



Power BI

Dashboard in an Hour

by Power BI Team, Microsoft



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Problem Statement

The dataset provided focuses on sales and market share analysis. This type of analysis is very common for the office of a Chief Marketing Officer (CMO). Unlike the office of the Chief Financial Officer (CFO), a CMO is focused not only on company's performance internally (how well do our products sell) but also externally (how well do we do against the competing products).

Our company, VanArsdel, manufactures expensive electronic products that could be used for fun as well as work and it sells them directly to consumers in three major markets. VanArsdel and its competitors have retained a 3rd party marketing company to collect and anonymize industry sales so that all participants can benchmark themselves.

Sales data along with details of Product, Date and Geography are available in an Excel workbook. Data from these sources need to be brought together to analyze and report on.

Document Structure

This document has two main sections:

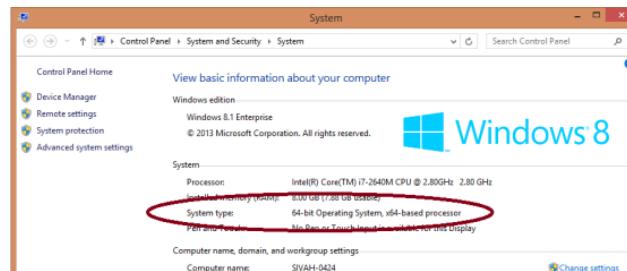
- **Power BI Desktop:** This section highlights the features available in Power BI Desktop and walks the user through the process of bringing in data from the data source, modeling and creating visualizations.
- **Power BI Service:** This section highlights the features available in Power BI Service including the ability to publish the Power BI Desktop model to the web, creating and sharing dashboard and Power Q & A.

The document flow is in a table format. On the left panel are steps the user needs to follow and in the right panel are screenshots to provide a visual aid for the users. In the screenshots, sections are highlighted with red boxes to highlight the action/area user needs to focus on.

Prerequisites

Following prerequisites and setup has to be complete for successful completion of the exercise:

- You must be connected to the internet
- **Signup for Power BI:** Go to <http://aka.ms/diahtraining> and sign up for Power BI with a business email address. If you cannot sign up for Power BI, let the instructor know
- Please go to <http://app.powerbi.com> and **Sign in** using your **Power BI account**
- At minimum, a computer with 2-cores and 4GB RAM running one of the following version of Windows: Windows 10, Windows 7, Windows 8, (64-bit preferred), Windows 8.1, Windows Server 2008 R2, Windows Server 2012, Windows Server 2012 R2
- Microsoft Power BI Desktop requires Internet Explorer 9 or greater
- Verify if you have 32-bit or 64-bit operating system to decide if you need to install the 32-bit or 64-bit applications
 - Search for computer on your PC, right click properties for your computer
 - You will be able to identify if your operating system is 64 or 32 bit based on “system type” as shown below

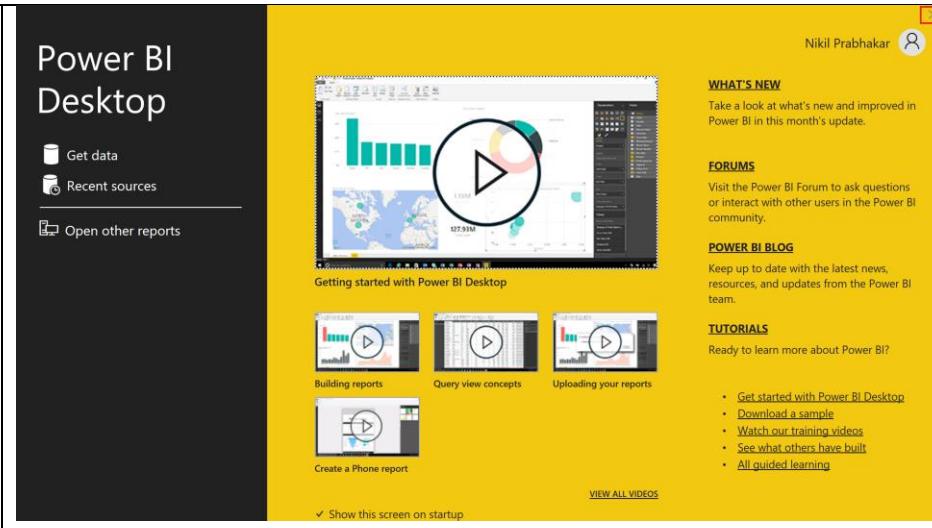


- **Download the Power BI Content:** Create a folder called **DIAH** on an appropriate drive on your local machine. Copy all contents from the folder called **Dashboard in an Hour Assets** on the flash drive to the **DIAH** folder on your local drive. E.g. C:\DIAH
- **Download and install Power BI Desktop:** Download and install Microsoft Power BI Desktop from <http://www.microsoft.com/en-us/download/details.aspx?id=45331>. Optionally, you can also install the Power BI Desktop tool from the **Power BI Desktop Install** folder on the flash drive. Please choose appropriate 64-bit or 32-bit version depending on your platform. Microsoft Power BI Desktop is available for 32-bit (x86) and 64-bit (x64) platforms
- **Download and install the Microsoft Power BI Mobile app** on your mobile device. App is available on Apple Store, Android Play Store and Windows Store

NOTE: This lab is using real anonymized data and is provided by ObviEnce LLC. Visit their site to learn about their services: www.obvience.com. This data is property of ObviEnce LLC and has been shared for the purpose of demonstrating PowerBI functionality with industry sample data. Any uses of this data must include this attribution to ObviEnce LLC.

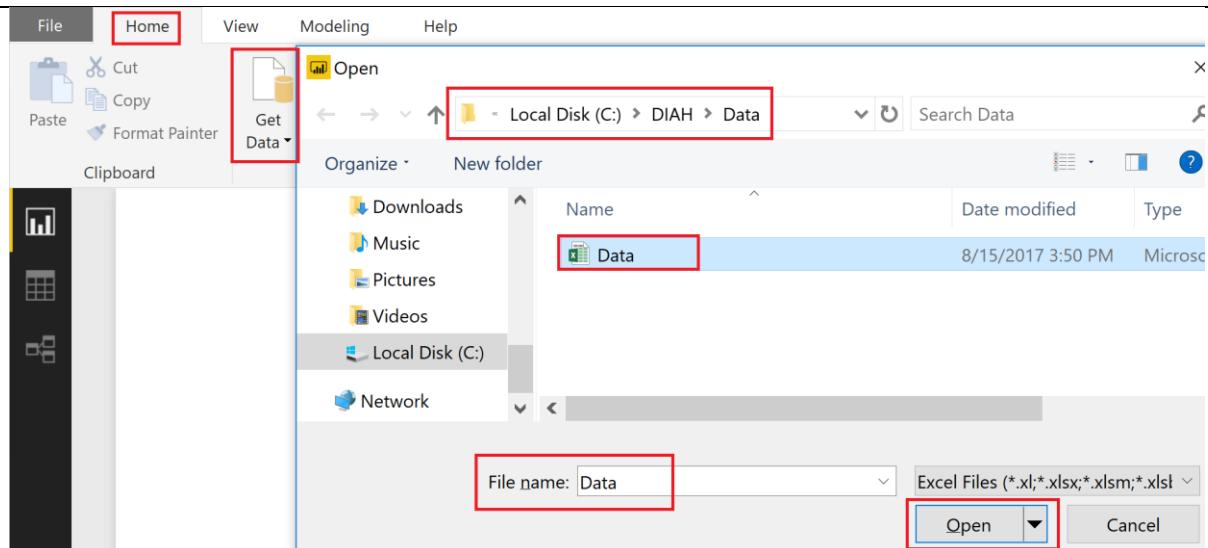
Power BI Desktop - Get Data

1. If you have not already done this, on your local machine, create a folder called **DIAH**
2. Copy contents provided to **DIAH** folder
3. Launch **Power BI Desktop**
4. Select **Already have a Power BI Account?**
Sign in
5. **Sign in** using your Power BI credentials.
6. Startup screen opens. Click on **X** on the top right corner of the dialog to close it.



First step is to load data

7. Data is available in Excel workbook. To import data, select **Get Data -> Excel** from the ribbon
8. Browse to **DIAH/Data** folder and select **Data.xlsx**
9. Click **Open**



Navigator dialogue opens listing four sheets that are available in the workbook

10. Select all the sheets by clicking on the checkbox next to each sheet

As you select each worksheet, notice a preview of the data is loaded in the right panel

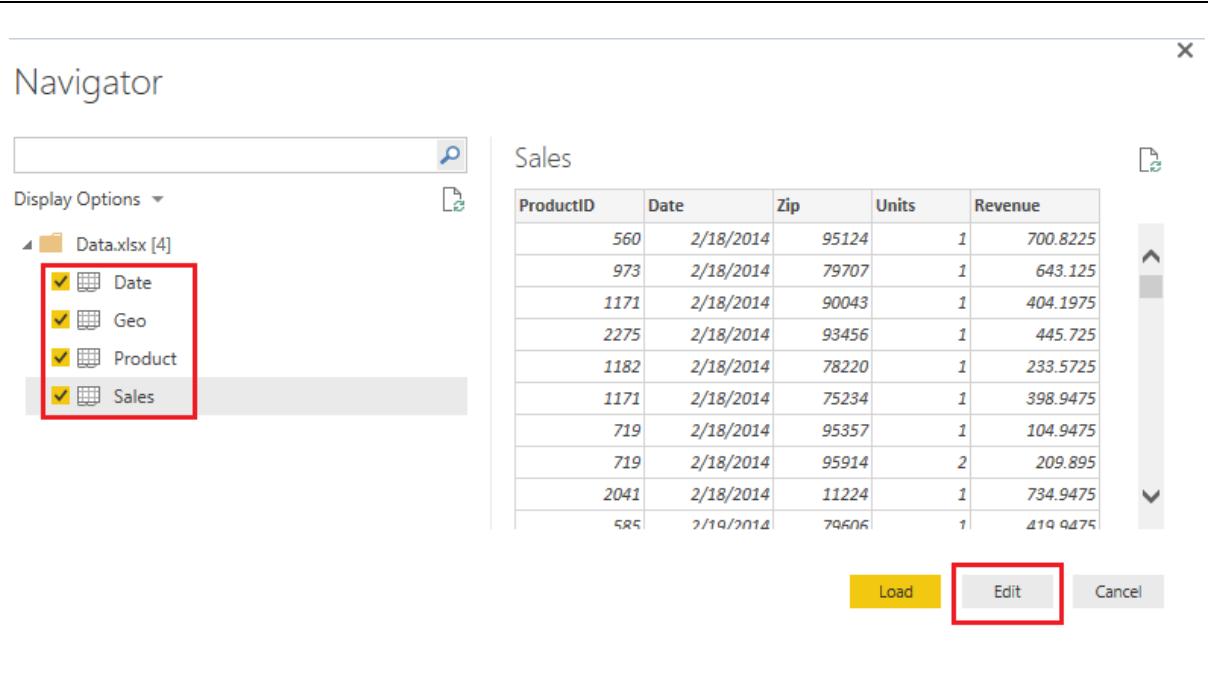
Notice there are 3 buttons at the bottom of Navigator dialogue

Clicking on **Load** will load the data to the data model

Clicking on **Edit** will open Query Editor. This will give us an opportunity to transform data

Clicking on **Close** will close the dialogue without loading data

11. Click on **Edit**



Query editor opens. The editor provides options to transform data

Notice each worksheet is loaded as a query. Also notice, on the **Query Settings** panel on the right under **APPLIED STEPS** section each step is recorded

Steps include Source, promoting first row to a header (since first row is a header)

Queries [4]

	ProductID	Date	Zip	Units	Revenue
1	560	2/18/2016	95124	1	700.8225
2	973	2/18/2016	79707	1	643.125
3	1171	2/18/2016	90043	1	404.1975
4	2275	2/18/2016	93456	1	445.725
5	1182	2/18/2016	78220	1	233.5725
6	1171	2/18/2016	75234	1	398.9475
7	719	2/18/2016	95357	1	104.9475
8	719	2/18/2016	95914	2	209.895
9	2041	2/18/2016	11224	1	734.9475
10	585	2/19/2016	79606	1	419.9475

Query Settings

- Properties: Name (Sales), All Properties
- Applied Steps: Source, Navigation, Promoted Headers, Changed Type

12. Highlight **Date** query in the left panel. Notice **Date** field has a **calendar** icon in the header row indicating the field is of data type **Date**

13. In case, Date field is **not** of data type **Date**, then select **Date** field and change Data type using **Home -> Data Type** located on the ribbon

Queries [4]

	Date	MonthNo	MonthName	Month	Quarter	Year
1	1/1/2016	1	Jan	1/15/2016	Q1	2016
2	1/2/2016	1	Jan	1/15/2016	Q1	2016
3	1/3/2016	1	Jan	1/15/2016	Q1	2016
4	1/4/2016	1	Jan	1/15/2016	Q1	2016

Query Settings

- Properties: Name (Date), All Properties

14. For our purposes, we do not need Month column, so highlight **Month** column

15. From the ribbon select **Home -> Remove Columns -> Remove Columns**

Notice this removes Month Column and the step is added to **APPLIED STEPS** section

Queries [4]

	Date	MonthNo	MonthName	Month	Quarter	Year
1	1/1/2016	1	Jan	1/15/2016	Q1	2016
2	1/2/2016	1	Jan	1/15/2016	Q1	2016
3	1/3/2016	1	Jan	1/15/2016	Q1	2016
4	1/4/2016	1	Jan	1/15/2016	Q1	2016
5	1/5/2016	1	Jan	1/15/2016	Q1	2016

Query Settings

- Properties: Name (Date), All Properties
- Applied Steps: Remove Other Columns

16. Select **Product** Query in the left panel. Notice Product Name and Product ID is concatenated in Product column. Let's split it so that we have just the Product Name
17. Select **Product column**. From the ribbon select **Transform -> Split Column -> By Delimiter**
18. In the Split Column by Delimiter dialog, select **-Custom**—from the dropdown
19. Enter “-“ in the text area
20. Select **OK**

The screenshot shows the Power BI ribbon with the 'Transform' tab selected. In the main area, a table named 'Promoted Headers' is displayed with columns: ProductID, Product, Category, Segment, ManufacturerID, and Manufacturer. A context menu is open over the 'Product' column, with the 'Split Column' option highlighted. To the right, the 'Split Column by Delimiter' dialog is open, showing the 'Text Column' dropdown set to 'Product'. The 'Select or enter delimiter' dropdown is set to '--Custom--' and contains a single character '-'.

ProductID	Product	Category	Segment	ManufacturerID	Manufacturer
1	392 Maximus RP-01				
2	393 Maximus RP-02				
3	394 Maximus RS-01				
4	395 Maximus RS-02				
5	396 Maximus UM-01				
6	397 Maximus UM-02				
7	398 Maximus UM-03				
8	399 Maximus UM-04				
9	400 Maximus UM-05				
10	401 Maximus UM-06				
11	402 Maximus UM-07				
12	403 Maximus UM-08				
13	404 Maximus UM-09				
14	405 Maximus UM-10				
15	406 Maximus UM-11				
16	407 Maximus UM-12				
17	408 Maximus UM-13				

- Notice Product column is split into two columns **Product.1** and **Product.2**. We do not need Product.2 since we already have a ProductID column
21. Select **Product.2 column**
 22. From the ribbon, select **Home -> Remove Columns** to remove Product.2 column
 23. Select and right click on **Product.1 column**
 24. From the menu, select **Rename**
 25. Rename Product.1 to **Product**

The screenshot shows the Power BI ribbon with the 'Home' tab selected. In the main area, a table is displayed with columns: ProductID, Product, and Category. The 'Product' column is selected. On the ribbon, the 'Remove Columns' button in the 'Manage Columns' group is highlighted. To the right, the 'Remove Columns' dialog is open, showing the 'Selected columns' dropdown set to 'Product' and the 'Remove' button highlighted.

ProductID	Product	Category
1	392 Maximus RP	1 Rural
2	393 Maximus RP	2 Rural
3	394 Maximus RS	1 Rural
4	395 Maximus RS	2 Rural
5	396 Maximus UM	1 Urban

Now we have all the data in the query editor, let's load to Power BI Desktop

26. From the ribbon, select **Home** -> **Close & Apply**. There are 3 options
- o **Close & Apply**: This closes Query Editor and loads the data to Power BI Desktop
 - o **Apply**: This loads data to Power BI Desktop without closing Query Editor
 - o **Close**: This closes Query Editor without loading data

27. Select **Close & Apply**

The screenshot shows the Power BI Query Editor interface. The ribbon at the top has the 'Home' tab selected. In the center, there is a data grid with four rows of data. The columns are labeled 'ProductID', 'Product', 'Category', and 'Segment'. The data is as follows:

	ProductID	Product	Category	Segment
1	392	Maximus RP	Rural	Productivity
2	393	Maximus RP	Rural	Productivity
3	394	Maximus RS	Rural	Select
4	395	Maximus RS	Rural	Select

Power BI Desktop - Manage Relationship

Notice Apply Query Changes dialogue appears which shows the status of the load. Once load is complete, this dialogue closes

Now that we have loaded data from 4 tables, we need to ensure the model identifies relationship between these tables

1. From the ribbon, select **Home** -> **Manage Relationships**
Manage Relationships dialogue opens
2. Notice Power BI Desktop is able to identify and create relations between some of the tables we loaded
 - o Relation is created between Sales and Product
 - o Relation is created between Sales and Geo

The screenshot shows the Power BI Desktop ribbon with the 'Home' tab selected. Below the ribbon, the 'Manage relationships' button is highlighted with a red box. The main area shows a 'Manage relationships' dialog box. On the left, there is a list of active relationships. In the center, there is a 'Create relationship' section. Under 'Select tables and columns that are related', two tables are selected: 'Sales' and 'Date'. Below this, two columns are selected: 'ProductID' from 'Sales' and 'Date' from 'Date'. The 'Cardinality' dropdown shows 'Many to one (*:1)'. The 'Cross filter direction' dropdown shows 'Single'. There are checkboxes for 'Make this relationship active' and 'Assume referential integrity'. At the bottom right, there are 'OK' and 'Cancel' buttons.

- However, there is no relationship between Sales and Date
3. Click on **New** button. Create Relationship dialogue opens
 4. Select **Sales** from the first drop down
 5. Select **Date** from the second drop down
 6. Select **Date** field from Sales and Date tables
 7. Click **OK**
 8. Notice now a relationship is created between Sales and Date. Click on **Close** to close the dialogue

Power BI Desktop - Create Report

In this section, we will create a report that will help the office of CMO to analyze Sales Revenue across all manufacturers for the year 2017.

Report at the end of the section will look like this



Let's start by creating a date slicer

1. If you are already not there, click on the report icon on the left panel
2. In the **Fields section**, expand **Date** and select **Date** field
3. From the Visualization section select **slicer**. This will create Date a slicer. You can select date range by using the slider. Clicking on start or end date will open a Date picker. Clicking on arrow on the top right corner opens a drop down which provides options to pick Date after or before or a list of dates
4. Select **1/1/2017** as the start date. This will filter to display results for year 2017
5. Resize the slicer as needed

The screenshot shows the Power BI interface. On the left is a date slicer with a calendar view for January 2017. The start date is set to 1/1/2017 and the end date is 12/31/2017. The Fields pane on the right is expanded, showing the Date table selected. The Date field is highlighted with a red box. Other fields like MonthName, MonthNo, Quarter, Year, Geo, Product, and Sales are also listed.

Now let's analyze the Sales by month for 2017

6. Click on **blank** section in the report pane
7. From the Fields section, expand **Date** table
8. Select **MonthName** field
9. Expand **Sales** table and select **Revenue** field
10. From the Visualization section select **Line and Clustered Column chart**
11. Expand **Sales** table and drag **Units** field to Line Values
12. Resize the chart as needed

The screenshot shows a clustered column and line chart titled "Revenue and Units by MonthName". The chart displays Revenue (teal bars) and Units (black line) for months April through May. The Fields pane on the right shows the Date and Sales tables expanded. The MonthName field is selected in the Date table, and the Revenue and Units fields are selected in the Sales table, both highlighted with red boxes.

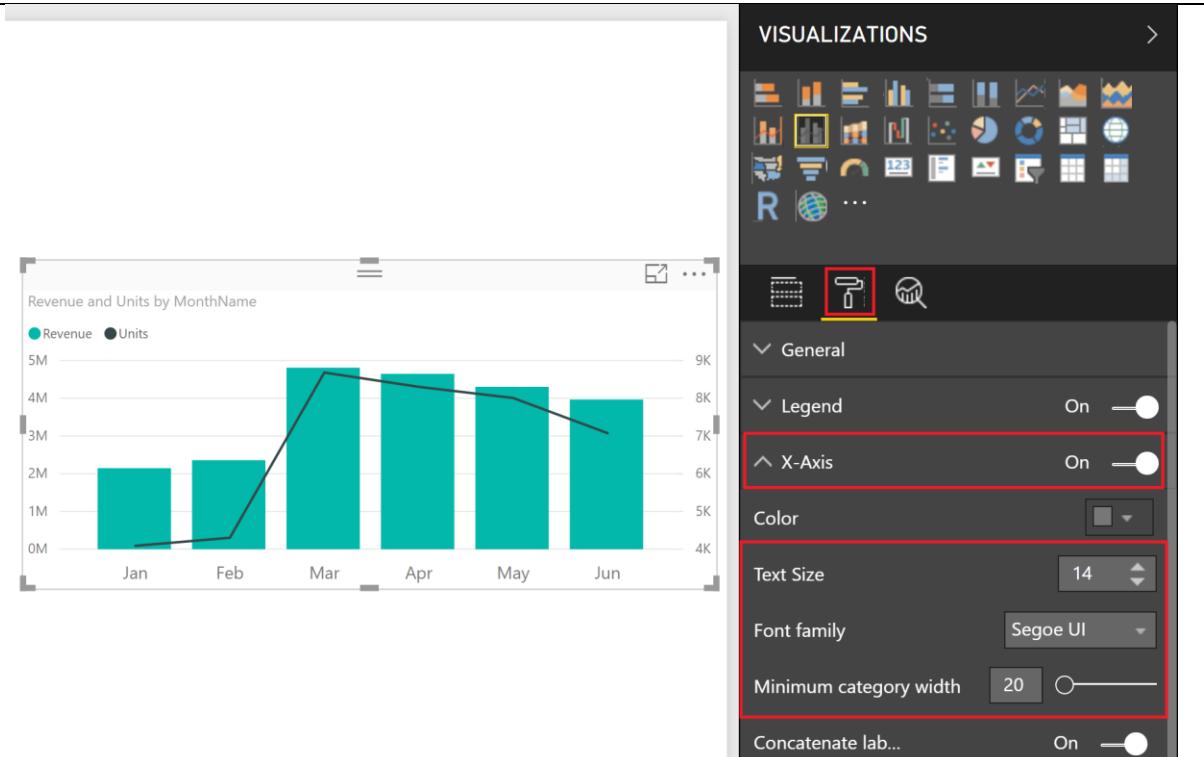
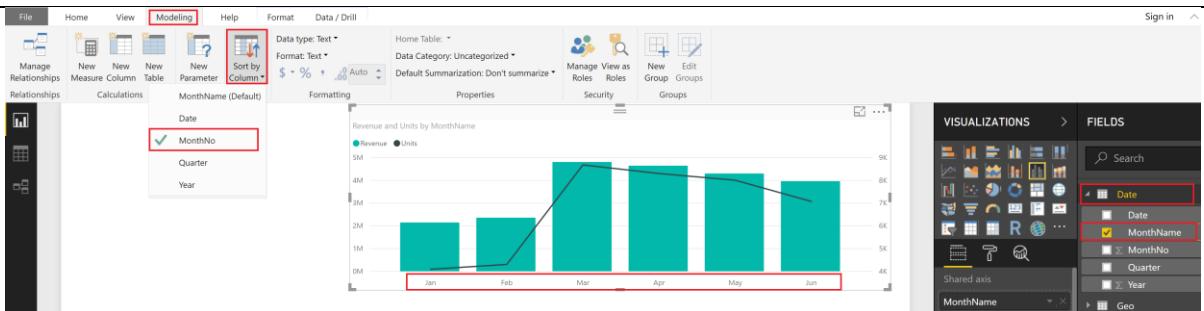
Notice the month names are sorted alphabetically. Let's update MonthName field to be sorted by calendar month

13. From the **Fields** section expand **Date** table
14. Highlight **MonthName** field in Fields section
15. From the ribbon select **Modeling -> Sort by Column -> MonthNo**

Notice now MonthName in the report pane is sorted as expected

16. From the **Visualization** section select **Format** (paint roller icon)
17. Expand **X-Axis**
18. **Increase Text Size to 14**. Notice this increases the font size of the month names on the X-axis. Notice there is an option to change the font family as well.
19. Column width can be modified using **Minimum category width** slider

Similar formatting can be performed on the Y-axis as well



Let's create a visual to represent the sales by manufacturer

20. Click on the white space in the report pane
21. From the **Fields** section expand **Product** table and select **Manufacturer** field
22. From the **Fields** section expand **Sales** table and select **Revenue** field
23. From the Visualization section select **Treemap chart**

Notice this creates a Treemap visual that breaks down sales by manufacturer for the year 2017

24. Resize and rearrange the chart as needed

The screenshot shows the Power BI interface. On the left is a Treemap chart titled "Revenue by Manufacturer" with four segments: VanArsdel (teal), Aliqui (red), Pirum (yellow), and Currus (grey). The "Visualizations" pane on the right has a grid of icons with a red box around the Treemap icon. The "Fields" pane shows fields grouped by Product, Sales, and Date. The "Manufacturer" field under Product and the "Revenue" field under Sales are selected, indicated by checked checkboxes and red boxes around their respective groups.

25. Click on **VanArsdel** in Treemap chart and notice the Line and Clustered Column chart updates to reflect your selection

Now data is filtered for the year 2017 and the highlighted portion of Line and Clustered Column chart shows Sales for manufacturer VanArsdel

26. Click on **VanArsdel** in Treemap chart again to remove VanArsdel filter

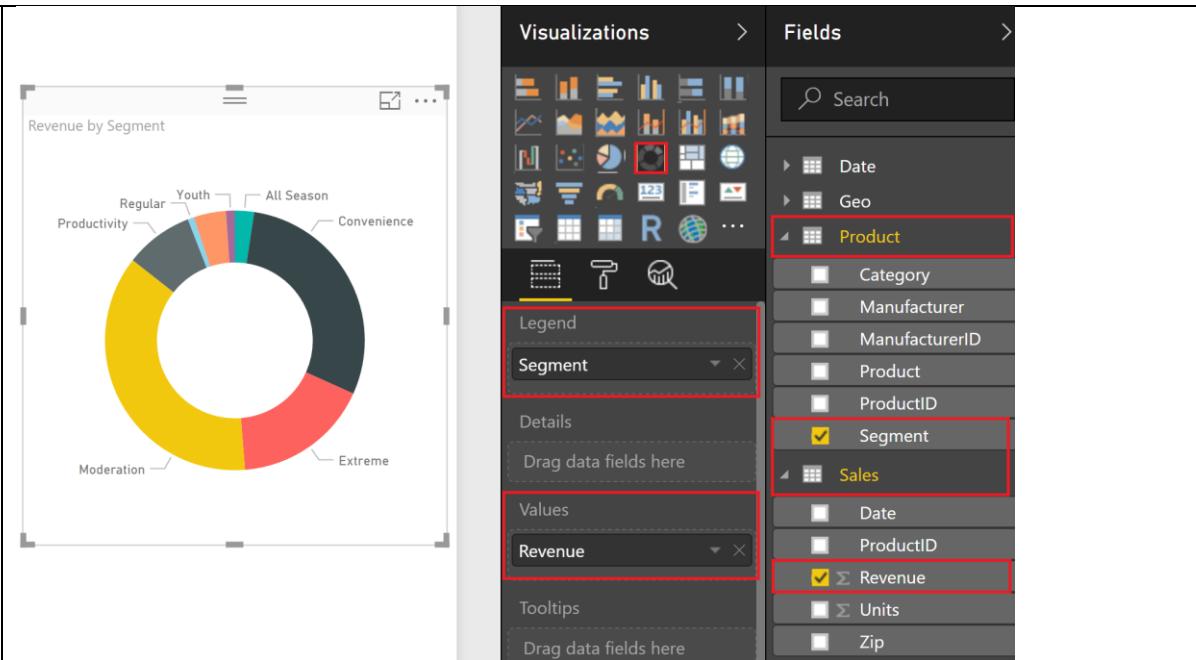
The screenshot shows the Power BI interface with two charts. On the left is a Line and Clustered Column chart titled "Revenue and Units by MonthName" for the year 2017. It shows Revenue (teal bars) and Units (black line) for months Jan through Jun. The chart is filtered for the "VanArsdel" manufacturer. On the right is a Treemap chart titled "Revenue by Manufacturer" showing the same four segments as before, but the "VanArsdel" segment is now highlighted with a red border, indicating it is the selected filter.

Let's create visual that will represent the sales by Segment

27. Click on the white space in the report pane
28. From the **Fields** section expand **Product** table and select **Segment** field
29. From the **Fields** section expand **Sales** table and select **Revenue** field
30. From the Visualization section select **Donut** chart

Notice this creates a Donut visual that breaks down sales by segment for the year 2017

31. **Resize** and rearrange the chart as needed



32. Click on **Moderation** in Donut chart and notice other charts updates to reflect your selection

In Treemap notice that Moderation segment forms a big percent of VanArsdel's sales whereas it's a very small percent of Aliqui's sales

In Line and Clustered Column chart notice that Moderation forms a big percent of Sales each month

33. Click on **Moderation** in Donut chart again to remove Moderation filter

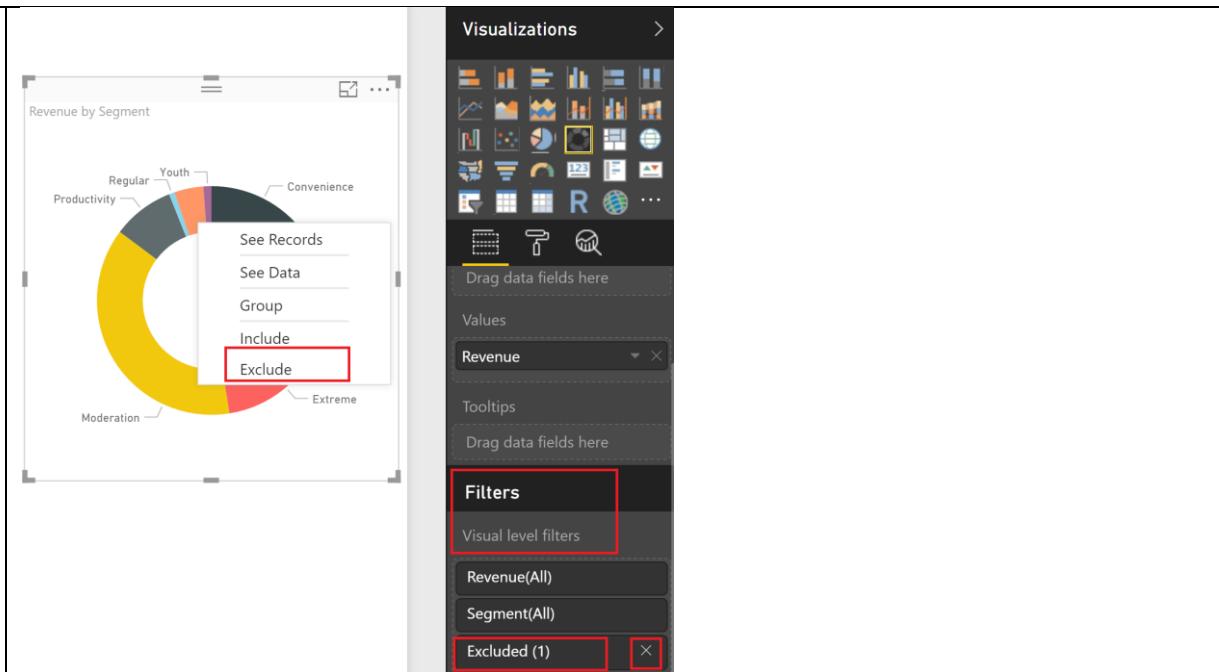


Let's say we want to remove some of the segments with relatively lower revenue, so we can compare the top segments

34. In the **Donut chart**, right click on **All Season** section and select **Exclude**
35. Similarly, right click on **Youth** section and select **Exclude**

Notice as we Exclude segments, these are added to the Visual level filter section. Like Exclude feature, notice there is option to Include segments as well.

36. In the Visual level filter section, click on **x** next to **Excluded** to remove the filter.

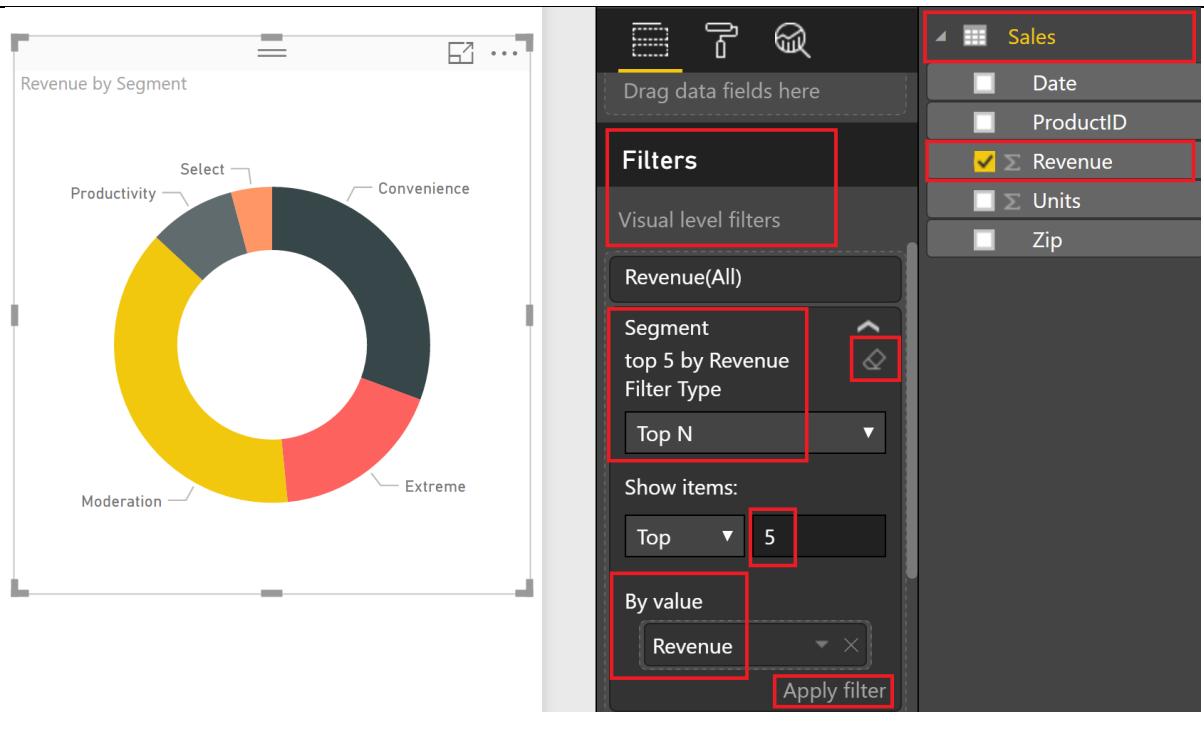


If we need to compare the Top 5 Product segments, there is an easier way to filter the visual (instead of including or excluding each one).

37. Highlight **Donut** chart. In the **Visual level filter** section expand **Segment**
38. From the **Filter Type** drop down, select **Top N**
39. Type in 5 next to Top
40. In the **Fields** section, expand **Sales** and drag **Revenue** field to **By value** section
41. Select **Apply Filter**

Notice now the Donut chart is updated to display the Top 5 Product segments. Notice this filter is applied only to the Donut chart since it is a Visual level filter

42. Let's **remove** Top 5 filter by clicking on the **erase** button on the top right corner of Segment



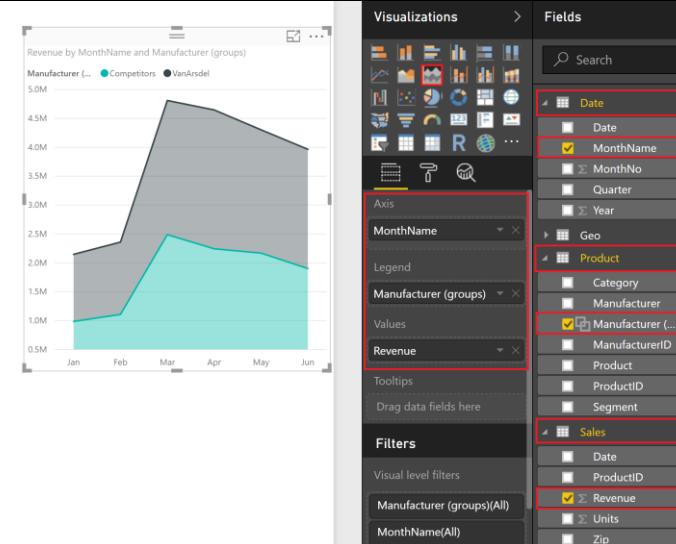
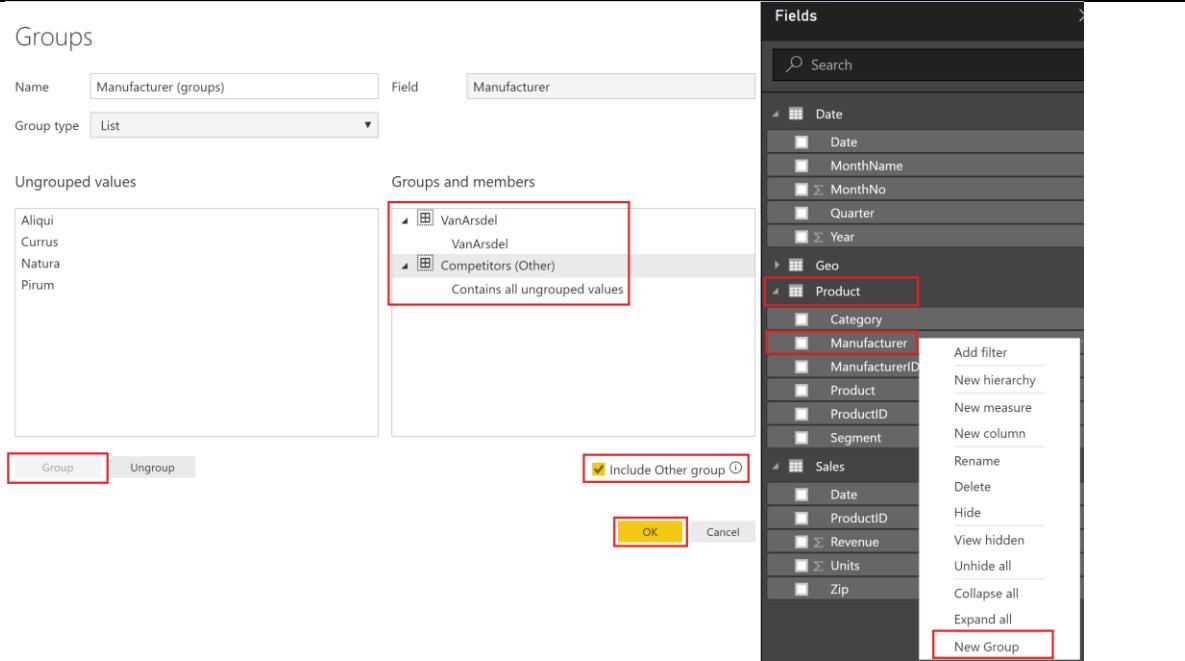
Let's say there is a requirement to compare VanArsdel with the rest of the competitors

43. In the **Fields** section, expand **Product** and click on the ellipsis next to **Manufacturer**
44. Select **New Group**. Group dialog opens
45. Select **VanArsdel** from the **Ungrouped values** section
46. Click on **Group** button
47. Select **Include Other group checkbox**. This creates a Group called Other which includes the competitors
48. Double click on **Other** group and **rename it to Competitors**
49. Click **OK**

Notice a new field called **Manufacturer (groups)** is created in **Product** table.

50. Click on the white space on the canvas.
51. From the **Fields** section, expand **Date** and select **MonthName** field
52. From the **Fields** section, expand **Sales** and select **Revenue** field
53. From the **Visualization** section select **Stacked area chart**
54. From the **Fields** section, expand **Product** and drag and drop **Manufacturer (groups)** field to **Legend** section

The visual compares VanArsdel sales with that of competitors

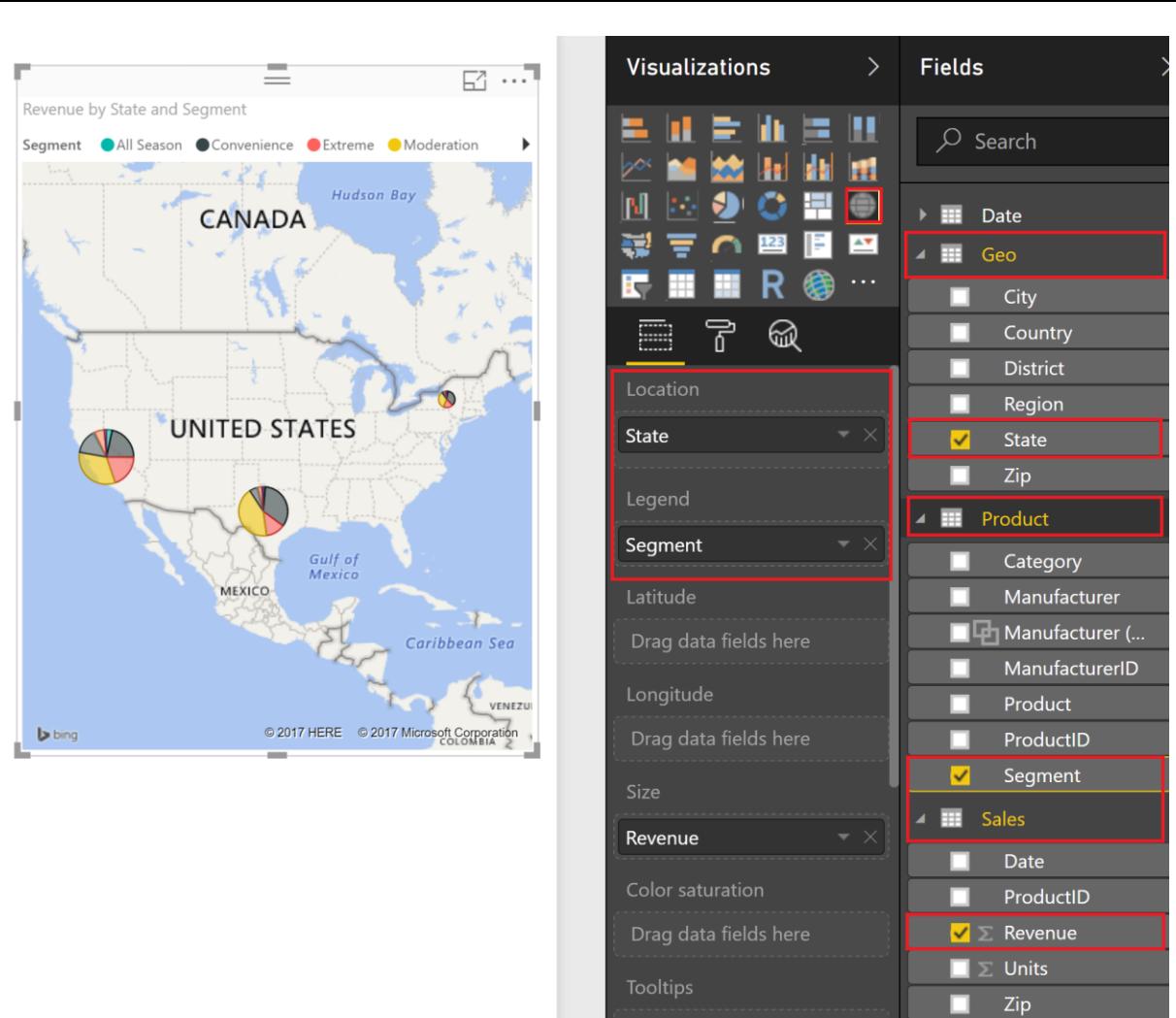


CMO also wants to analyze Sales by State

55. Click on the white space in the report pane
56. From the **Fields** section expand **Geo** table and select **State** field

Notice a map visual is created by default, with three dots representing the three states. Bing is used to create the map visual. You need to have internet connection for this to work.

57. From the **Fields** section expand **Sales** table and select **Revenue** field
 58. From the **Fields** section expand **Product** table and select **Segment** field
- Notice the dots are updated to pie charts for each state
59. Clicking on a cell in a pie chart, updates the other visuals on the page



Let's compare **Revenue by category and state** in tabular view.

60. From **Visualizations** section, select **Matrix** visual
61. From **Fields** section, expand **Geo** and drag and drop **State** to **Columns** section
62. From **Fields** section, expand **Product** and drag and drop **Category** to **Rows** section
63. From **Product** drag and drop **Segment** to **Rows** section under **Category**
64. From **Fields** section, expand **Sales** and drag and drop **Revenue** to **Values** section
65. Select **Paint Roller (format)** icon.
66. Expand **Margin style**. This provides options to quickly format the matrix visual
67. Select **Condensed**. There are other formatting options. Feel free to look at it.

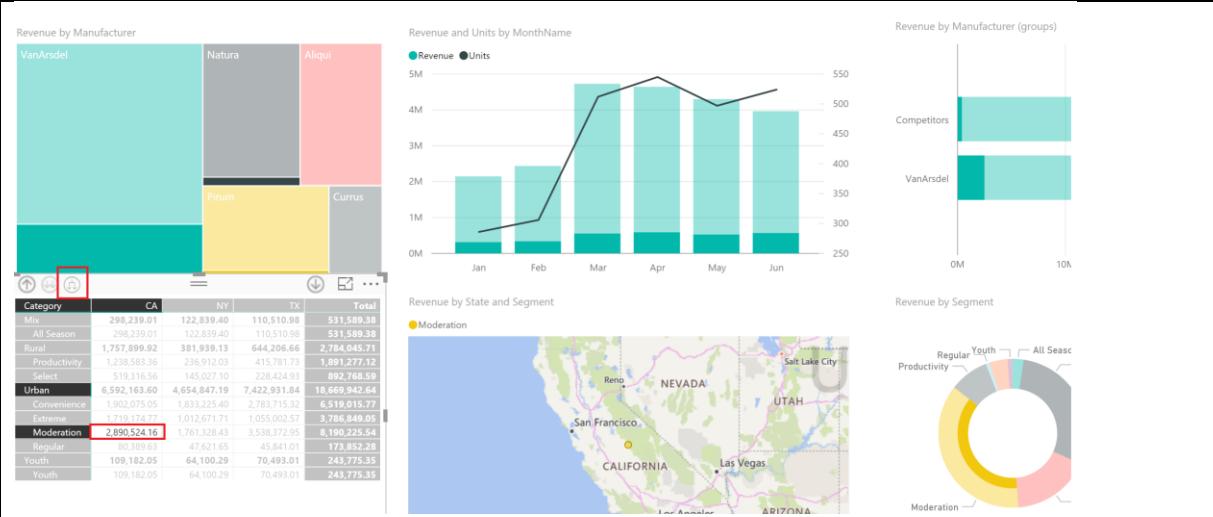
The screenshot shows the Power BI desktop interface. On the left is a matrix visual with data for Category (CA, NY, TX) and State (Mix, Rural, Urban, Youth). The total revenue is 22,229,353.07. The Fields pane on the right is highlighted with red boxes around specific sections: **Visualizations**, **Fields**, **Rows**, **Columns**, **Values**, and **Filters**. In the **Fields** pane, the **Geo** group, **State** field, **Product** group, **Category** field, and **Sales** group are expanded, while others like **Date** and **Zip** are collapsed. The **Revenue** field is selected in the **Values** section. The **Σ Revenue** field is also selected in the **Sales** group under **Filters**.

Category	CA	NY	TX	Total
Mix	298,239.01	122,839.40	110,510.98	531,589.38
Rural	1,757,899.92	381,939.13	644,206.66	2,784,045.71
Urban	6,592,163.60	4,654,847.19	7,422,931.84	18,669,942.64
Youth	109,182.05	64,100.29	70,493.01	243,775.35
Total	8,757,484.57	5,223,726.01	8,248,142.49	22,229,353.07

68. Click on the any cell in the matrix visual and notice this cross filters the rest of the visuals. You can also click on column and row headers to cross filter the report

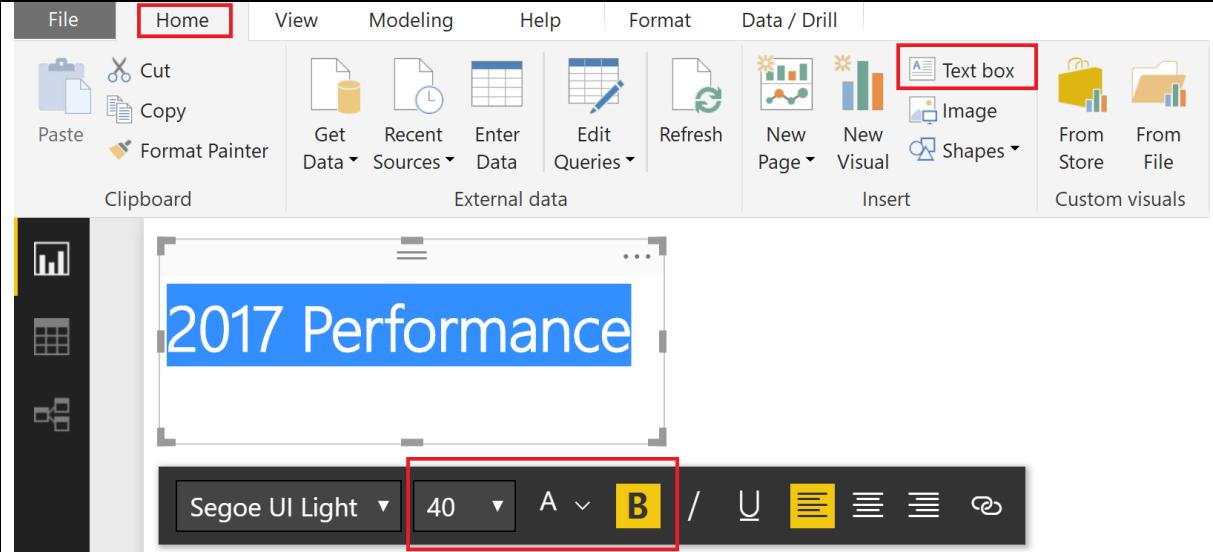
69. Click on the forked double arrow on the top left corner of the matrix visual. Notice it displays the Product hierarchy of **Category -> Segment**.

70. Now click on any cell to **cross filter** the report. E.g. if you click on cell which is the intersection of Moderation and CA it will filter all the visuals to show data for Moderation Segment and CA state. Click on the cell again to remove the cross filter.



Let's add a report title

71. From the ribbon, select **Home -> Text Box**
72. Enter **2017 Performance** in the text box
73. Highlight 2017 Performance and change font size to **40** and change font type to **bold**
74. Resize the text box and place it on the top of the page

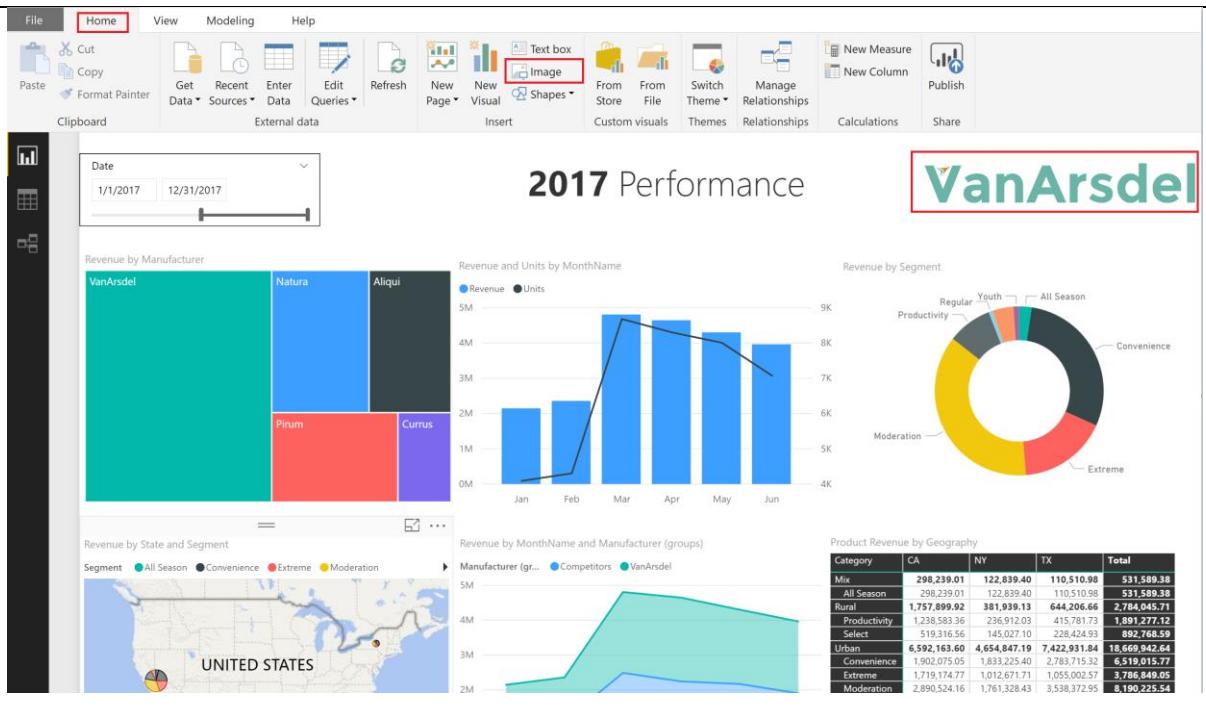


Let's add a logo to the report

75. From the ribbon, select **Home -> Image**
76. Browse to the **DIAH/Data** folder created earlier in the lab
77. Select **Logo.gif**
78. **Resize** the image and **position** it on the top right of the page
79. **Resize the report elements** as desired

Page 1 should look something like this

80. Save the file by clicking on **File -> Save**



Power BI Service – Import Report

1. If you have not signed up for a Power BI account, go to <http://aka.ms/diahtraining> and sign up for Power BI with a business email address
2. If you have not already opened the app.powerbi.com page, please open the browser and navigate to <http://app.powerbi.com>
3. Sign in to Power BI using your user account. Once logged in, you will see **Welcome to Power BI** page
Note: If you have already signed into Power BI previously, your screen will look slightly different.
4. Let's connect and import data from the Power BI Desktop file. Select **Get under Files**.

The screenshot shows the Power BI Service interface. On the left, a sidebar menu includes 'Favorites', 'Recent', 'Apps', 'Shared with me', 'Workspaces', and 'My Workspace'. The 'My Workspace' option is highlighted. The main content area features a 'Welcome to Power BI' message with a sub-message 'You're on your way to exploring your data and monitoring what matters. Let's start by getting some data.' Below this are links to 'Try this tutorial' and 'watch a video'. The 'Microsoft AppSource' section contains four cards: 'My organization' (Get), 'Services' (Get), 'Files' (Get), and 'Databases' (Get). The 'Import or Connect to Data' section also contains four 'Get' buttons.

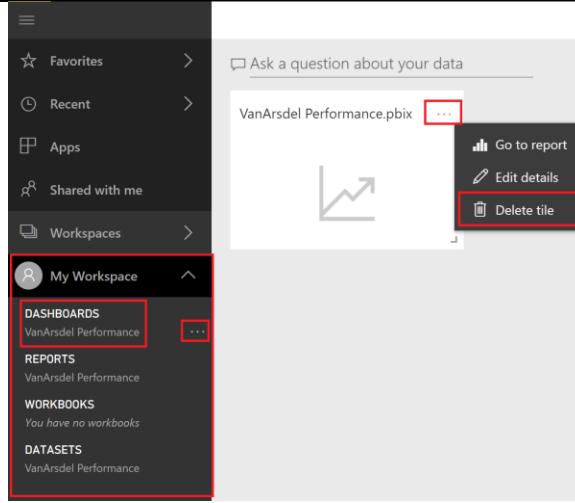
5. You will be navigated to **Get Data > Files** page
6. Select **Local File**
7. Browse to **DIAH** folder that was created earlier and select **VanArsdel Performance.pbix** file (this is the solution file created using Power BI Desktop)

The screenshot shows the 'Get Data > Files' page. The left sidebar lists 'Content Pack Library' (My organization, Services, Samples), 'Import or Connect to Data' (Files, Databases & More), and 'Files' (highlighted with a yellow background). The main area displays three tiles: 'Local File' (highlighted with a red box), 'OneDrive – Business', and 'OneDrive – Personal'.

The dashboard will show a tile for the imported Power BI Desktop file, linked to its reports. Please

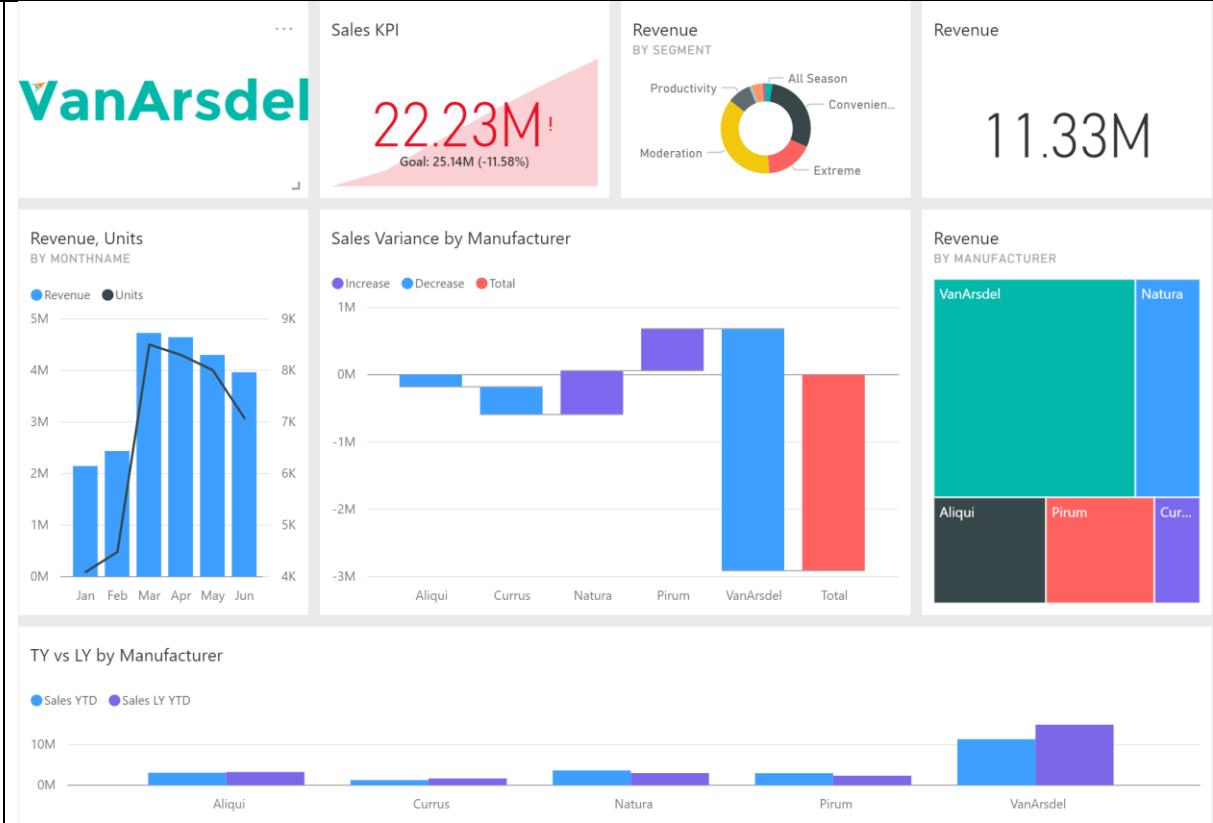
wait for the file to be fully loaded into the Dashboard

7. **Expand My Workspace** in the left panel. Notice VanArsdel Performance dashboard, Report and Datasets are created
8. Click on the ellipsis next to **DASHBOARDS -> VanArsdel Performance.pbix** and select **RENAME**
9. Rename to **VanArsdel Performance**
10. Click on **DASHBOARDS -> VanArsdel Performance** to navigate to the dashboard
11. We do not need the default tile that is created. Hover over the tile and click on the **ellipsis** on the top right corner and click on the **delete icon**

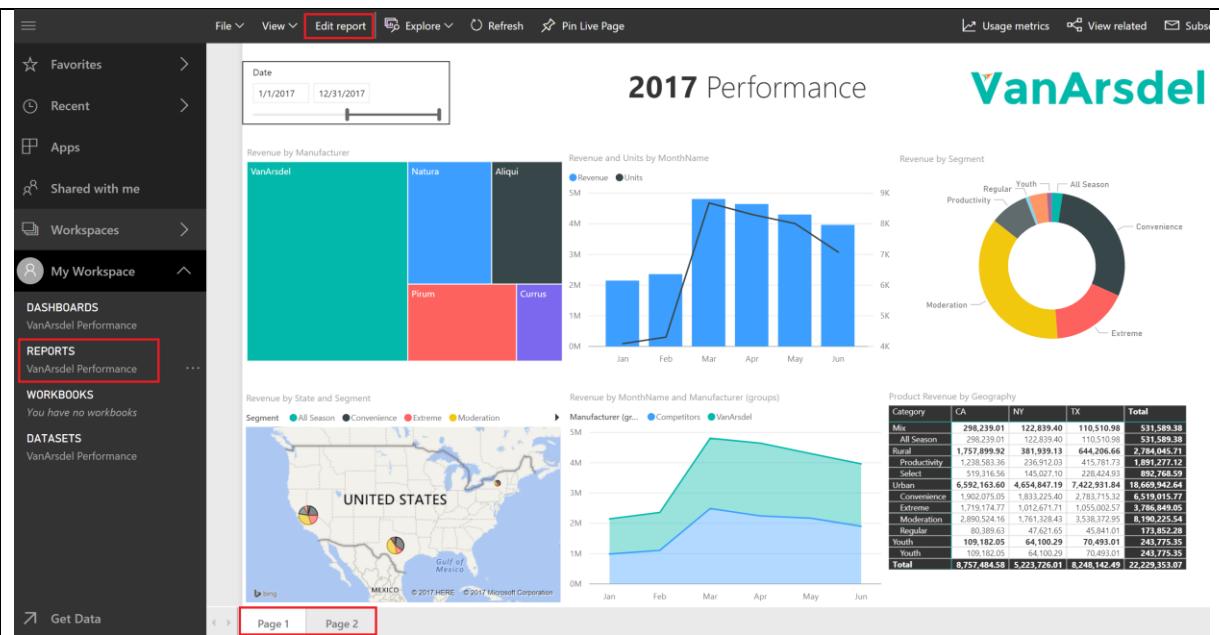


Power BI Service – Create Dashboard

In this section, we will create a dashboard that will help the office of CMO to compare VanArsdel's performance with the competitors, figure out VanArsdel's revenue and performance compared to last year in a glance. At the end of the section, we will create a dashboard that looks like this



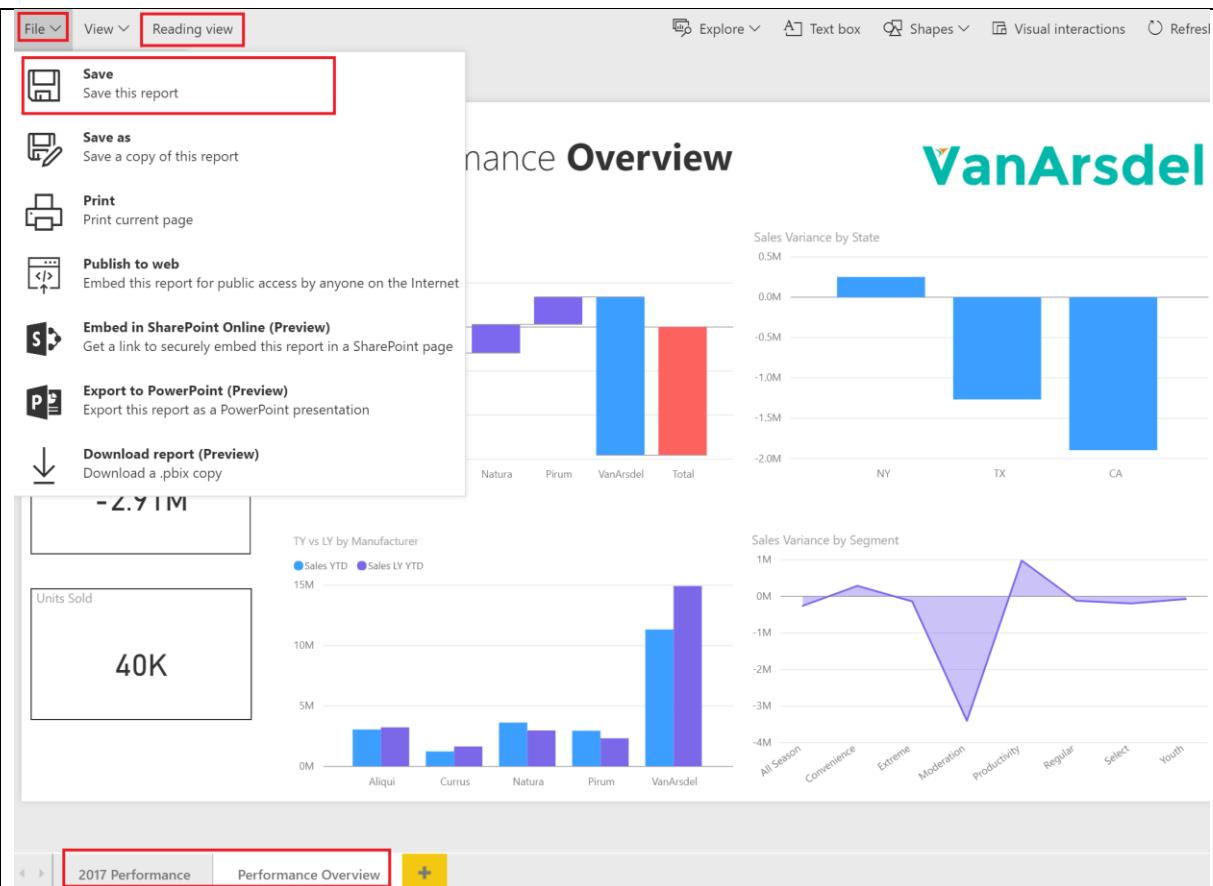
1. Expand **My Workspace** section and select on **REPORTS -> VanArsdel Performance**
 Notice the report created in Power BI
 Desktop has two pages
2. Click on different chart elements and notice the charts are interactive (like Power BI Desktop)
3. On the top menu click on **Edit report**



This will open the report in Edit mode
Notice the layout is like that of Power BI Desktop

Report can be edited or new pages added in this view

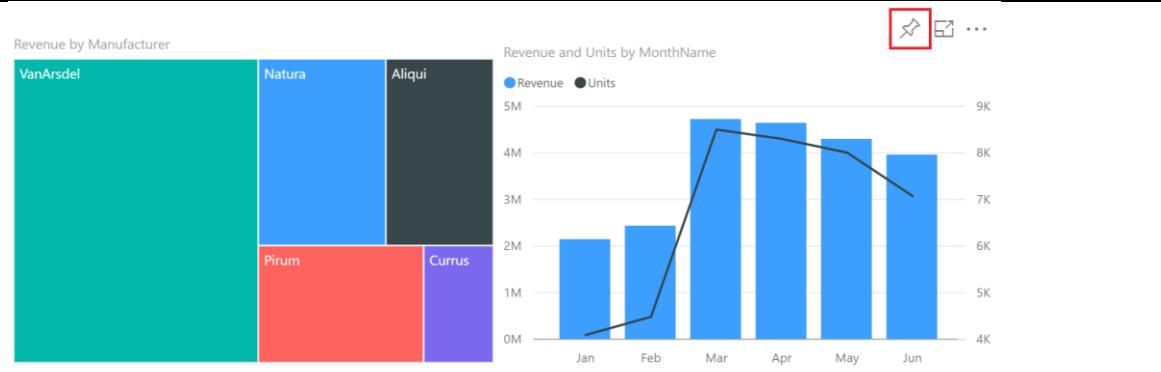
4. Page 1 of the report is like the report you built earlier in the lab. Let's **rename** it by double clicking on Page 1 on the bottom of the screen
5. Rename page to **2017 Performance**
6. **Navigate to Page 2** of the report by clicking on Page 2 on the bottom of the screen. Page 2 of the report provides a Performance Overview
7. **Rename** the page to **Performance Overview**
8. From the top menu, click on **File -> Save** to save the changes
9. On the top menu click on **Reading** to get back to View only mode



10. Click on 2017 Performance page at the bottom of the screen to navigate to **2017 Performance** report

11. Hover over Revenue and Units by MonthName chart and notice a **Push Pin** appears on the top right corner

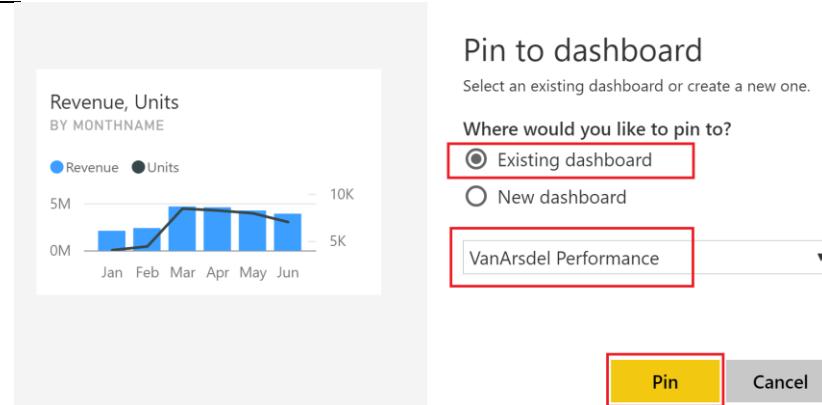
12. Click on the **Pin**



Pin to Dashboard dialogue appears

13. There is an option to create a New dashboard. Since we already have a dashboard, let's select **Existing dashboard** and VanArsdel Performance from the drop down

14. Click **Pin** button. This will pin the visual as a tile in the dashboard

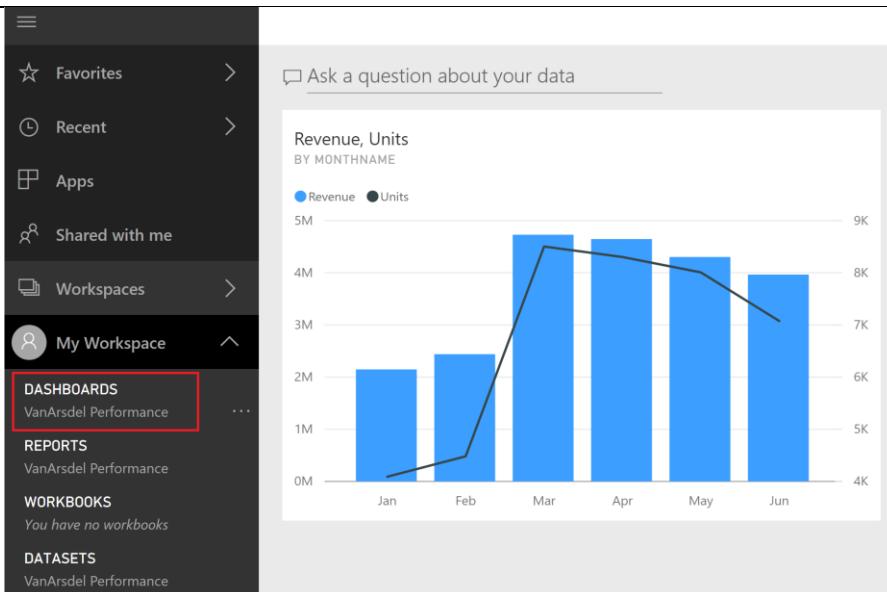


15. Click on **VanArsdel Performance** in **Dashboards** section

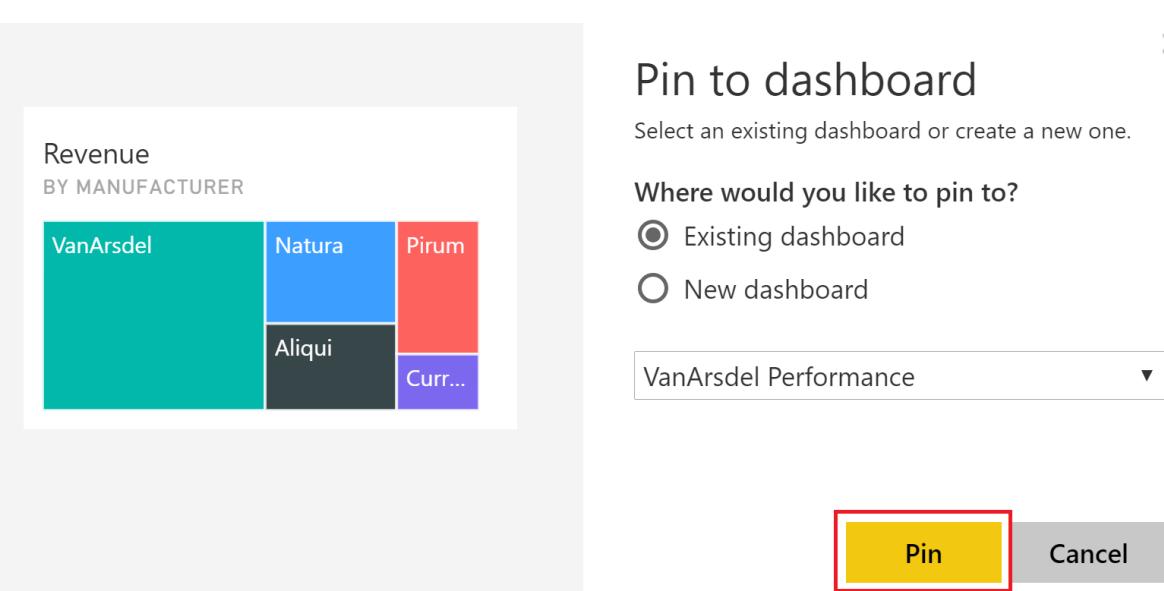
Notice Revenue and Units by MonthName chart element is available in the dashboard

16. Click on one of the month columns in the dashboard

Notice the dashboard is not interactive, instead it navigates back to the report



17. Hover over the Treemap chart in 2017 Performance report page and pin it to the VanArsdel Performance dashboard

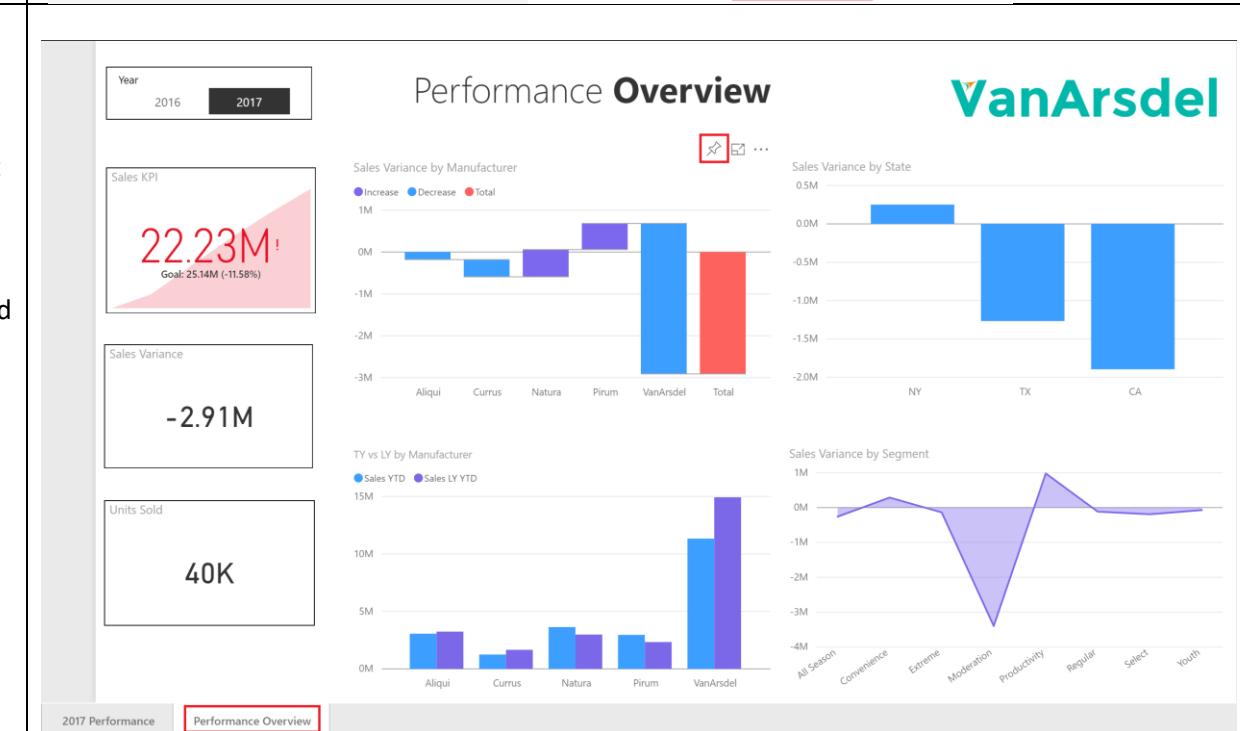


18. Hover over the **Donut** chart and pin it to the VanArsdel Performance dashboard

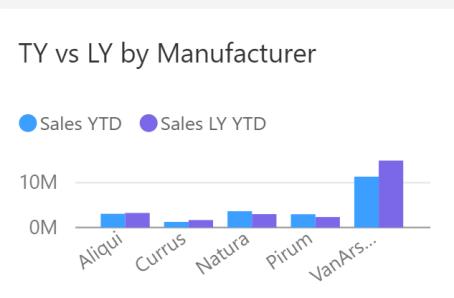
19. Navigate to **Performance Overview** page of the report

Key indicators the CMO wants to see on the dashboard is comparison of sales this year vs last year

20. Hover over **Waterfall** chart and pin the chart to existing VanArsdel Performance dashboard



21. Hover over **TY vs LY by Manufacturer** chart and pin the chart to the existing VanArsdel Performance dashboard



Pin to dashboard

Select an existing dashboard or create a new one.

Where would you like to pin to?

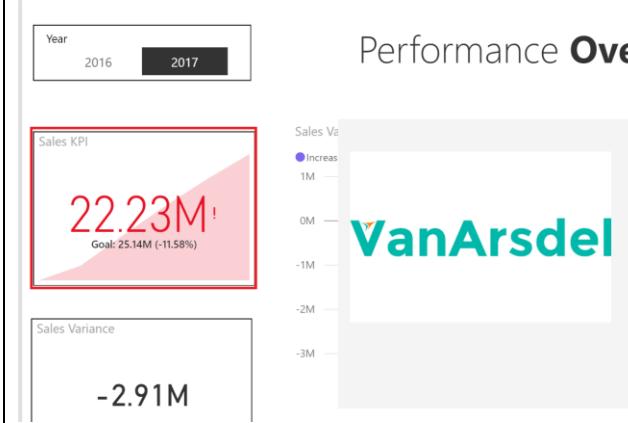
- Existing dashboard
 New dashboard

VanArsdel Performance ▾

Pin

Cancel

22. Hover over **VanArsdel logo** and notice you can pin the logo as well
 23. Click on the **push pin** and pin the logo to the existing **VanArsdel Performance dashboard**
 24. Hover over the **Sales KPI visual** and pin it to VanArsdel Performance dashboard



Performance Overview



Pin to dashboard

Select an existing dashboard or create a new one.

- Existing dashboard
 New dashboard

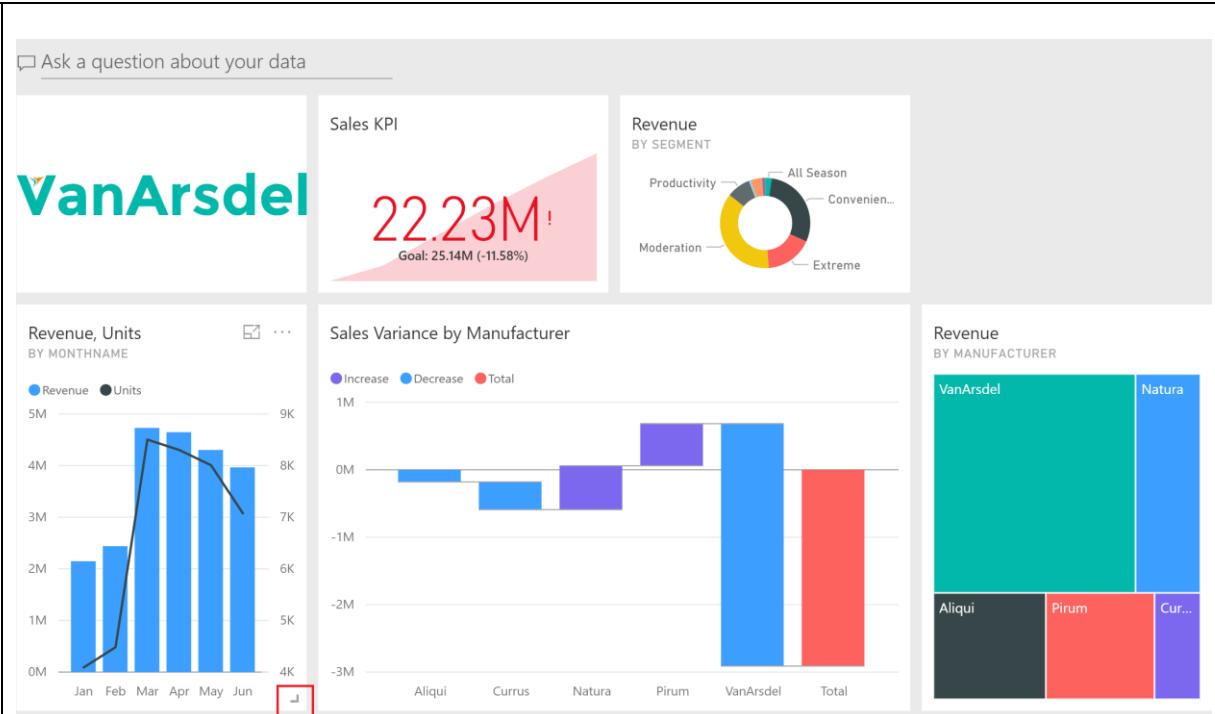
VanArsdel Performance ▾

Pin

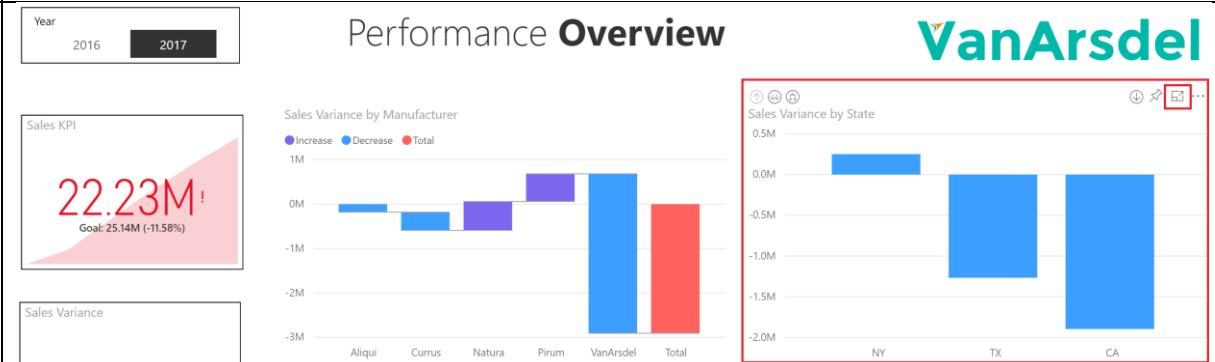
Cancel

25. Navigate back to VanArsdel Dashboard
 Notice the newly added chart elements are available in the dashboard
26. **Move the tiles** by hovering and dragging the tiles to the desired location
27. **Resize** the dashboard elements by dragging the element in or out from the bottom right corner (as shown in the figure for the Revenue, Units BY MONTHNAME tile)

Tiles can be of **various sizes** (1x1 to 5x5)



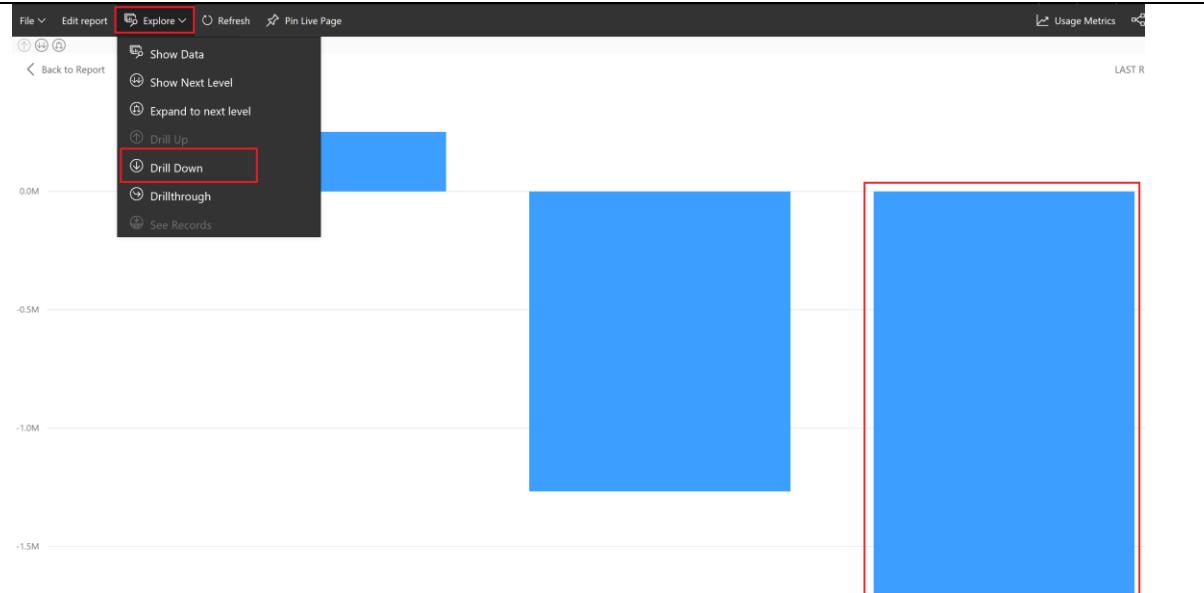
28. **Click on the Waterfall tile to navigate to Performance Overview report page**
29. **Hover over the Sales Variance by State column chart and click on Focus model icon**



Notice Sales Variance by State is in focus mode which means only one chart is in focus and displayed. Let's explore the capabilities to drill up and down a hierarchy and ability to view records

30. From the report menu, select **Explore -> Drill Down**

31. Click on **CA** column



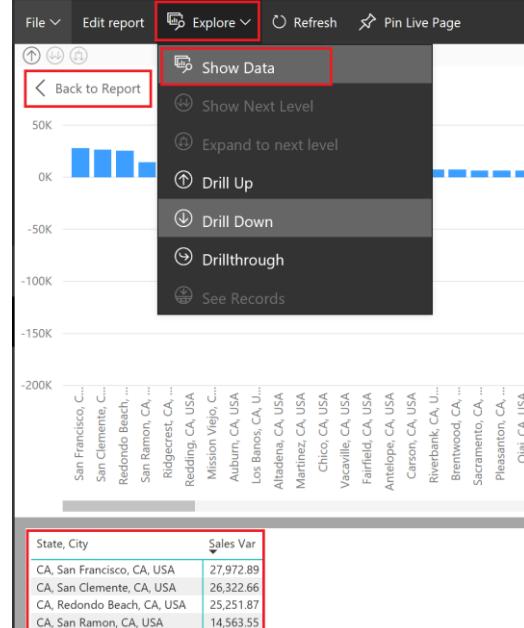
Notice you have drilled down to the city level to display Sales Variance for all the cities in CA

32. From the report menu, select **Explore -> Show Data**

Notice data for each of the cities is displayed. Feel free to investigate the other options available under Explore menu

33. Click on **Back to Report** on the top left corner of the focus mode to navigate back to the report page

34. Click on **DASHBOARDS -> VanArsdel Performance** to navigate back to the dashboard



Power BI Service – Power Q & A

Notice on the top of the dashboard there is a text box which says “Ask a question about your data”

1. Enter **2017 VanArsdel Revenue** in the text box

Notice Power BI Service can answer adhoc queries

2. Click on the **Pin** button on the top right corner, next to the text box
3. Pin it to existing **VanArsdel Performance** dashboard

4. Navigate back to VanArsdel Performance dashboard and notice the newly created ad hoc card chart element is available on the dashboard. Reposition the tile as needed. Hover over Revenue tile and click on the **ellipse** on the top right corner. Notice there are options to **delete, edit, export tile**. There is also an option to **pin the tile to another dashboard**.

5. **Click on the Revenue chart element**

Notice it navigates back to the Q&A page

6. **Navigate back to the dashboard** by clicking on VanArsdel Performance under Dashboard section in the left panel

The screenshot shows the Power BI Service Q&A interface. On the left, a sidebar lists 'Favorites', 'Recent', 'Apps', 'Shared with me', 'Workspaces', and 'My Workspace'. Under 'DASHBOARDS', 'VanArsdel Performance' is selected. In the center, a text input field contains '2017 VanArsdel Revenue'. To its right is a large card displaying the result '11,334,261.01' with the label 'Revenue' below it. At the bottom of the card, it says 'Showing revenue where manufacturer (groups) is VanArsdel and year is in 2017' and 'Source: VanArsdel Performance'. On the far right, a vertical ribbon menu includes 'Pin visual', 'Fields', 'Visualizations', and 'Filters'.

The screenshot shows the VanArsdel Performance dashboard. It features several cards: a large 'VanArsdel' title card, a 'Sales KPI' card with a red background and '22.23M!', a 'Revenue BY SEGMENT' donut chart, and a 'Revenue' card showing '11.33M'. Below these are three other cards: 'Revenue, Units BY MONTHNAME', 'Sales Variance by Manufacturer', and 'Revenue BY MANUFACTURER' comparing 'VanArsdel' and 'Natura'. A context menu is open on the 'Revenue' card, listing options like 'Go to Q&A', 'Open in focus mode', 'Manage alerts', 'Export to Excel', 'Edit details', 'View insights', 'Pin tile', and 'Delete tile'. The 'Pin tile' option is highlighted with a red box.

7. Hover over Revenue tile and click on the **ellipse** on the top right corner
8. Select the **Manage Alerts**. Notice a dialog opens
9. Select **Add alert rule**

Notice this screen provides the ability to add alerts based on conditions. Alert can be set to send an email or just provide notifications on powerbi.com.

The screenshot shows a Power BI dashboard with a large 'Revenue' tile displaying '11.33M'. A context menu is open over this tile, with the 'Manage alerts' option highlighted by a red box. To the right, a modal window titled 'Manage alerts' is displayed. At the top of this modal is a yellow bar with a '+ Add alert rule' button, also highlighted by a red box. The main area of the modal shows an existing alert configuration for 'Alert for Revenue': it is active, set to trigger on 'Revenue' above 0, and set to notify at most every 24 hours. There are also sections for 'Set alerts rule for' and 'Maximum notification frequency'.

Power BI Service – Share Dashboard

With this dashboard, CMO can compare VanArsdel's performance with the competitors, figure out VanArsdel's revenue and performance compared to last year in a glance

1. Notice on the top right of the screen there is **Share Dashboard** option. This can be used to share the dashboard with other users
2. There is also an option to set **Favorite** dashboards

The screenshot shows the same Power BI dashboard as the previous image, but from a different perspective. The top right corner of the dashboard header contains several buttons: '+ Add tile', 'Usage metrics', 'View related', 'Set as featured' (which is highlighted by a red box), 'Favorite', 'Subscribe', 'Share' (which is also highlighted by a red box), 'Web view', and three dots. To the right of the dashboard, a vertical ellipsis menu is open, with the 'Share' option also highlighted by a red box. The menu includes options like 'Duplicate dashboard', 'Print dashboard', 'Refresh dashboard tiles', 'Performance inspector', and 'Settings'.

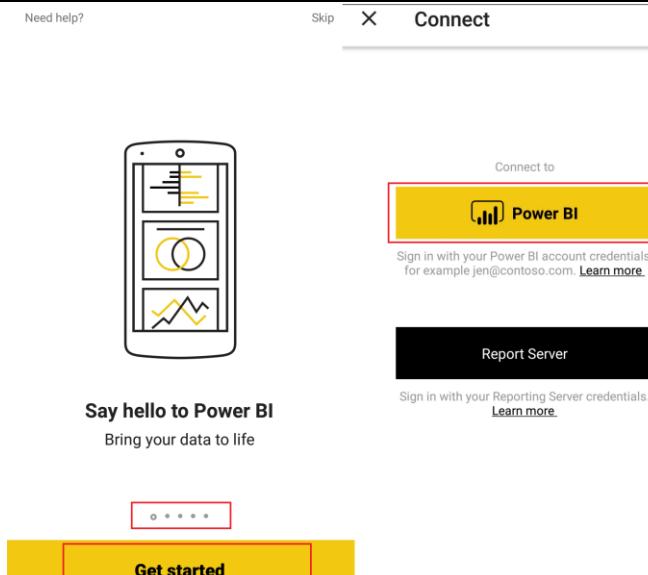
3. There is an option to **Set as Featured** dashboard. Set as Featured dashboard sets the dashboard as the default dashboard that user will land every time they login.
4. Click on the **ellipsis** on the top right of the screen next to Share option. This provides options to **duplicate, print, refresh dashboard**

Power BI – Mobile Application

If you have not already installed Power BI mobile app, please **download and install it on your mobile device**. Power BI App is available on Apple Store, Android Play Store and Windows Store

Screenshots for this section are for the Power BI app on an Android phone. If you are using another device type, UI might be slightly different

1. **Open** the Power BI app on your mobile device
2. Welcome to Power BI screen is displayed. You can swipe to scroll through the introduction screens or tap on **Get Started**
3. Select **Power BI** to connect to Power BI



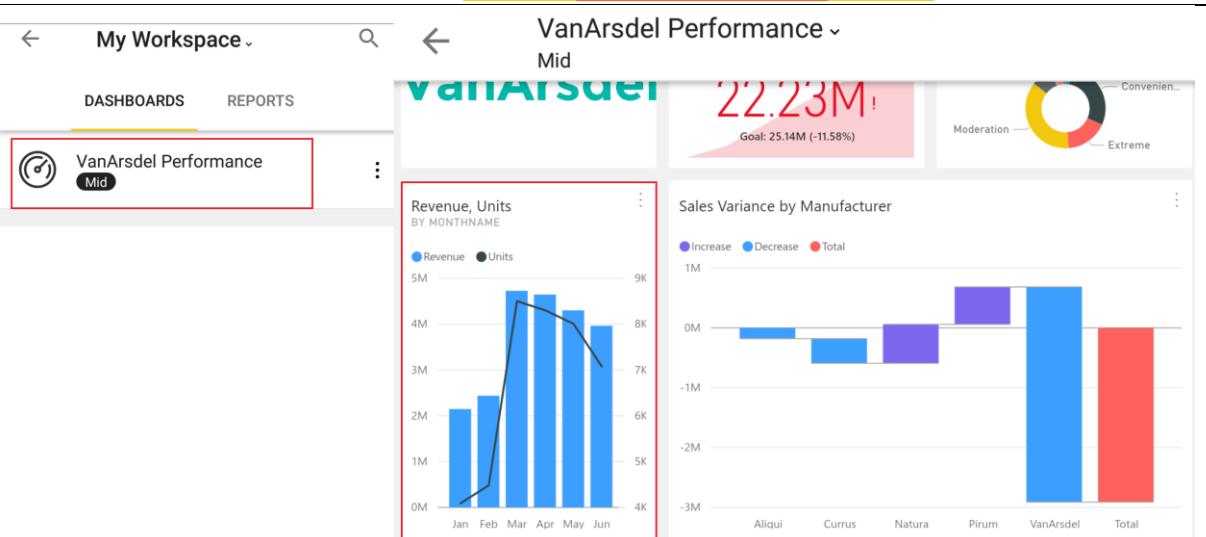
4. **Login** using the same credentials you used to login to www.powerbi.com
5. Once logged in, tap on **Start exploring** to be navigated to your Workspace

The screenshot shows the 'Sign in to Power BI' page. At the top is a search bar labeled 'Type your Power BI account'. Below it is a yellow 'Sign in' button with a red border. To the right of the button is a large green circle containing a white checkmark. Below the sign-in area is a link 'Need help?'. Underneath the sign-in form, text states: 'By signing in you agree to the Power BI [Terms of Use](#) and [Privacy Statement](#)'. To the right of this text is a checkbox with a checked mark, followed by the text: 'Share usage and performance information to help us improve your experience.' and a link 'Privacy statement'. At the bottom right is a yellow 'Start exploring' button with a red border.

6. Notice VanArsdel Performance dashboard you created is available in the **DASHBOARDS** section
7. Select **VanArsdel Performance** dashboard. This will navigate to the dashboard you built in the lab

Notice all the tiles are displayed. If you are in portrait view, tiles might be displayed one below the other. If you **rotate the screen**, notice the display changes to show tiles like what you created on Power BI Service

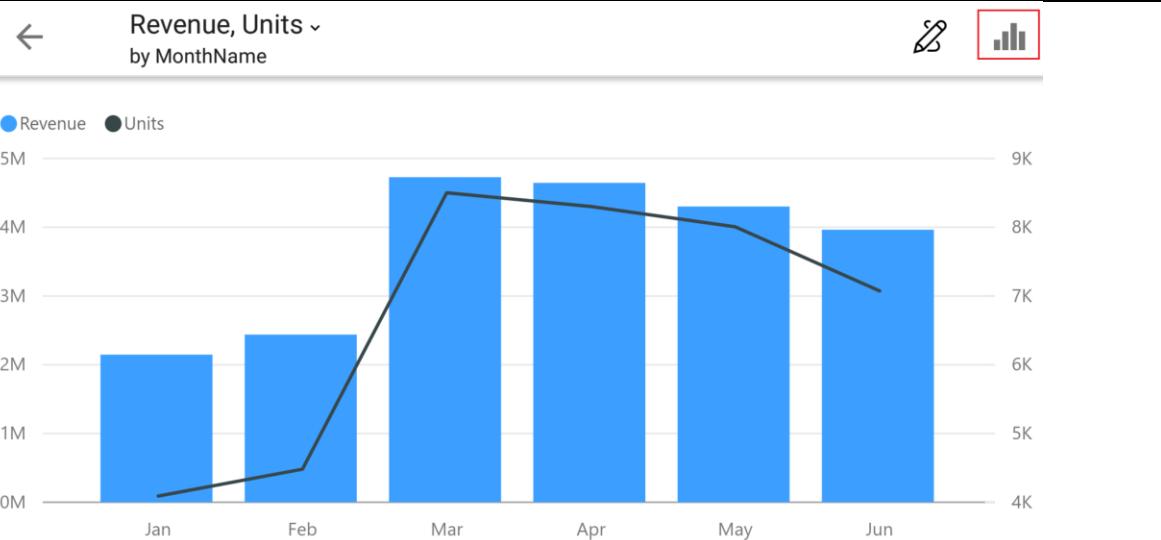
8. Tap on **Revenue, Units BY MONTHNAME** column and line chart



Notice the tile expands to full screen mode

9. Tap on the **bar icon** on the top right to be navigate to the report

Notice there is an option to share the tile by clicking on the share icon on the top right corner



Notice that the report is interactive, like Power BI Service. You can cross filter, use the slicer, etc. Feel free to explore all the other features available on the Power BI mobile app



References

You should now have a basic understanding of Power BI. Below are a few helpful references.

Getting started: <http://powerbi.com>

Power BI Desktop: <https://powerbi.microsoft.com/desktop>

Power BI Mobile: <https://powerbi.microsoft.com/en-us/mobile>

Community site <https://community.powerbi.com/>

Power BI Getting started support page: <https://support.powerbi.com/knowledgebase/articles/430814-get-started-with-power-bi>

Support site <https://support.powerbi.com/>

Feature requests <https://support.powerbi.com/forums/265200-power-bi>

Power BI course <https://www.edx.org/course/analyzing-visualizing-data-power-bi-microsoft-dat207x-0>

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