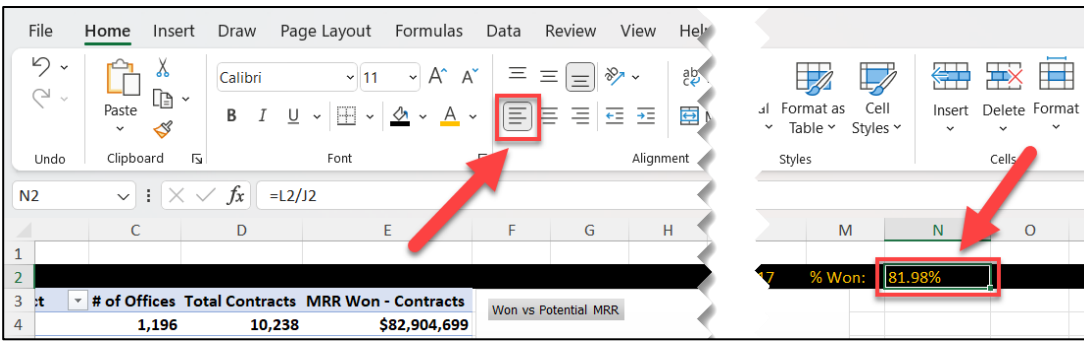


**Tip:** You can combine the familiarity and features of Excel with Dataset published to Power BI!

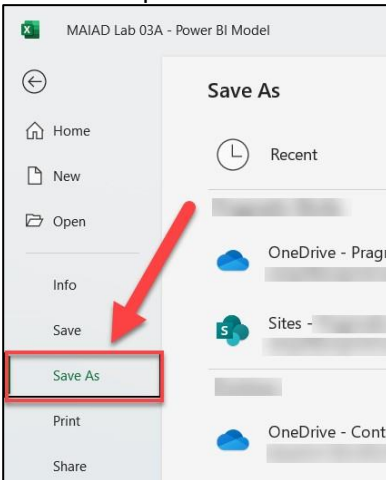
74. While cell **N2** is still selected, right-click with the cell. From the options menu, select **Format Cells...**
75. Within the **Format Cells** dialog window, select the **Number** tab.
76. From the **Category** list to the left side of the dialog window, select the **Percentage** option. Ensure that the **Decimal places** value is set to **2**. Then, select **OK**.



77. Set the percentage text within cell **N2** to be **Align Left**.



78. From the ribbon at the top of the screen, select the **File** tab.
79. From the option menu to the left of the screen, select **Save As**.



80. Navigate to the **C:\CA-Modern-Analyst\Lab 03.01\** folder.
81. Save the file as **"Lab 03.01 – Power BI Model – My Solution.xlsx"**.

