

MICROSOFT POWER BI COURSE

Novice level

Inhoud

Getting started	2
Installing Power BI Desktop.....	3
DataSet / Examples	4
Chapter 1: Power BI Desktop Data Transformations	5
Chapter 2: Power BI Desktop Modelling	11
Chapter 3: Power BI Desktop Visualization	16
Chapter 4: Power BI Service	25
Chapter 5: Working with Excel	30
Chapter 6: Organization Packs, Security and Groups.....	32
Chapter 7: Developer API	35

Getting started

In this course you will learn the fundamentals of Power BI, this tool gives you the opportunity to visualize large datasets and get insight in the numbers behind your cooperation.

In this course you have to answer theoretical questions and you find answers to the questions in the labs/exercises. Follow the instructions and answer these questions. Every exercise in this instruction is related to several questions.

The instructions refer to files you need to open. But you can use one file from the beginning until the end. The starting-files referred to in the instruction are only used when the previous exercise could not be solved.

Next to the instructions you get from the lecturer you need to study the following internet site: <https://docs.microsoft.com/nl-nl/power-bi/guided-learning/>

After studying this you should be able to answer the theoretical questions.

For every chapter there is a pdf-file with questions/exercises. The title of the chapter refers to the corresponding pdf-file.

Good luck and have fun!

Installing Power BI Desktop

Power BI Desktop lets you create a collection of queries, data connections, and reports that can easily be shared with others. Power BI Desktop integrates proven Microsoft technologies – the powerful Query engine, data modeling, and visualizations – and works seamlessly with the online Power BI service. You will need to download and install Power BI desktop to perform the labs in this course.

Which version to install?

- If you have a 32 bit machine, you need to install the 32bit Power BI Desktop.
- If you have a 32 bit Office installed (regardless of your machine), you need to install the 32 bit Power BI Desktop.
- Otherwise, you can install the 64 bit PBI Desktop.

DataSet / Examples

Throughout the course you will use examples and datasets provided through text files, Excel workbooks, SQL backup, and Access database. They are provided "as-is." Information and views expressed in the workbooks, including URL and other Internet Web site references, may change without notice. You bear the risk of using it. Some examples are for illustration only and are fictitious. No real association is intended or inferred. Microsoft makes no warranties, express or implied, with respect to the information provided here.

These datasets/examples do not provide you with any legal rights to any intellectual property in any Microsoft product. You may copy and use these resources for your internal, reference purposes.

The workbooks and related data are provided by obviEnce. www.obvience.com

ObviEnce is an ISV and an Intellectual Property (IP) Incubator focused on Microsoft Business Intelligence. ObviEnce works closely with Microsoft to develop best practices and thought leadership for jump-starting and deploying Microsoft Business Intelligence solutions.

The workbooks and data are property of obviEnce, LLC and have been shared solely for the purpose of demonstrating Power BI functionality with industry sample data.

Any uses of the workbooks and/or data must include the above attribution (that is also on the Info worksheet included with each workbook). The workbook and any visualizations must be accompanied by the following copyright notice: obviEnce ©.

IMPORTANT

All the data you need for this course is provided in this course. You do not need to look elsewhere, i.e. Obvience, for it. You are allowed to use the data in the context of this course, but not elsewhere. The direct link to the files is here:

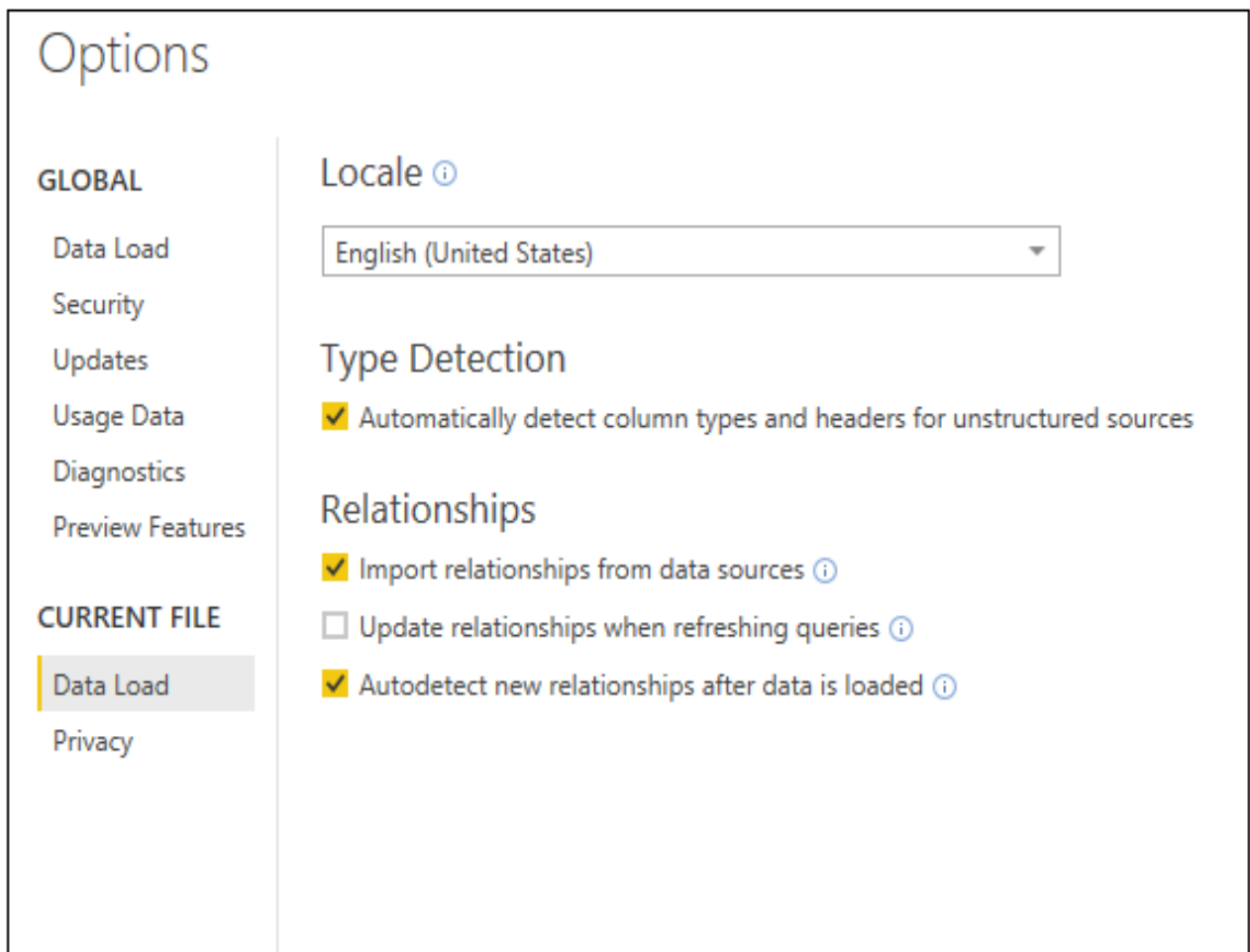
<https://github.com/MJMBeuken/Analyzing-Visualizing-Data-PowerBI>

If you click: "Clone or download" and "Download ZIP" then you will upload all relevant files at once.

Chapter 1: Power BI Desktop Data Transformations

CHANGING LOCALE

When you import data to Power BI Desktop, you might need to set the locale settings of your Power BI Desktop file to be the same locale as the data source. For example, throughout the labs in this course, you will use data created using the English (United States) locale. If your computer locale is not set to English (United States), you can change your Power BI locale settings by going to File, Options & Settings, and select Options. Select Data Load under the Current File list, and set the Locale to English (United States).



SCENARIO

VanArsdel is a company that manufactures and sells sporting goods. The company has offices in the United States (US) and several other countries. Its sales comprise of US sales and International sales. VanArsdel's sales come from its owned manufactured products, as well as other manufacturers' products.

VanArsdel's US office stores the sales data on an Access database. VanArsdel International sales transactions are available as comma separated (CSV) files. They could be generated daily, either manually by someone, or automatically by an automated process. They are available in a dedicated folder. These CSV files have the same column structure as the sales table for the US sales that comes from the SQL Database.

You want to perform analysis on VanArsdel's worldwide sales data for the year 2000 to 2015. You need to bring all these data into Power BI Desktop before you can perform any analysis. Finally, you want to compare VanArsdel's country sales with the country population. You need to import the country population data from a less structured Excel report to Power BI.

This lab comprises of three exercises:

1. In the first exercise, you will import data to Power BI Desktop from an Access database file.
2. In the second exercise, you will import data from CSV files which resides in a file folder. You will append this new data to the corresponding existing data that comes from the Access Database.
3. In the third exercise, you will import data to Power BI Desktop from an Excel file that is less structured.

Before starting this lab, you should review the Power BI Desktop Data Transformations module in this course. Then, if you have not already done so, follow the instructions in the Set up the Lab Environment section of this course to set up the lab environment.

WHAT YOU'LL NEED

- A computer with the latest version of Power BI Desktop installed on it.
- A copy of the [Access Database](#) containing VanArsdel's US sales data.
- 4 CSV files, containing VanArsdel's [international sales](#) data:

- CA Sales.csv
- FR Sales.csv
- DE Sales.csv
- MX Sales.csv
- An Excel file containing [country population](#) data.

CONNECTING TO AN ACCESS DATABASE FOR THE FIRST TIME

If you are connecting to an Access database for the first time, you might need to install the Access redistributable package.

- If you have a 32 bit machine, you need to install the 32 bit Power BI Desktop and the 32 bit redistributable of Access.
- If you have a 32 bit Office installed (regardless of your machine), you need to install the 32 bit Power BI Desktop and the 32 bit redistributable of Access.
- Otherwise, you can install the 64 bit Power BI Desktop and the 64 bit redistributable of Access.

Follow the link provided by Power BI Desktop when trying to connect to the Access database.

For more information , you can see:

Microsoft Access Database Engine: <https://aka.ms/edx-dat207x-made>

Power BI: <https://aka.ms/edx-dat207x-pbi01>

1.2 Exercise 1: Import Data from Access Database

VanArsdel's US office stores the sales data on an Access database. You will need to perform analysis on that data, but before you can do so, you need to import the data to Power BI Desktop and perform some transformations.

IMPORTANT! Before you start, if your locale settings is not English (United States), you might want to change this, since the data you will import is based on this locale. This is covered in "[Changing Locale](#)".

1. Download the VanArsdel's [Access database](#).
2. Start with a blank Power BI Desktop file.
3. Connect to the Access database by using Get Data and select the Access database file.
4. Select the following tables to be imported: bi_date, bi_geo, bi_manufacturer, bi_product, and bi_salesFact.
5. Edit the query before loading to the data model.
6. Filter the rows on the bi_salesFact query to include dates from January 1st, 2000. (Hint: Apply a Date filter in the Date column to import dates after December 31st, 1999. Before you can apply a date filter, you need to change the Date column's Data Type to Date).
7. Filter the rows on the bi_date query to include dates from January 1st, 2000. (Hint: Apply a Date filter in the Date column to import dates after December 31st, 1999. Before you can apply a date filter, you need to change the Date column's Data Type to Date).
8. Rename the queries as follows:
 - bi_date: Date
 - bi_geo: Locations
 - bi_manufacturer: Manufacturers
 - bi_product: Products
 - bi_salesFact: Sales
9. Load the data into Power BI Desktop. This might take a few minutes.
10. Explore the imported data in the Data View.

Answer now question 9

1.3 Exercise 2: Import Data from a Folder Containing CSV Files

Continue with your Power BI file from the previous exercise. You want to create a Query for the International sales and append the Query to the Query from US Sales.

1. Download the [zip file](#) containing VanArsdel's international sales data.
2. Import the data from the file folder by using the Get Data. To do this, click the Get Data / More option, select Folder and click Connect. Select the folder where you saved the 4 CSV files containing VanArsdel's international sales data.
3. Edit the query before loading to the data model.
4. Perform the following steps:
 - Name the query International Sales.
 - Select to combine (combined binaries) the content of those 4 files, leave the default settings, and click OK.
 - Filter the rows that are after December 31st, 1999.
 - Remove the Source.Name column.
5. Edit the Sales Query from the US Sales.
6. Append the International Sales table to the Sales query from the US Sales.
7. In the Sales query, add a custom column named Country Name which takes the value of the Country column when it is not null and the value of "USA" when the Country column is null.
8. Remove the Country column.
9. Load the data into Power BI Desktop. This might take a few minutes.
10. Explore the imported data in the Data View.
11. Hide the International Sales table from report view.

Answer now question 10

1.4 Exercise 3: Import a Less Structured Data from an Excel File

Continue with your Power BI file from the previous exercise. You want to import an Excel report containing population data for the countries that VanArsdel operates.

1. Import the data from the file folder by using the Get Data. To do this, click the Get Data / Excel option. Select the Excel file and select the sheet containing the Country Population data.
2. Edit the query and perform the following steps:
 - Name the Query Country Population.
 - Remove the first three rows of the table.
 - Promote the row that represents the title of the column to the table headers.
 - Transform the yearly columns to rows and name the resulting columns appropriately. (Hint: You might find the Unpivot Columns or Unpivot Other Columns feature useful).
 - Rename the resulting columns to Year and Population respectively.
 - Filter out the year 1999.
 - Set the Data Type of both the Year and Population columns to Whole Number.
3. Load the data into Power BI Desktop.
4. Explore the imported data in the Data View.

Answer now question 11

Chapter 2: Power BI Desktop Modelling

2.1 *Lab Overview*

SCENARIO

VanArsdel is a company that manufactures and sells sporting goods. The company has offices in the United States (US) and several other countries. Its sales comprise of US sales and International sales. VanArsdel's sales come from its owned manufactured products, as well as other manufacturers' products.

You have successfully brought the US sales data from the Access database and the International sales data from a collection of CSV files to Power BI Desktop. Before you can start analyzing your data, you need to manage the table relationships within your data model and create new ones if necessary. To do so, you might need to create calculated columns or calculated tables for the relationships to be based on.

Once you have all the relationships created, you can create visualizations and start to analyze the data. However, you need to create additional measures to perform more advanced analysis with your data, which includes:

- Comparing last year sales and last year YTD sales.
- Comparing sales of VanArsdel's manufactured goods to other manufacturers.

In this lab, you will create calculated columns, and create table relationships in your data model based on the calculated columns. In addition, you will write several DAX expressions to create measures to be used to analyze VanArsdel's sales data. Specifically, you will create the following measures:

- Total Sales: calculates the total sales.
- LY Sales: calculates last year sales.
- Sales Var: calculates sales variance between this year and last year sales.
- Sales Var %: calculates sales variance between this year and last year sales in percentage.
- YTD Sales: calculates YTD sales.
- LY YTD Sales: calculates last year YTD sales.
- YTD Sales Var: calculates sales variance between this year and last year YTD sales.
- YTD Sales Var %: calculates sales variance between this year and last year YTD sales in percentage.
- Total VanArsdel Sales: calculates sales for VanArsdel manufactured goods.
- % Sales Market Share: calculates the percentage of VanArsdel manufactured goods from the total sales.

Before starting this lab, you should review the Power BI Desktop Modelling module in this course. Then, if you have not already done so, follow the instructions in the Set up the Lab Environment section of this course to set up the lab environment.

2.2 *Exercise 1: Manage Table Relationships*

Power BI Desktop has automatically detected and created table relationships. So the first step is to ensure all the relationships are properly created, and if not, create them yourselves.

1. Open the Relationship view.
2. Ensure that there is a many to one relationship with both cross directional filtering from the ProductID column on the Sales table to the ProductID column on the Products table. If not, create the relationship by dragging the ProductID column on the Sales table to the ProductID column on the Products table.
3. Ensure that there is a many to one relationship with both cross directional filtering from the ManufacturerID column on the Products table to the ManufacturerID column on the Manufacturers table. If not, create the relationship.
4. Ensure that there is a many to one relationship with both cross directional filtering from the Date column on the Sales table to the Date column on the Date table. If not, create the relationship.

Now you want to create a relationship between the Sales table and the Locations table. First, you merge the Country and Zip columns in both Sales and Locations table as a new column, CountryZip. Then, you create a relationship on the CountryZip column for both tables.

1. Edit the Locations table in the Data view.
2. Add a new column named CountryZip by concatenating the value from the Country column, a comma and a space character, and the value from the Zip column. (Hint: the calculated column formula look as follows: CountryZip = Locations[Country] & ", " & Locations[Zip])
3. Edit the Sales table in the Data view.
4. Add a new column named CountryZip by concatenating the value from the Country Name column, a comma and a space character, and the value from the Zip column. (Hint: the calculated column formula look as follows: CountryZip = Sales[Country Name] & ", " & Sales[Zip])
5. Open the Relationship view.

6. Link the newly created CountryZip column on the Sales table to the newly created CountryZip column on the Locationstable.

Answer now question 16

2.3 *Exercise 2: Optimize the Data Model*

Now that you have the table relationships defined, you want to optimize the data model before you create the visualizations.

1. Open the Data view.
2. Ensure both the International Sales and Country Population table are hidden from the report view.
3. Hide the following fields on the Date table from the report view.
 - MonthNo
 - MonthID
 - Month
4. Sort the MonthName column by the MonthNo column.
5. Hide the CountryZip field on the Locations table from the report view.
6. Hide the ManufacturerID field on the Manufacturers table from the report view.
7. Hide the following fields on the Products table from the report view.
 - ProductID
 - ManufacturerID
 - Manufacturer
8. Hide the following fields on the Sales table from the report view.
 - ProductID
 - Date
 - Zip
 - Units
 - Revenue
 - Country Name
 - CountryZip

There are no questions.

Chapter 3: Power BI Desktop Visualization

3.1 LAB OVERVIEW

SCENARIO

VanArsdel is a company that manufactures and sells sporting goods. The company has offices in the United States (US) and several other countries. Its sales comprise of US sales and International sales. VanArsdel's sales come from its owned manufactured products, as well as other manufacturers' products.

In this lab, you will create several reports using several visualizations in Power BI Desktop.

Before starting this lab, you should review Power BI Desktop Visualization module in this course. Then, if you have not already done so, follow the instructions in the Set up the Lab Environment section of this course to set up the lab environment.

WHAT YOU'LL NEED

The Power BI [lab 3 – starting](#) file.

3.2 *Exercise 1: Cross-Tabular Report*

Let's start with an easy one. You want to show VanArsdel's sales (revenue) and units for each month and year in a single report. You choose to show this using two Matrix visualizations.

1. Open the Report view.
2. Drag the Total Sales field from the Sales table to the report and create a chart.
3. Drag the MonthName and Year fields from the Date table to the chart.
4. Modify the chart to use the Matrix visualization.
5. Arrange so that the month is shown as the rows and the year is shown as the columns of the matrix visualization.
6. Repeat Step 3 to 6, but this time, display the Total Units field in the chart.
7. Add a Text Box to the report and enter VanArsdel Sales and Units as the text.
8. Rename the report sheet to Sales and Units.

You should have something similar to the below:

VanArsdel Sales and Units

MonthName	2000	2001	2002	2003	2004	2005	2006	2007
Jan	\$12,742,281.71	\$13,980,293.17	\$17,707,670.52	\$18,156,035.22	\$19,156,035.22	\$19,156,035.22	\$19,156,035.22	\$19,156,035.22
Feb	\$16,352,349.05	\$19,629,331.47	\$24,984,945.01	\$23,878,574.18	\$23,878,574.18	\$23,878,574.18	\$23,878,574.18	\$23,878,574.18
Mar	\$29,317,572.46	\$31,979,044.21	\$36,290,358.92	\$36,963,466.56	\$36,963,466.56	\$36,963,466.56	\$36,963,466.56	\$36,963,466.56
Apr	\$26,910,281.44	\$35,465,234.38	\$42,119,352.05	\$44,976,465.16	\$44,976,465.16	\$44,976,465.16	\$44,976,465.16	\$44,976,465.16
May	\$31,872,446.31	\$39,676,268.29	\$41,509,766.05	\$41,225,489.45	\$41,225,489.45	\$41,225,489.45	\$41,225,489.45	\$41,225,489.45
Jun	\$26,714,821.85	\$33,047,880.48	\$31,579,211.13	\$41,484,525.95	\$41,484,525.95	\$41,484,525.95	\$41,484,525.95	\$41,484,525.95
Jul	\$27,204,187.15	\$30,970,581.69	\$33,597,568.15	\$42,245,248.47	\$42,245,248.47	\$42,245,248.47	\$42,245,248.47	\$42,245,248.47
Aug	\$18,995,394.13	\$25,643,503.87	\$28,316,103.48	\$32,612,092.40	\$32,612,092.40	\$32,612,092.40	\$32,612,092.40	\$32,612,092.40
Sep	\$16,922,876.03	\$18,869,653.96	\$24,827,581.17	\$28,535,874.22	\$28,535,874.22	\$28,535,874.22	\$28,535,874.22	\$28,535,874.22
Oct	\$17,070,796.04	\$20,161,057.89	\$22,643,865.57	\$23,388,866.24	\$23,388,866.24	\$23,388,866.24	\$23,388,866.24	\$23,388,866.24
Nov	\$15,633,569.10	\$18,778,958.25	\$20,038,063.72	\$18,491,406.55	\$18,491,406.55	\$18,491,406.55	\$18,491,406.55	\$18,491,406.55
Dec	\$18,453,942.47	\$22,328,453.19	\$23,551,156.02	\$24,574,102.69	\$24,574,102.69	\$24,574,102.69	\$24,574,102.69	\$24,574,102.69
Total	\$258,190,517.77	\$310,530,260.84	\$347,165,641.80	\$376,532,147.10	\$405,988,147.10	\$435,439,147.10	\$464,890,147.10	\$494,341,147.10

MonthName	2000	2001	2002	2003	2004	2005	2006	2007
Jan	33046	34419	45090	44677	46485	43044	49849	41777
Feb	39677	49271	64643	59035	55431	60775	58292	51055
Mar	77231	81575	92429	94591	110521	100575	101665	102407
Apr	70619	95017	109370	116320	120094	126964	120546	100277
May	81802	107428	105305	103879	114509	118452	130472	124677
Jun	66604	82624	80103	102657	110264	104708	111405	114487
Jul	71282	80191	83385	99761	93952	87443	87737	90637
Aug	50965	65857	70278	81047	87332	88428	90013	77927
Sep	43503	47048	63466	70095	64358	85798	67361	59937
Oct	42506	51919	55137	59068	57335	64141	57469	57477
Nov	42975	55143	55087	52847	58877	62785	55207	49447
Dec	71578	90494	93353	99117	97468	94701	84514	64657
Total	691788	840986	917646	983094	1016626	1037814	1014530	934697

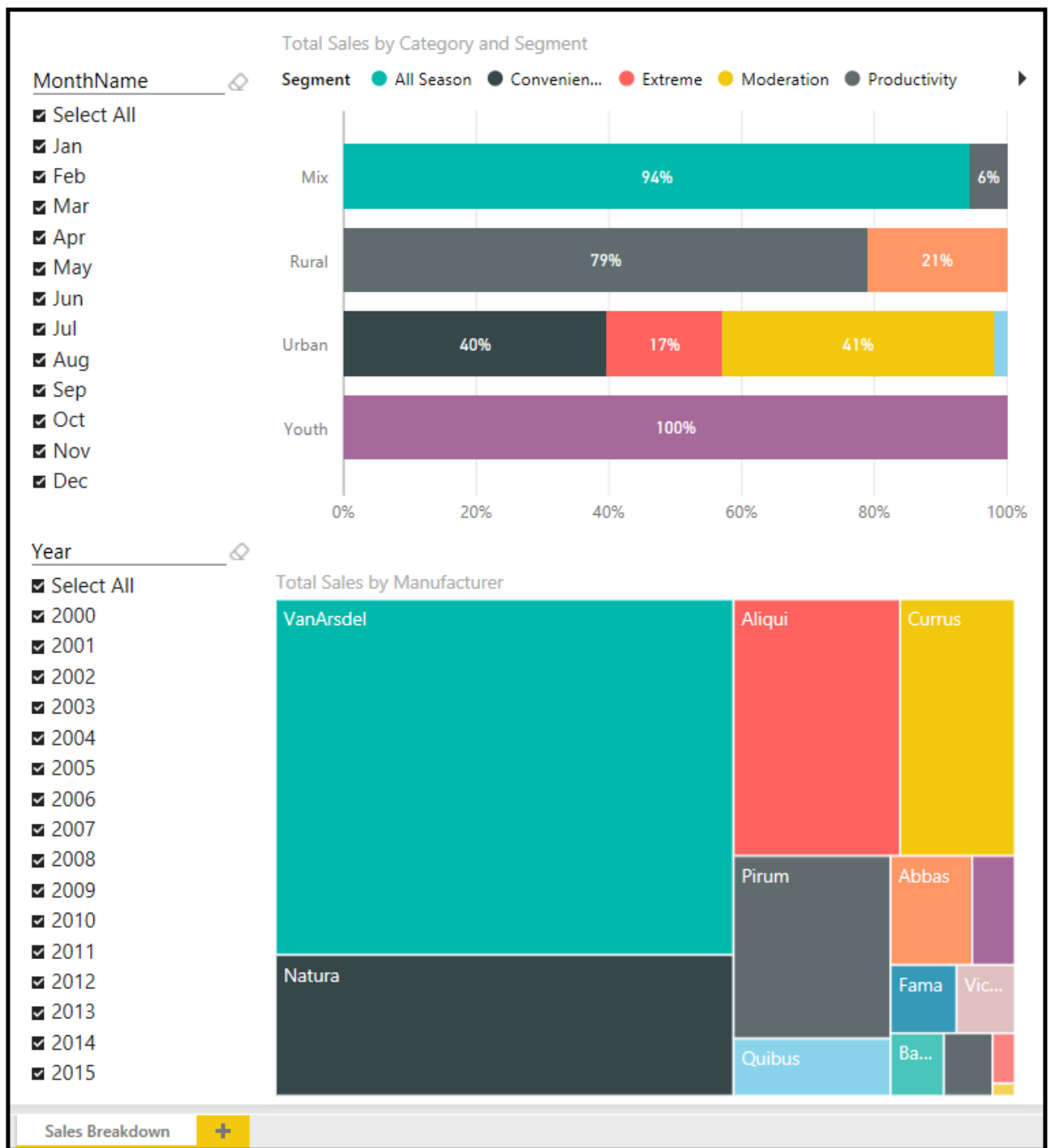
Sales and Units +

Answer now question 29

3.3 Exercise 2: Part-to-Whole Report

Now that you have the big picture, let's start analyzing the data sales data by product category, segment and manufacturer.

1. Create a new report page by clicking the Yellow "+" icon at the bottom of the report view.
2. Drag the Total Sales field from the Sales table to the report and create a chart.
3. Drag the Category and Segment fields from the Products table to the chart.
4. Modify the chart to use the 100% Stacked Bar Chart visualization.
5. Ensure that the Category is shown as the Axis and the Segment is shown as the Legend of the visualization.
6. Customize the format of the visualization and turn on the Data Labels. Set the Decimal Places to 0.
7. Drag the Total Sales field from the Sales table to the report and create a chart.
8. Drag the Manufacturer field from the Manufacturers table to the chart.
9. Modify the chart to use the Treemap visualization.
10. Drag the MonthName field from the Date table to the report and create a chart.
11. Modify the chart to use the Slicer visualization.
12. Drag the Year field from the Date table to the report and create a chart.
13. Modify the chart to use the Slicer visualization.
14. Rename the report sheet to Sales Breakdown.
You should have something similar to the below:



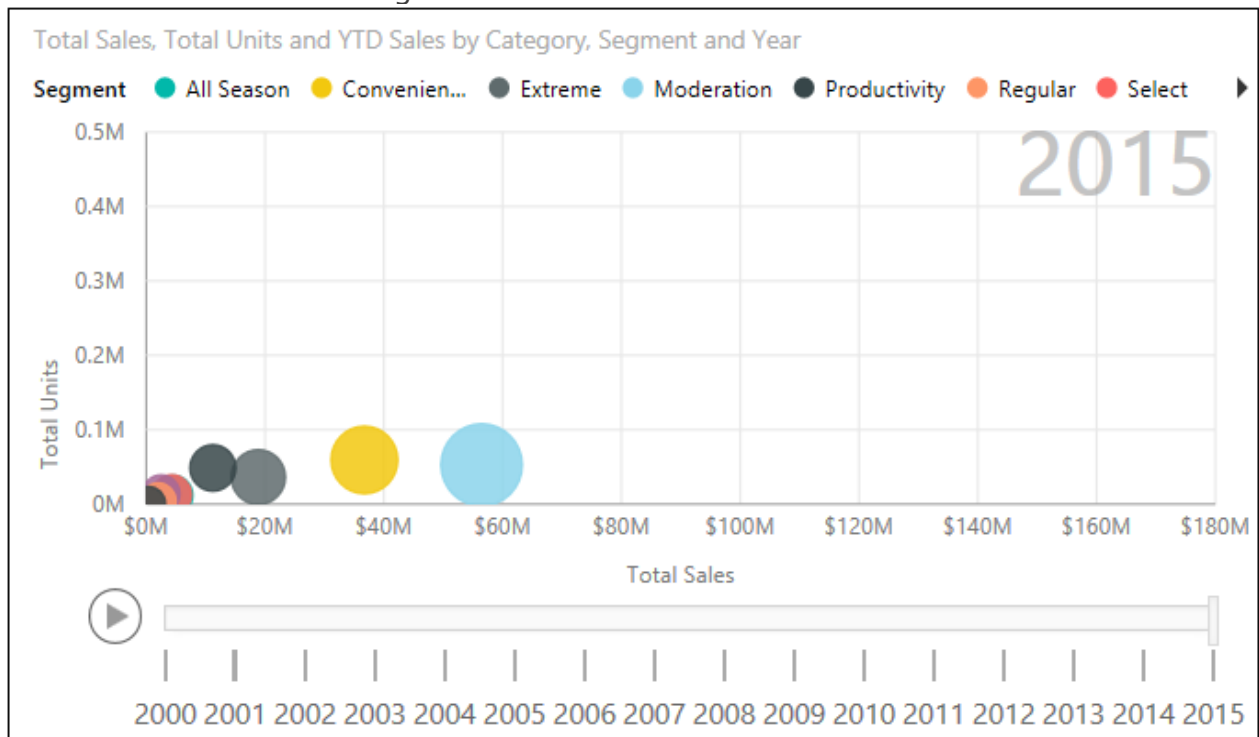
Answer now question 30

3.4 Exercise 3: Relationship Report

You would like to know more about the relationship between total units and total sales by category and segment. You choose to analyze this using scatter chart.

1. Create a new report page by clicking the Yellow "+" icon at the bottom of the report view.
2. Create a chart based on the Scatter Chart visualization.
3. Drag the Total Sales and Total Units fields from the Sales table to the chart.
4. Drag the Category and Segment fields from the Products table to the chart.
5. Drag the YTD Sales field from the Sales table to the chart.
6. Drag the Year field from the Date table to the chart.
7. Ensure that the following fields are set in the visualization:
 - Details: Category
 - Legend: Segment
 - X Axis: Total Sales
 - Y Axis: Total Units
 - Size: YTD Sales
 - Play Axis: Year

You should have something similar to the below:



Answer now question 31

3.5 Exercise 4: Trend Report

Let's do some trend analysis. First let's show a chart to compare Total Sales and Total Units throughout the years. And then let's show two more charts showing the Total Sales and Total Units variances throughout the years.

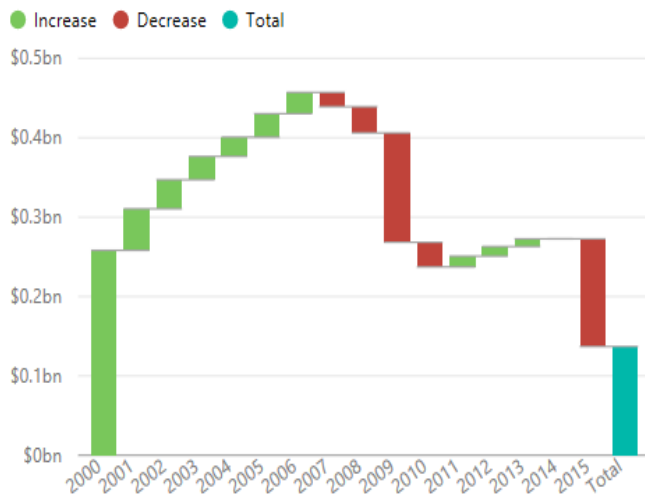
1. Create a new report page by clicking the Yellow "+" icon at the bottom of the report view.
2. Drag the Year field from the Date table to the report and create the first chart.
3. Drag the Total Sales and Total Units fields from the Sales table to the chart.
4. Modify the chart to use the Line and Stacked Column Chart visualization.
5. Ensure that the Year is shown as the Shared Axis, Total Sales is shown as the Column values, and Total Units is shown as the Line values of the visualization.
6. Create the second chart based on the Waterfall Chart visualization.
7. Drag the Sales Var field from the Sales table to the chart.
8. Drag the Year field from the Date table to the chart.
9. Create the third chart, also based on the Waterfall Chart visualization.
10. Drag the Total Units Var field from the Sales table to the chart.
11. Drag the Year field from the Date table to the chart.
12. Add a Text Box to the report and enter Yearly Trend as the text.
13. Rename the report sheet to Yearly Trend.
You should have something similar to the below:

YEARLY TREND

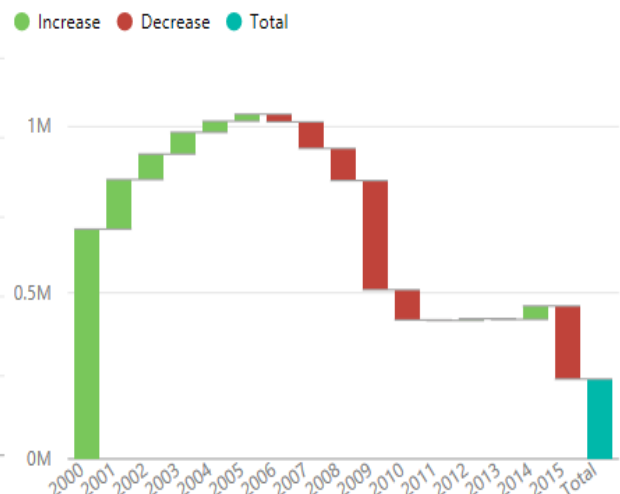
Total Sales and Total Units by Year



Sales Var by Year



Total Units Var by Year



Answer now question 32

3.6 Exercise 5: Rank Report

You now want to analyze individual products sales (revenue) and volume (units). You decide to show these using two bar charts.

1. Create a new report page by clicking the Yellow "+" icon at the bottom of the report view.
2. Drag the Total Sales field from the Sales table to the report and create a chart.
3. Drag the Product field from the Products table to the chart.
4. Modify the chart to use the Stacked Bar Chart visualization.
5. Ensure that the chart is sorted by Total Sales.
6. Drag the Total Units field from the Sales table to the report and create a chart.
7. Drag the Product field from the Products table to the chart.
8. Modify the chart to use the Stacked Bar Chart visualization.
9. Ensure that the chart is sorted by Total Units.
10. Drag the Year field from the Date table to the report and create a chart.
11. Modify the chart to use the Slicer visualization.
12. Add a Text Box to the report and enter Top Products as the text.
13. Rename the report sheet to Top Products.

You should have something similar to the below:



Answer now question 33

Chapter 4: Power BI Service

4.1 *Lab Overview*

SCENARIO

VanArsdel is a company that manufactures and sells sporting goods. The company has offices in the United States (US) and several other countries. Its sales comprise of US sales and International sales. VanArsdel's sales come from its owned manufactured products, as well as other manufacturers' products.

You have created reports with VanArsdel's US and International sales data using Power BI Desktop. Now it's the time to use Power BI service to display this report, create a dashboard and share it.

In this lab, you will upload a Power BI Desktop report to Power BI service. You will then pin several visualizations and create a dashboard. You will also use the natural language queries feature to create and pin new visualizations. To top it off, you will share this newly created dashboard.

Before starting this lab, you should review Power BI Service module in this course. Then, if you have not already done so, follow the instructions in the Set up the Lab Environment section of this course to set up the lab environment.

WHAT YOU'LL NEED

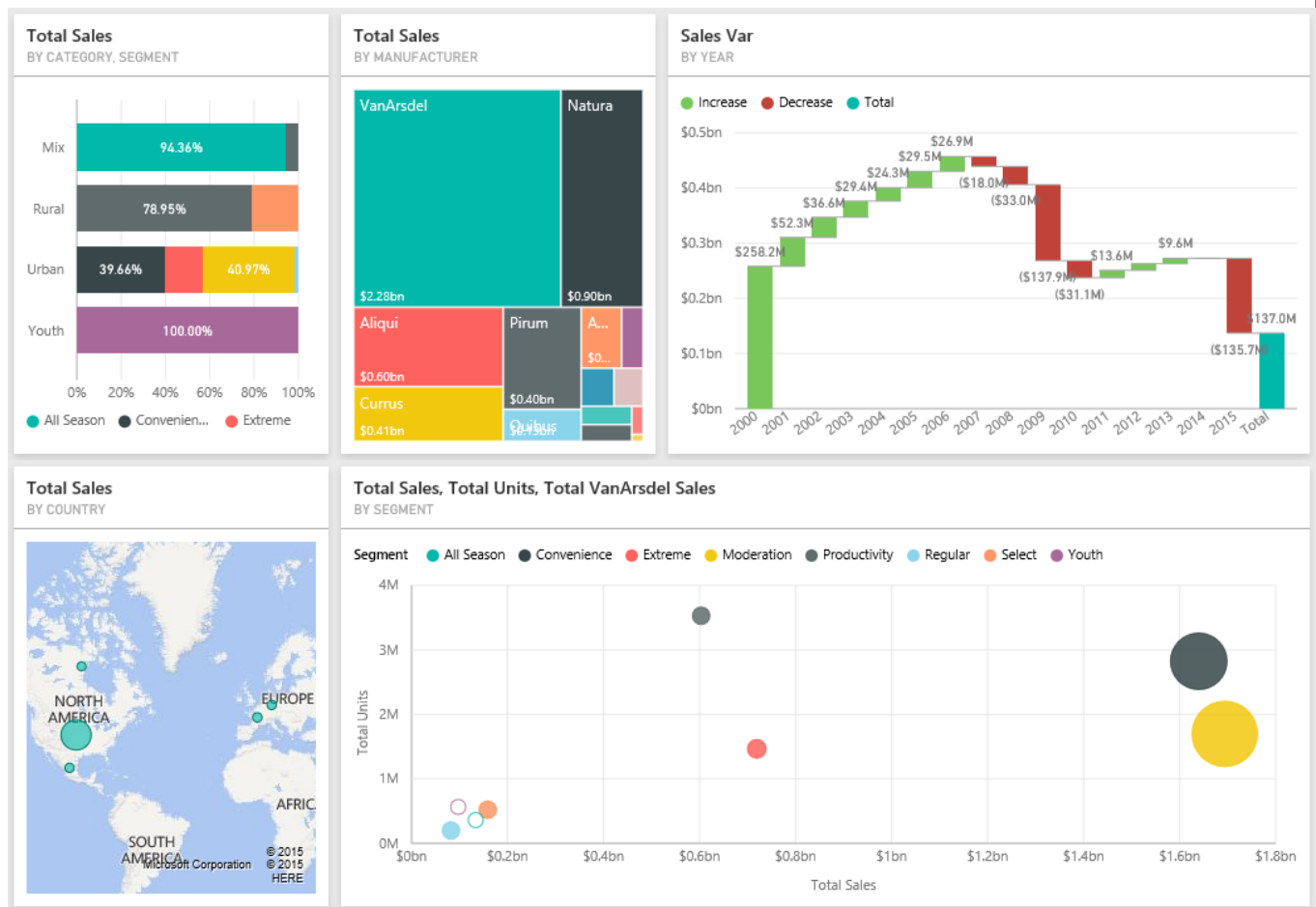
- Power BI service account (You need to have a work / business email to sign up for Power BI service)

4.2 *Exercise 1: Upload PBI Report and Pin Visualizations*

First, you will upload a Power BI Desktop file to Power BI Service.

1. Use the Publish button to publish the report. Sign in using the account you used to sign up for Power BI service.
2. Once the report is published, go to <http://www.powerbi.com> and sign in using your account.
3. If this is your first time publishing a report to Power BI service, you will notice that you now have a dataset named Lab 4 - Starting and a report named Lab 4 - Starting. You can rename both of these, but let's just leave them be for now.
4. Go to the Lab 4 - Starting Report and explore your published report. It looks similar to the one in Power BI Desktop file. Now you can start creating a dashboard by pinning some visualizations.
5. Go to the Sales Report tab and pin the chart showing Total Sales by Category and Segment (100% Stacked Bar Chart). Select to create a New dashboard and name it VanArsdel Sales.
6. Pin the treemap chart, the scatter chart, and the map visualization to the VanArsdel Sales dashboard.
7. Go to the Yearly Trend tab and pin the waterfall chart that shows the Sales Var by Year.
8. Go to the VanArsdel Sales dashboard and review what you have created.
9. Resize and arrange the tiles as necessary.

You should have something similar to the below:

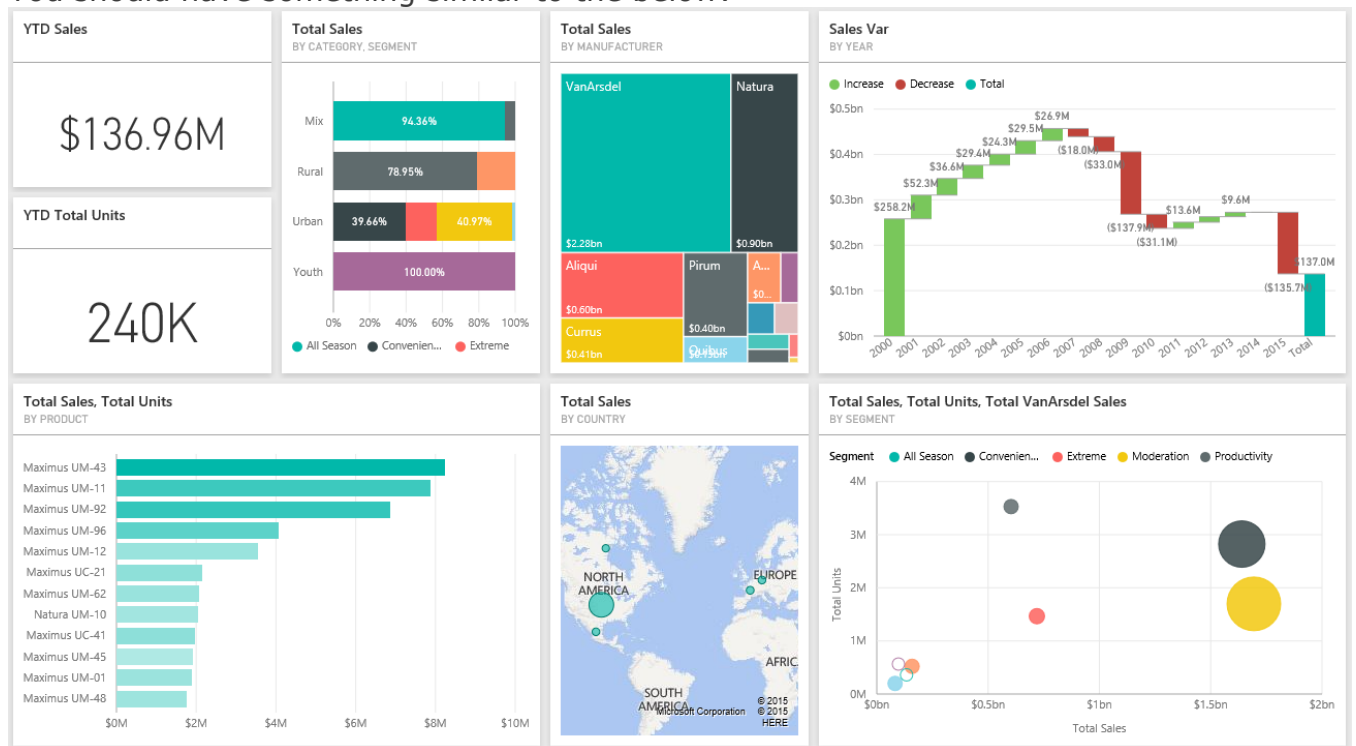


Answer now question 41a

Let's try the natural language query feature and create a few visualizations for your dashboard.

1. Type the question "What is YTD sales" in the text box for Q&A.
2. Pin the answer to **VanArsdel Sales** dashboard.
3. Type the question "What is YTD total units"
4. Pin the answer to **VanArsdel Sales** dashboard.
5. Type the question "what is for products the total sales in 2015"
6. Expand the Fields and Visualizations pane on the right of the screen.
7. Drag the **Total Units** field from the **Sales** table to the **Color saturation**. Notice that the bar chart color saturation changes according to the **Total Units** for that product.
8. Pin the answer to **VanArsdel Sales** dashboard.

9. Resize and arrange the tiles as necessary.
You should have something similar to the below:



Answer now question 41b

4.3 *Exercise 2: Share Dashboard and Update Report*

Let's start sharing your newly created dashboard. For simplicity, let's share the dashboard to your own email address.

1. In the VanArsdel Sales dashboard, use the Share button to share your dashboard.
2. Enter your email address used for Power BI service and click Share.
3. Check your inbox to see an invite to view this dashboard.

Answer now question 42a

Once you've uploaded your Power BI Desktop file to Power BI service, you can still make changes to it, and re-upload the file so that your changes is reflected in Power BI service.

1. Modify the **Total Sales by Category and Segment** chart (the one displayed using "100% stacked bar chart" visualization) on the **Sales Report** tab to use **Stacked Bar chart** visualization instead.
2. Re-publish the file to Power BI service and replace the existing dataset with this one.
3. Go to Power BI service and review the **Lab 4 - Starting Report** and examine whether the change you made is reflected.

Answer now question 42b

Chapter 5: Working with Excel

5.1 Lab Overview

SCENARIO

VanArsdel is a company that manufactures and sells sporting goods. The company has offices in the United States (US) and several other countries. Its sales comprise of US sales and International sales. VanArsdel's sales come from its owned manufactured products, as well as other manufacturers' products.

Some of your colleagues are using Excel as their primary reporting tool. You want to collaborate with them and use their Excel files using Power BI service.

In this lab, you will upload Excel files to Power BI service. First, you will upload an Excel file containing an Excel table, and create quick visualizations based on that data. Next, you will upload an Excel file that contains an Excel data model and Power View report, and use the converted report in Power BI service.

Before starting this lab, you should review Working with Excel module in this course. Then, if you have not already done so, follow the instructions in the Set up the Lab Environment section of this course to set up the lab environment.

WHAT YOU'LL NEED

- The following Excel files:
- The "[Lab 5 - Canada.xlsx](#)" file
- Power BI service account (You need to have a work / business email to sign up for Power BI service)

5.2 Exercise 1: Upload Excel File with an Excel Table

First, you will upload an Excel file containing an Excel table.

1. Download and extract the the "[Lab 5 - Canada.xlsx](#)" file. The file contain VanArsdel's Canada sales. If you have a Microsoft Excel installed, you can open and explore the file (you don't have to).
2. Go to <http://www.powerbi.com> and sign in using your account.
3. Click Get Data, select Files and click Get. Select Local file , select the Lab 5 - Canada.xlsx file, and select Import Excel data into Power BI. The Excel file is imported as a Dataset in Power BI service.
4. Go to the Lab 5 - Canada Dataset.
5. Now, answer the following questions by creating visualizations using the skills you learned in the previous module.

Answer now question 46

Chapter 6: Organization Packs, Security and Groups

6.1 *Lab Overview*

SCENARIO

VanArsdel is a company that manufactures and sells sporting goods. The company has offices in the United States (US) and several other countries. Its sales comprise of US sales and International sales. VanArsdel's sales come from its owned manufactured products, as well as other manufacturers' products.

You have uploaded reports created in Power BI Desktop and Microsoft Excel to Power BI service. You have also created dashboards in Power BI service. Now, you'd like to explore how to work with organization content packs.

In this lab, you will create an organization content pack and share it with your organization. You will use and personalize the content pack, edit and re-share the content pack.

Before starting this lab, you should review Organization Packs, Security, and Groups module in this course. Then, if you have not already done so, follow the instructions in the Set up the Lab Environment section of this course to set up the lab environment.

WHAT YOU'LL NEED

- Completed Labs in the previous Modules (Power BI Service and Working with Excel)
- Power BI service account (You need to have a work / business email to sign up for Power BI service)
- Some steps require Power BI Pro subscription.

6.2 *Exercise: Create, Edit, and Share Content Pack*

Create a Group

Make sure you have completed Labs from previous modules (Power BI Service and Working with Excel).

IMPORTANT!

Please note that you might get different answers if you had not followed the steps in the previous modules.

1. Go to <http://www.powerbi.com> and sign in using your account.
2. Create a new Group.
3. Name the Group DAT207xVA (or choose another name), set it as Private, and add your email address as a member of the group.
4. Save the Group.

Answer now question 53a

Create a Content Pack

1. Go to your workspace (not the group workspace).
2. Create a new **Content Pack**.
3. Select to give access to the **entire organization**.
4. Give the content pack appropriate **Title** and **Description**.
5. Select the **VanArsdel Sales** Dashboard, **Lab 5 - USA** Report, and **Lab - 5 Canada** Dataset. Notice that several other reports and datasets are selected since they are required for their corresponding Dashboard and Report.
6. Publish your content pack.

Answer now question 53b

Use a Content Pack

1. Go to the **DAT207xVA** Group workspace.
2. Click **Get Data**, select **My Organization** and click **Get**. Select the Content Pack you created and click **Get it Now**. Observe that the content of the content pack are brought to the group workspace.

Answer now question 53c

Edit a Content Pack

1. Go to your workspace (not the group workspace).
2. Edit the content pack you created previously.
3. Clear the **Lab 5 - USA** Report and update your content pack.
4. Go to the **DAT207xVA** Group workspace.

Answer now question 53d

Chapter 7: Developer API

7.1 *Lab Overview*

SCENARIO

VanArsdel is a company that manufactures and sells sporting goods. The company has offices in the United States (US) and several other countries. Its sales comprise of US sales and International sales. VanArsdel's sales come from its owned manufactured products, as well as other manufacturers' products.

In this lab, you will download Power BI custom visuals from the visuals gallery, and use them on your reports.

Before starting this lab, you should review Developer API module in this course. Then, if you have not already done so, follow the instructions in the Set up the Lab Environment section of this course to set up the lab environment.

7.2 Exercise: Use Custom Visuals

You have created several reports using the built-in visualizations. Now it's time to further enhance your reports by using custom visualizations.

1. Go to Power BI visuals gallery: <https://aka.ms/edx-dat207x-pbi2>
2. Download the Sunburst visual to your local machine.
3. Import the Sunburst.pbiviz file downloaded from step 2. You can now use the Sunburst visualization in this Power BI Desktop file.
4. Open the Report view and go to the Sales Report tab.
5. Select the Total Sales by Category and Segment visuals, which is based of 100 % Stacked bar chart, and modify it to Sunburst visualization.

Answer now question 55a

1. Go to Power BI visuals gallery: <https://aka.ms/edx-dat207x-pbi2>
2. Download **the Radar chart** visual to your local machine.
3. Import the **RadarChart.pbiviz** file downloaded from step 2. You can now use the Radar chart visualization in this Power BI Desktop file.
4. Open the **Report** view and go to the **Sales Report** tab.
5. Create a chart based on the **Radar Chart** visualization.
6. Drag the **Region** field from the **Locations** table to the chart.
7. Drag the **Total Sales** field from the **Sales** table to the chart.

Answer now question 55b