

1. Main page: <http://cortanaanalytics.com>
2. Before starting this module, you should be able to:
 1. Use Azure ML Studio to create and share Data Science Model
 2. Use Azure ML Studio to select a model
 3. Use Azure ML Studio to export the results in Azure SQL DB



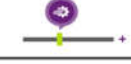
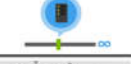







Learning objectives

1. Use your HDInsight Output
2. Use Power BI to examine Data
3. Understand how to leverage code for Cortana

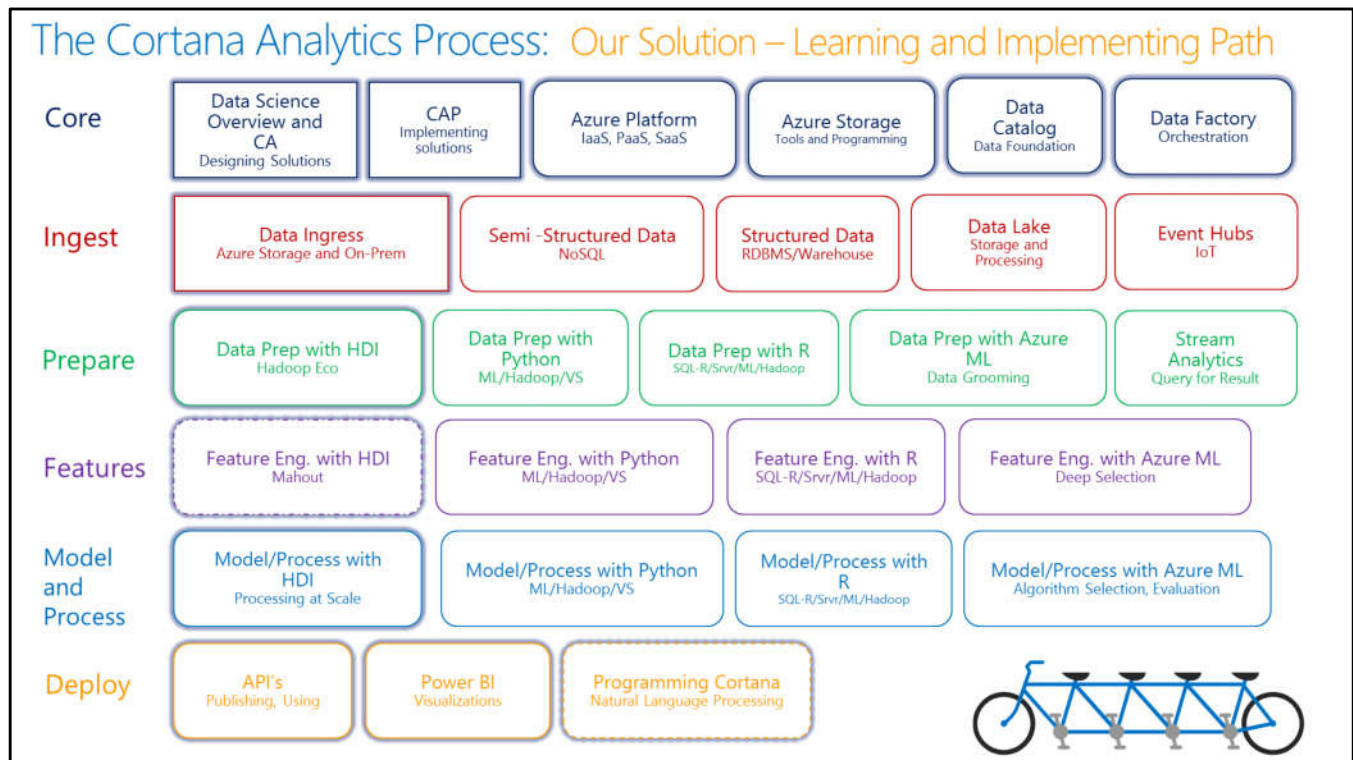


1. After you complete this Module, you will be able to:
 1. Publish a model using Azure ML to a REST API
 2. Use Power BI to examine Data
 3. Understand how to leverage code for Cortana

Cortana Intelligence Suite Stack

	Cortana
	Power BI
	Azure Stream Analytics
	Azure HDInsight
	Azure Machine Learning
	Azure SQL DB, Data Warehouse, DocumentDB
	Azure Data Lake
	Azure Event Hubs
	Azure Data Catalog
	Azure Data Factory
	Microsoft Azure

1. Platform and Storage: Microsoft Azure – <http://microsoftazure.com> Storage: <https://azure.microsoft.com/en-us/documentation/services/storage/> (Host It)
2. Azure Data Factory: <http://azure.microsoft.com/en-us/services/data-factory/> (Move It)
3. Azure Data Catalog: <http://azure.microsoft.com/en-us/services/data-catalog> (Doc It)
4. Azure Event Hubs: <http://azure.microsoft.com/en-us/services/event-hubs/> (Bring It)
5. Azure Data Lake: <http://azure.microsoft.com/en-us/campaigns/data-lake/> (Store It)
6. Azure DocumentDB: https://azure.microsoft.com/en-us/services/documentdb/?WT.srch=1&WT.mc.ID=SEM_JQ3fO8dU, Azure SQL Data Warehouse: <http://azure.microsoft.com/en-us/services/sql-data-warehouse/> (Relate It)
7. Azure Machine Learning: <http://azure.microsoft.com/en-us/services/machine-learning/> (Learn It)
8. Azure HDInsight: <http://azure.microsoft.com/en-us/services/hdinsight/> (Big It)
9. Azure Stream Analytics: <http://azure.microsoft.com/en-us/services/stream-analytics/> (Stream It)
10. Power BI: <https://powerbi.microsoft.com/> (See It)
11. Cortana: <http://blogs.windows.com/buildingapps/2014/09/23/cortana-integration-and-speech-recognition-new-code-samples/> and <https://blogs.windows.com/buildingapps/2015/08/25/using-cortana-to-interact-with-your-customers-10-by-10/> (Say It)



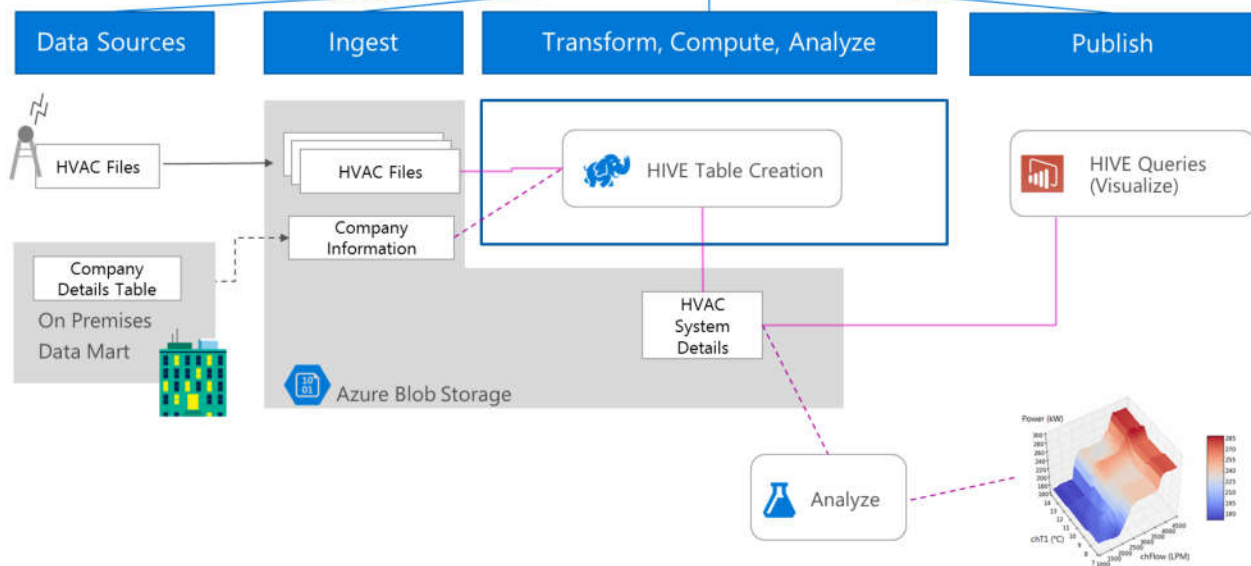
1. The Cortana Analytics Process: <https://azure.microsoft.com/en-us/documentation/learning-paths/cortana-analytics-process/>

Using your HDInsight Solution



Cortana Intelligence Solution – HDInsight

(Cortana Analytics Process)



1. Using the Optional Machine Learning Exercise in combination with this solution:

<https://gallery.cortanaanalytics.com/Experiment/modeling-for-HVAC-system-2>

Project Planning and Tear-Down

- Script Everything for repeatability
- Use Resource Groups for visibility
- Focus on the output
- Create your schedule
- Decide on Service/VM's
- Persist the Data
- Delete the Cluster when complete
- Consider the Azure Data Factory



Hortonworks Powers
Microsoft HDInsight



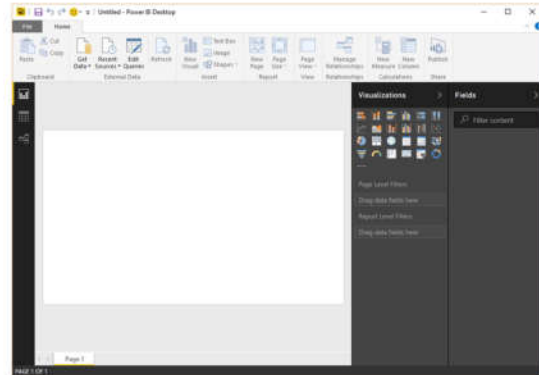
Using Power BI



1. Primary Site: <https://powerbi.microsoft.com/en-us/desktop>
2. Full set of learning tools:
<http://social.technet.microsoft.com/wiki/contents/articles/18462.power-bi-learning-resources.aspx>
3. Why visualizations?
https://en.wikipedia.org/wiki/Anscombe's_quartet

Power BI

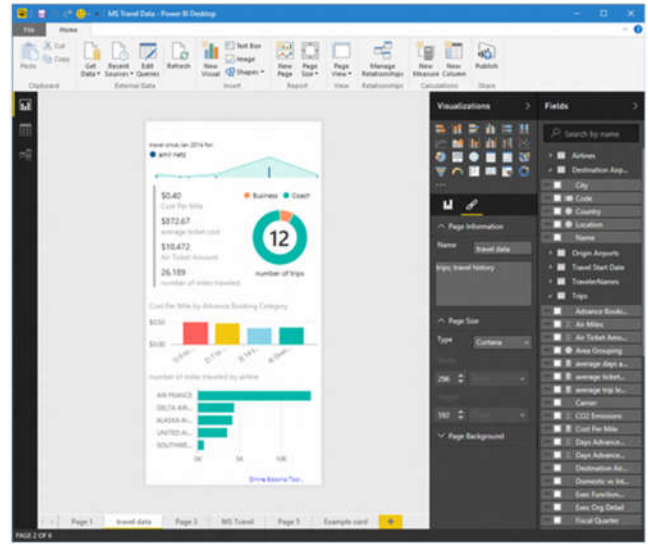
- A Reporting System for Multiple Data Sources
- Available in:
 - Microsoft Excel
 - Web Portal
 - Power BI Desktop
 - Mobile apps (iOS, Android, Windows)
- Author
 - Connect to Data
 - Shape the Data
 - Model the Data
 - Report on the Data
- Publish
 - Local
 - To Service



1. 4-part online course for Power BI in Excel 2013:
https://mva.microsoft.com/en-US/training-courses/data-visualizations-with-power-bi-in-excel-2013-8889?l=kBrIM2A3_104984382
2. <https://azure.microsoft.com/en-us/blog/getting-started-with-azure-data-factory-and-azure-machine-learning-4/>
3. <https://technet.microsoft.com/en-us/library/ms124659%28v=sql.100%29.aspx>
4. <https://msftdbprodsamples.codeplex.com/releases/view/37304>
5. <https://azure.microsoft.com/en-us/documentation/samples/>

Power BI - Accessing

- Microsoft Excel
- Web Portal
- Power BI Desktop
- Mobile apps (iOS, Android, Windows)



1. Web Portal – <http://powerbi.com>
2. Power BI Desktop - <https://powerbi.microsoft.com/en-us/documentation/powerbi-desktop-latest-update/>
3. Excel - <https://support.office.com/en-us/article/Get-Transform-in-Excel-2016-881c63c6-37c5-4ca2-b616-59e18d75b4de?ui=en-US&rs=en-US&ad=US>
4. Mobile Apps - <https://powerbi.microsoft.com/en-us/Mobile>
5. Use this link to see what you are able to do:
<https://app.powerbi.com/view?r=eyJrljoiYWU2ZWQyNzYtOWNlZi00YmU2LWlyYjYtMjk1MWY5YjlyZGlyliwidCI6ImY1NDViZDY2LTdjM2YtNDcyOS04NTFhLWI3Y2EzYWw5Zml2ZSIsImMiOiJh9>

Power BI – Authoring Reports



Components:

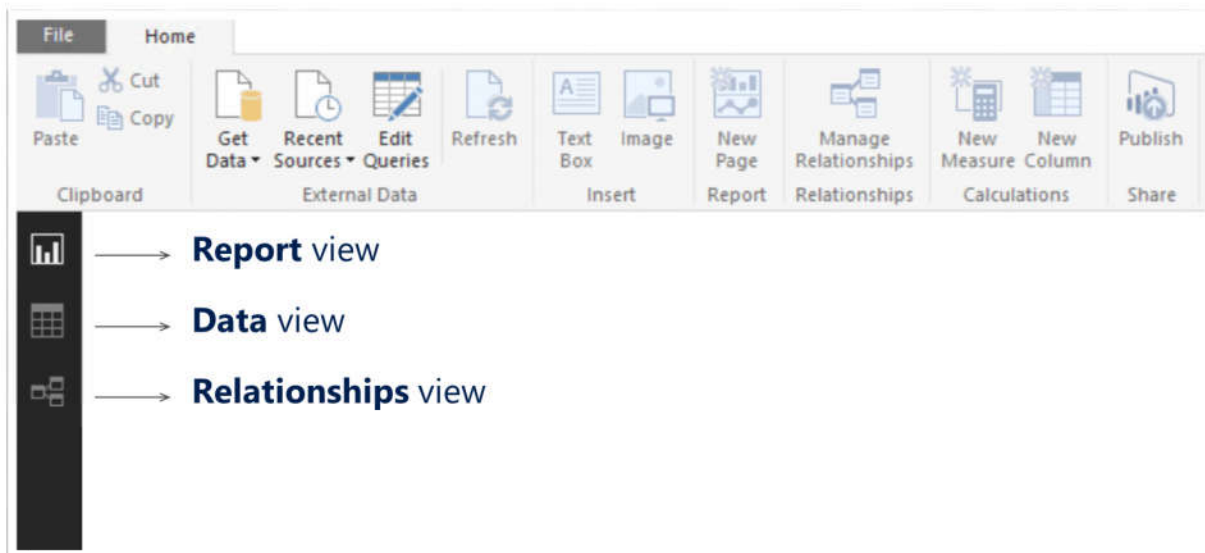
- Data
- Reports
- Dashboards

Process:

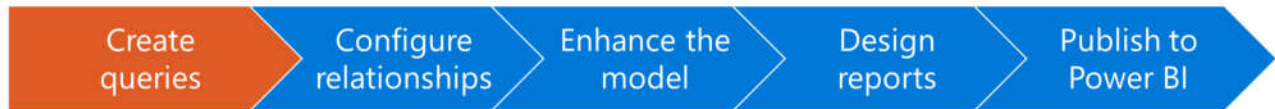
1. Connect to Data
2. Shape the Data
3. Model the Data
4. Report on the Data

1. Getting Started: <https://powerbi.microsoft.com/en-us/documentation/powerbi-desktop-getting-started/>

Power BI Desktop Views



Power BI Desktop – Query Editor



Purpose:

- Filter
- Cleanse
- Reshape

Power BI – Calculations/Measures

Calculated Columns:

- Adds new column
- Materialized and Stored in View

Measures:

- Add aggregation logic
- Not Materialized
- Time Intelligence

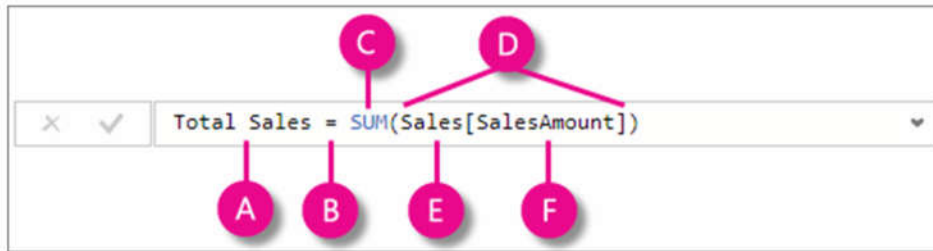
Power BI – DAX

Data Analysis eXpressions (DAX) Functions:

- Excel (~80)
- Table
- Aggregate
- Relationship Navigation
- Context Modification
- Time Intelligence

1. Fundamentals: <https://powerbi.microsoft.com/en-us/documentation/powerbi-desktop-quickstart-learn-dax-basics/>

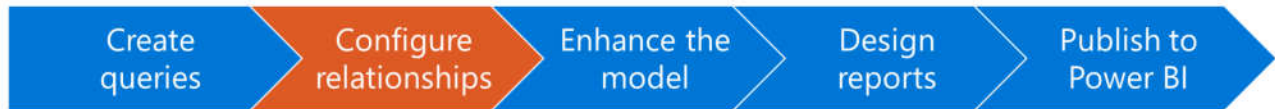
Power BI – DAX Components



- A** – Measure name
- B** – Beginning of formula
- C** – SUM, DAX function
- D** – Parenthesis surrounding function arguments
- E** – Referenced table
- F** – Referenced column

1. More on reading a DAX here: <https://powerbi.microsoft.com/en-us/documentation/powerbi-desktop-quickstart-learn-dax-basics/>

Power BI Desktop – Relationships



Purpose:

- Connect Data
- Visualize

Power BI Desktop – Model



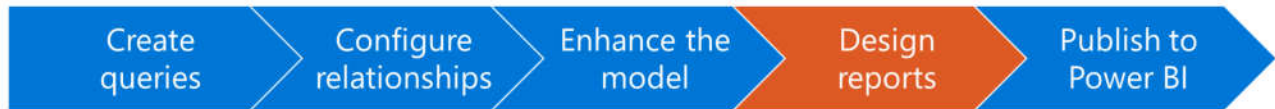
Purpose:

- Propagate Filters
- Calculations
- Measures

Tasks:

- Data Type
- Format
- Sort Order
- Visibility

Power BI Desktop – Reports



Purpose:

- Reporting
- Display and Manipulation



1. To explore more datasets, check here:
<https://powerbi.microsoft.com/en-us/documentation/powerbi-sample-datasets/>

Cortana



1. What Developers Need To Know About the Cortana API - <https://channel9.msdn.com/Blogs/Dev-Inspiration/What-Developers-Need-To-Know-About-the-Cortana-API>
2. Full Training Course: <https://mva.microsoft.com/en-US/training-courses/universal-windows-app-development-with-cortana-and-the-speech-sdk-8487>
3. Quickstart - <https://code.msdn.microsoft.com/Voice-Commands-Quickstart-64ce68ce>
(Note - will install Windows Phone emulator in your VS)
4. Training Series on Microsoft Virtual Academy: <https://mva.microsoft.com/en-US/training-courses/universal-windows-app-development-with-cortana-and-the-speech-sdk-8487>
5. <https://channel9.msdn.com/Shows/Visual-Studio-Toolbox/App-Development-with-Cortana>
6. <https://msdn.microsoft.com/en-us/library/windows/apps/xaml/dn974230.aspx?f=255&MSPPErr=-2147217396>
7. <https://github.com/Microsoft/Windows-universal-samples/tree/master/Samples/SpeechRecognitionAndSynthesis>
8. <https://github.com/Microsoft/Windows-universal-samples/tree/master/Samples/CortanaVoiceCommand>
9. <http://www.slideshare.net/ActiveNick/building-windows-10-universal-apps-with-speech-and-Cortana>
10. https://mva.microsoft.com/en-US/training-courses/universal-windows-app-development-with-cortana-and-the-speech-sdk-8487?l=20D3s5Xz_5904984382



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