

Introducing the Power BI Platform



Student Background

- What is your name?
- What are you doing with Power BI?
- Which products have you used
 - Access
 - Excel
 - SQL Server, SSRS, SSAS
 - Others



Agenda

- Understanding the Power BI Platform
- Creating a Trial Office 365 Tenant for Testing
- Creating Datasets, Reports and Dashboards
- Getting Started with Power BI Desktop
- Staying in Sync with Monthly Updates



What is Business Intelligence?

- BI focuses on business health and performance
 - Gather insights into health of business processes
 - Take corrective actions in a timely fashion
- BI projects typically involve the following...
 - Integrate data from multiple sources
 - Perform data transformation and complex calculations
 - Analyze large data sets with rapid query response
 - Create insightful reports and visualizations
 - Provide insights that are “actionable”



How is the BI Software Industry Changing?

- Software industry is experiencing new proliferation of data
 - Number of telemetry devices is increasing exponentially
 - Device-generated data is providing new business opportunities
 - Example: Uber has used geolocation data to disrupt taxi industry
- Traditional BI and analytics models are being disrupted
 - New analytics capabilities available with new types of data sources
 - Data discovery and unstructured data analytics are new frontiers
 - Demand for self-service BI tools are on the rise
 - Balance of power shifting from IT to business divisions



What is Power BI?

- What is Power BI?
 - Cloud-based subscription service
 - Environment which promotes self-service BI *to the end user*
 - BI Platform to assists with data import, analysis and visualization
- Power BI benefits from being a cloud-based service
 - It takes only 5 seconds to subscribe to the Power BI service
 - New users can create something significant in 5 minutes or less
- Power BI adoption numbers *(as of Q1 2016)*
 - 5 million subscribers
 - 200,000 organizations
 - 40 different languages



Power BI Benefits from Microsoft Azure

- Power BI is built on top of Microsoft Azure
 - Power BI solutions can be scaled as required
 - Power BI solutions have global reach



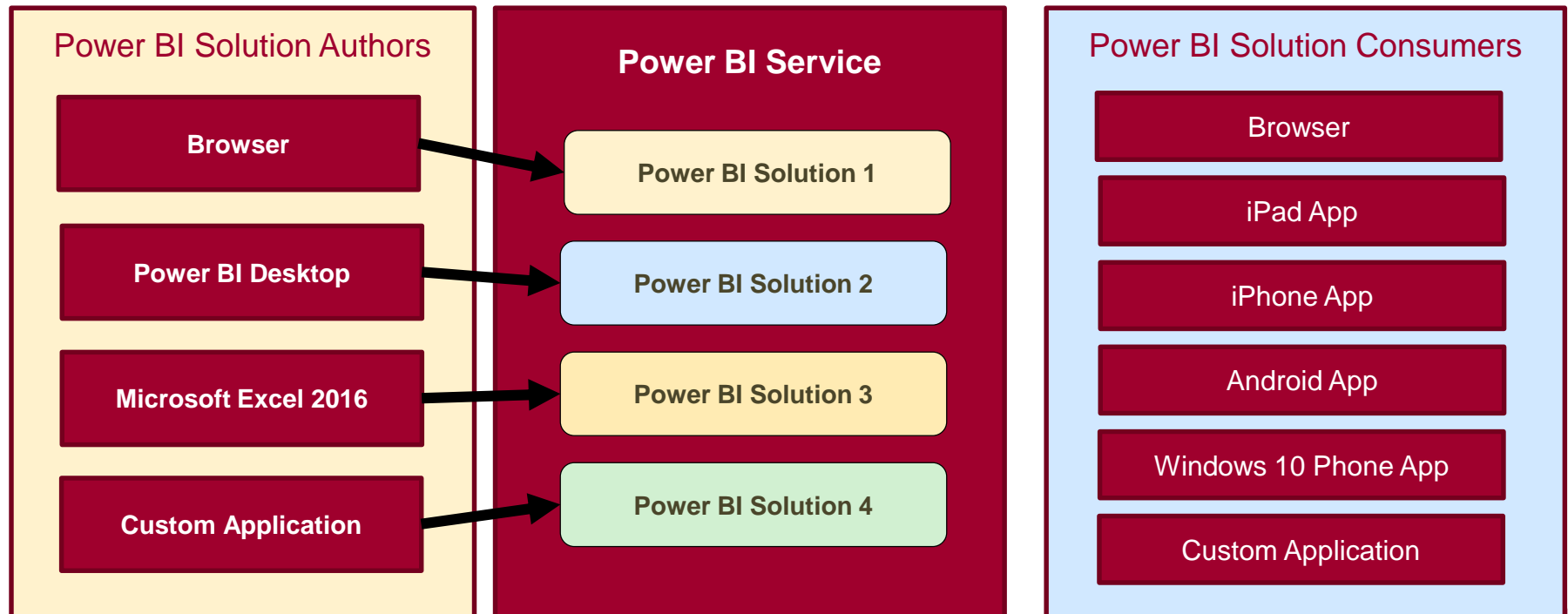
The Power BI Service

- The Power BI Service
 - Provides cloud-based foundation for Power BI platform
 - Accessible through browser at <https://app.powerbi.com>







Power BI Service Architecture

- Power BI support for authors and consumers
 - BI solution authors have a choice in authoring tools
 - BI solutions consumers can use wide range of devices







Power BI Licensing

- User-based licensing

<p>Power BI (free)</p> <p>\$0.00 user/month</p> <p>A cloud-based business analytics service that enables anyone to visualize and analyze data with greater speed, efficiency, and understanding. It ...</p> <p>Office 2016 desktop & mobile apps Not included</p> <p>Office 365 services </p> <p>...</p>	<p>Power BI Pro</p> <p>\$9.99 user/month</p> <p>A cloud-based business analytics service that enables anyone to visualize and analyze data with greater speed, efficiency, and understanding. Power ...</p> <p>Office 2016 desktop & mobile apps Not included</p> <p>Office 365 services </p> <p>...</p>	<p>Office 365 Enterprise E5</p> <p>\$35.00 user/month</p> <p>The Office suite, plus email, instant messaging, HD video conferencing, 1 TB personal file storage and sharing, and advanced security, analytics and PSTN ...</p> <p>Office 2016 desktop & mobile apps </p> <p>Office 365 services </p> <p>...</p>
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- Capacity-based Licensing

<p>Power BI Premium P1</p> <p>\$4,995.00 instance/month</p> <p>Power BI capacity dedicated to your organization, unlocking unlimited content distribution and dependable performance. P1 offers 8 virtual cores ...</p> <p>Office 2016 desktop & mobile apps Not included</p> <p>Office 365 services </p> <p>...</p>	<p>Power BI Premium P2</p> <p>\$9,995.00 instance/month</p> <p>Power BI capacity dedicated to your organization, unlocking unlimited content distribution and dependable performance. P1 offers 16 virtual cores ...</p> <p>Office 2016 desktop & mobile apps Not included</p> <p>Office 365 services </p> <p>...</p>	<p>Power BI Premium P3</p> <p>\$19,995.00 instance/month</p> <p>Power BI capacity dedicated to your organization, unlocking unlimited content distribution and dependable performance. P1 offers 32 virtual cores ...</p> <p>Office 2016 desktop & mobile apps Not included</p> <p>Office 365 services </p> <p>...</p>	<p>Power BI Premium EM3 (Month to Month)</p> <p>\$2,495.00 instance/month</p> <p>Embed Power BI content in your custom application, powered by 4 virtual cores of dedicated capacity. Some Premium features are disabled ...</p> <p>Office 2016 desktop & mobile apps Not included</p> <p>Office 365 services </p> <p>...</p>
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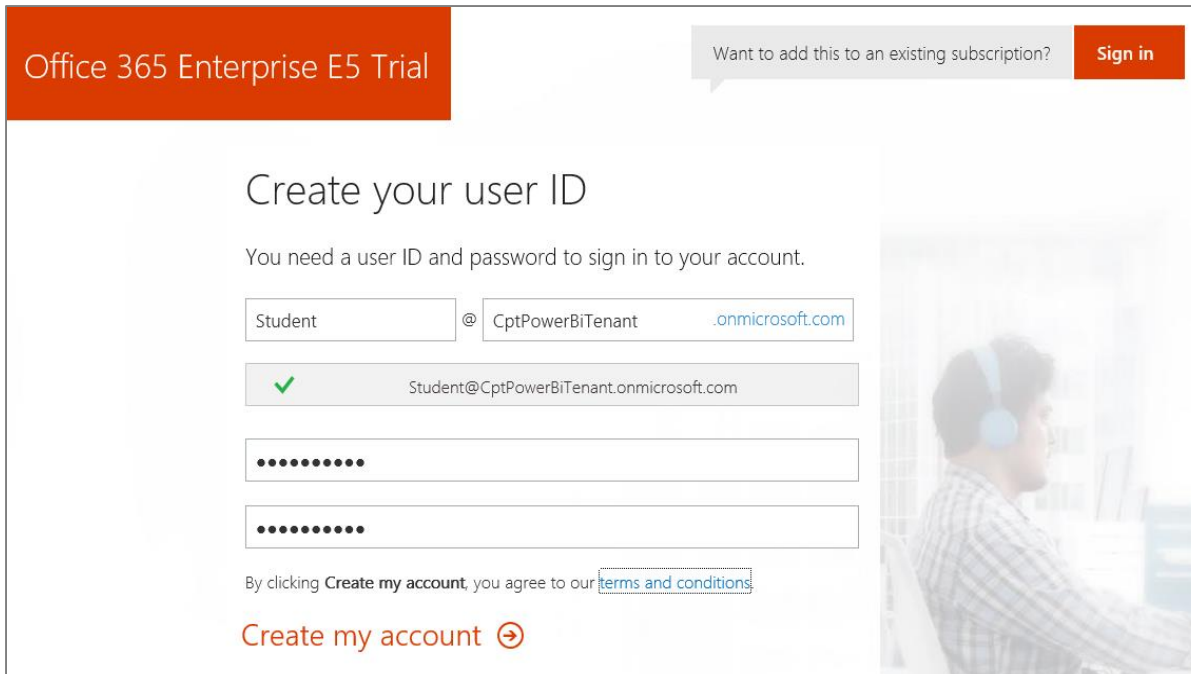
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Creating a Power BI Testing Environment

- Sign up for an Office 365 Enterprise E5 trial account
 - Creates a new Office 365 tenant
 - Creates an account which is tenant administrator
 - You can create 25 user accounts for testing purposes
 - You can create and test Office 365 unified groups



The screenshot shows the 'Office 365 Enterprise E5 Trial' sign-up page. At the top left, there's an orange banner with the text 'Office 365 Enterprise E5 Trial'. To the right, there's a grey box with the text 'Want to add this to an existing subscription?' and an orange 'Sign in' button. The main heading is 'Create your user ID'. Below it, a message states: 'You need a user ID and password to sign in to your account.' The form consists of three input fields: a text field for the first part of the email (containing 'Student'), a dropdown menu for the domain (showing 'CptPowerBiTenant' and '.onmicrosoft.com'), and a password field (masked with dots). Below these fields, there's a green checkmark icon and the email address 'Student@CptPowerBiTenant.onmicrosoft.com'. At the bottom, there's a 'Create my account' button with a right-pointing arrow. To the right of the form, there's a blurred image of a person wearing a headset, likely a customer support agent.

Office 365 Enterprise E5 Trial

Want to add this to an existing subscription? [Sign in](#)

Create your user ID

You need a user ID and password to sign in to your account.

Student @ CptPowerBiTenant .onmicrosoft.com

✓ Student@CptPowerBiTenant.onmicrosoft.com

.....

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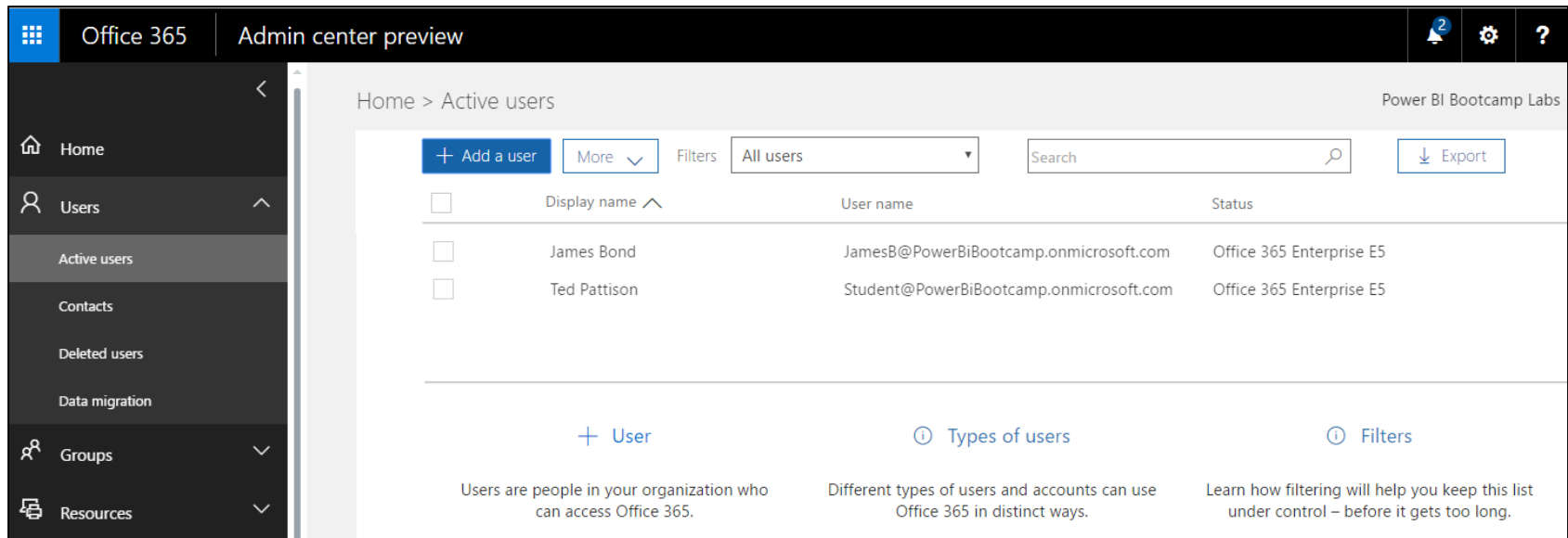
By clicking **Create my account**, you agree to our [terms and conditions](#)

Create my account ➔



Office 365 admin center

- Chores to accomplish in Office 365 admin center
 - Learn how to add secondary user accounts for testing
 - Learn how to view and manage groups



Office 365 | Admin center preview

Home > Active users

Power BI Bootcamp Labs

[+ Add a user](#) [More](#) Filters All users [Export](#)

<input type="checkbox"/>	Display name ^	User name	Status
<input type="checkbox"/>	James Bond	JamesB@PowerBiBootcamp.onmicrosoft.com	Office 365 Enterprise E5
<input type="checkbox"/>	Ted Pattison	Student@PowerBiBootcamp.onmicrosoft.com	Office 365 Enterprise E5

[+ User](#) [Types of users](#) [Filters](#)

Users are people in your organization who can access Office 365.

Different types of users and accounts can use Office 365 in distinct ways.

Learn how filtering will help you keep this list under control – before it gets too long.





DEMO

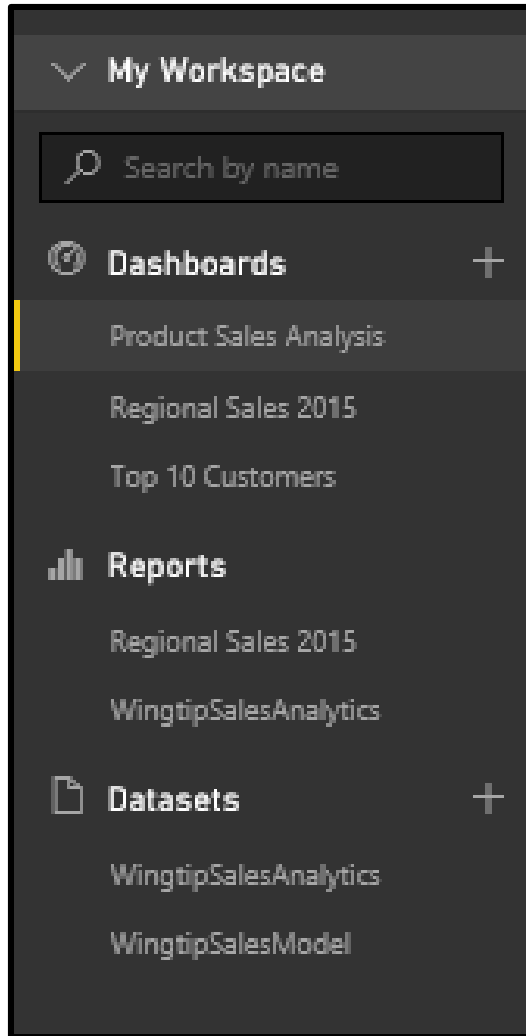
Managing Users and Subscriptions in the Office 365 admin center

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Central Power BI Concepts

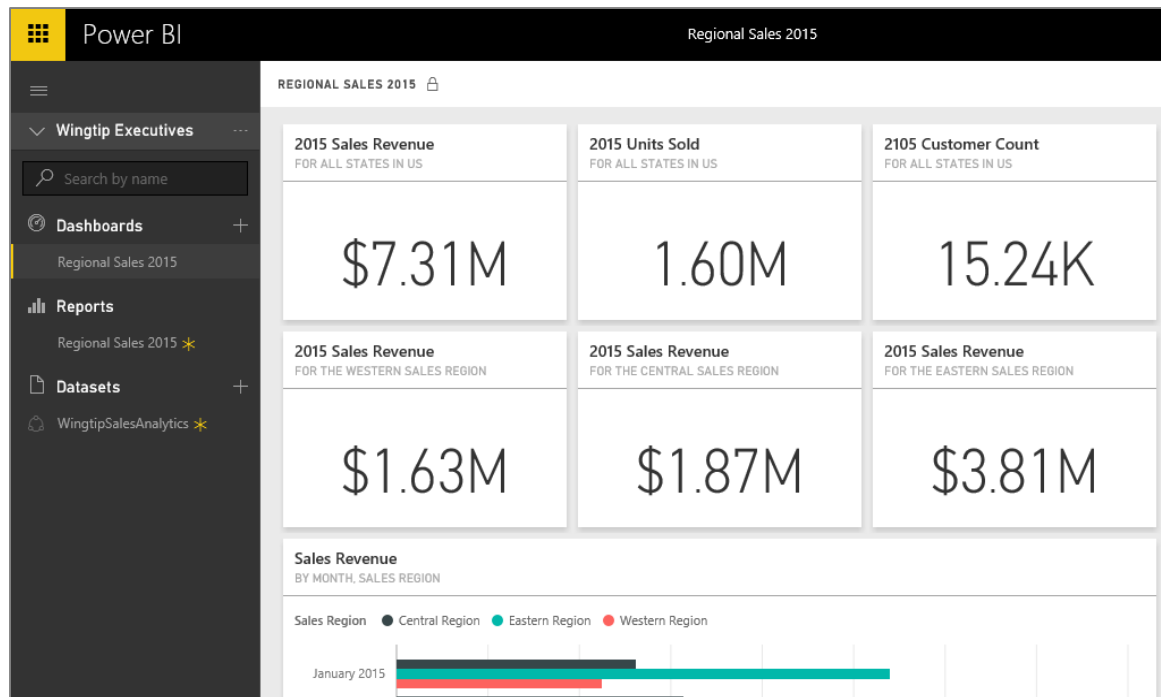


- **Workspace**
 - Provides user context and asset container
 - Every user has personal workspace
 - Team development requires group workspaces
- **Dashboard**
 - Consolidated view into reports and datasets
 - Custom solution entry point for mobile users
- **Report**
 - Collection of pages with tables & visualizations
 - Provides interactive control of filtering
- **Dataset**
 - Data model containing one or more tables
 - Can be very simple or very complex



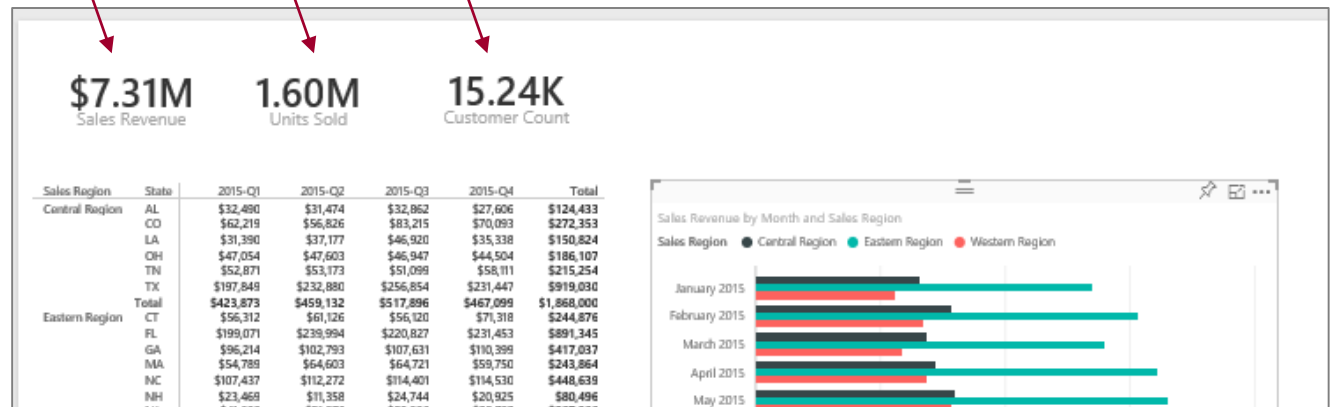
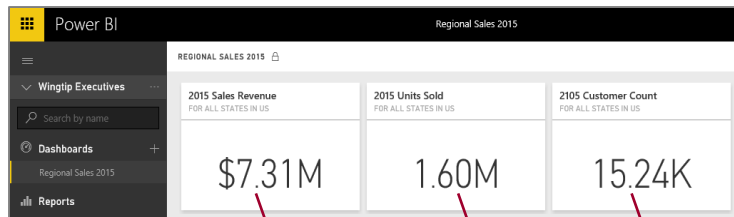
Dashboards and Tiles

- Dashboard is a collection of tiles
 - Tile can be created by pinning visual from a report
 - Tile can be created by pinning query result from dataset



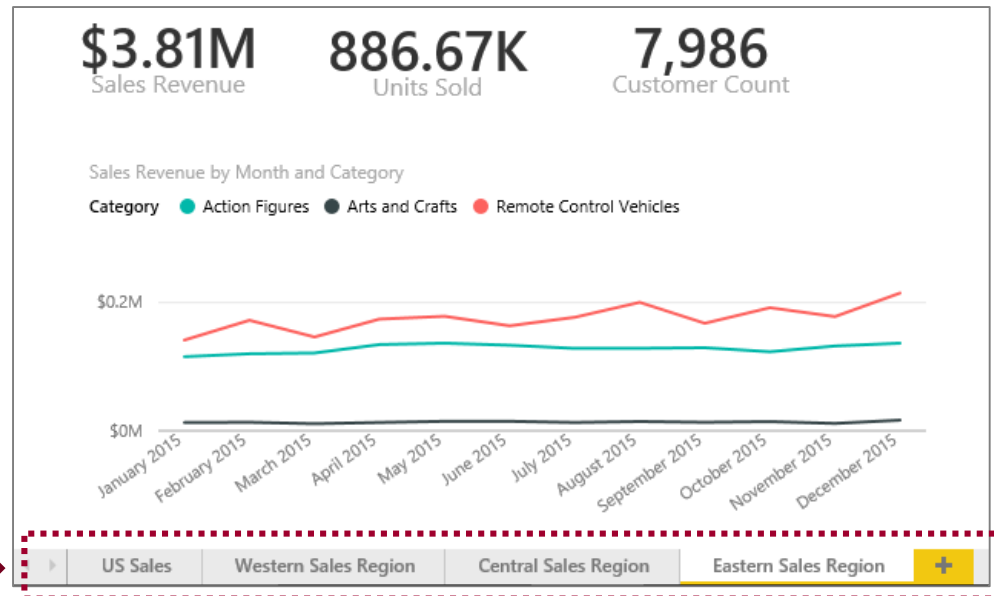
Dashboards and Reports

- Dashboards link users to reports
 - Dashboard tiles designed to provide high-level view
 - Clicking tiles drills down into report to see more detail



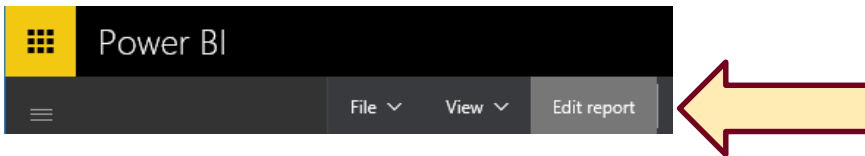
Reports and Pages

- Reports contain one or more pages
 - A report can be designed with a single page
 - A report can be designed with many pages
 - Tabbed navigation located at bottom of report view
 - Each report is associated with exactly one dataset

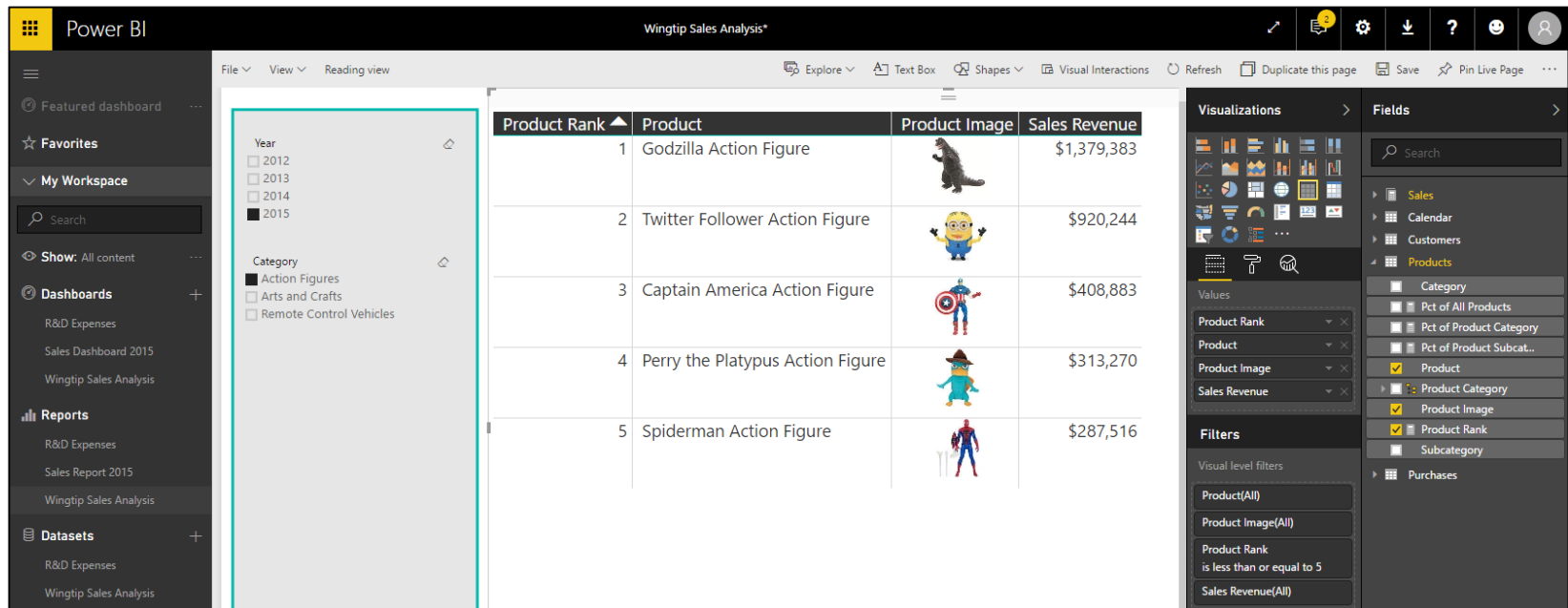







Report Authoring

- Report initially opens in reading view
 - Click Edit report to switch to edit mode



- Report design tools appear on right side of page

A screenshot of the Power BI report in edit mode. The report is titled 'Wingtip Sales Analysis' and is displayed in 'Reading view'. The main content area shows a table with 5 rows of product data. On the right side, there are two panels: 'Visualizations' and 'Fields'. The 'Visualizations' panel shows a list of visual types (Bar, Line, Pie, etc.) and a list of fields (Product Rank, Product, Product Image, Sales Revenue). The 'Fields' panel shows a list of fields (Sales, Calendar, Customers, Products) and a list of visualizations (Category, Pct of All Products, Pct of Product Category, etc.). The 'Visualizations' panel also shows a list of filters (Product Rank, Product Image, Sales Revenue) and a list of visual level filters (Product(All), Product Image(All), Product Rank is less than or equal to 5, Sales Revenue(All)).

Product Rank	Product	Product Image	Sales Revenue
1	Godzilla Action Figure		\$1,379,383
2	Twitter Follower Action Figure		\$920,244
3	Captain America Action Figure		\$408,883
4	Perry the Platypus Action Figure		\$313,270
5	Spiderman Action Figure		\$287,516

Visuals (aka Visualizations)

- Reports are designed using visual (aka visualizations)
 - Each visual is based on an underlying visualization type
 - Visualization type can be changed using **Visualizations** pane

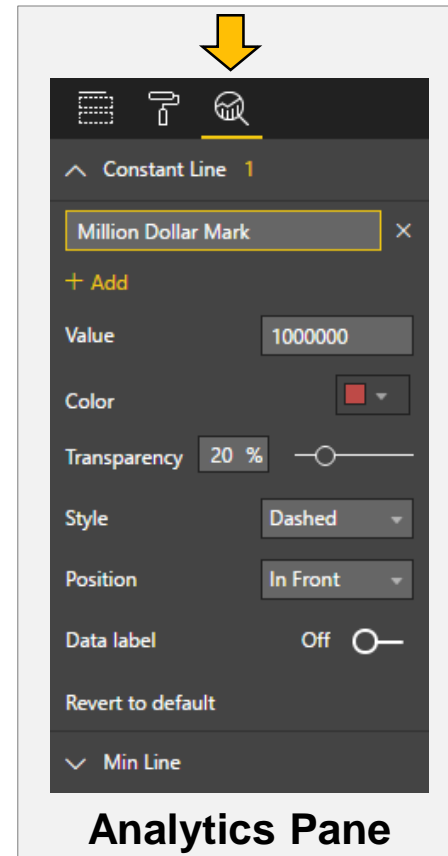
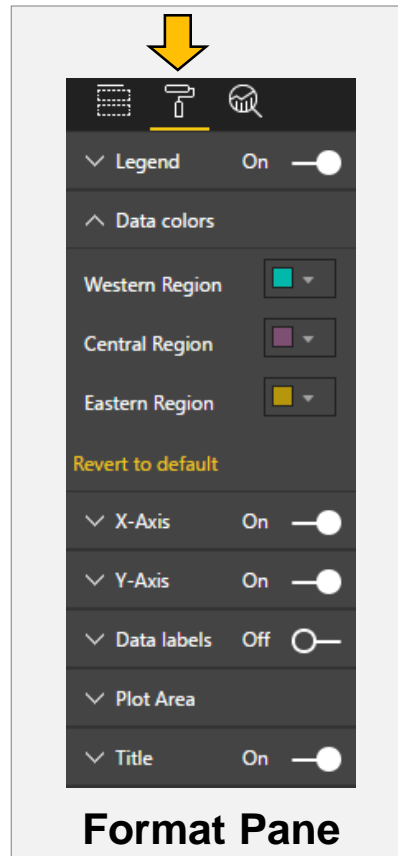
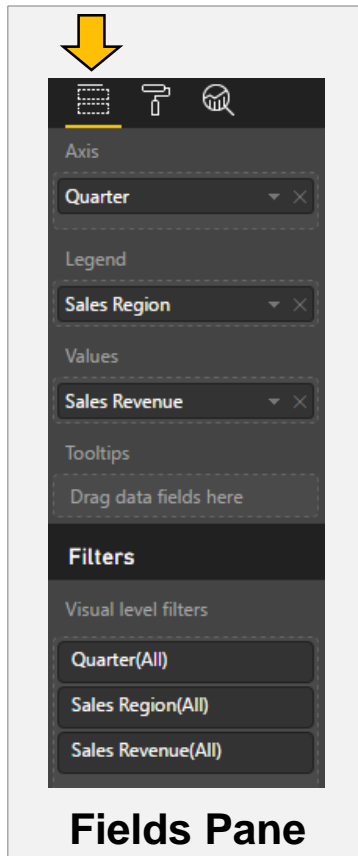


- Visuals creating by using fields from tables inside **Fields** list



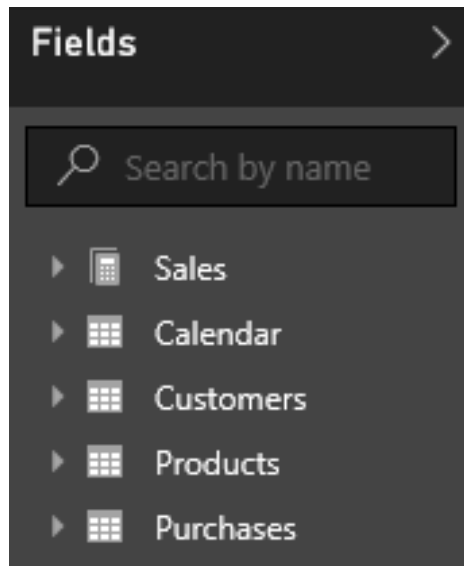
Editing Visual Properties

- Visual properties modified using three property panes
 - Visual properties vary greatly depending on type of visualization



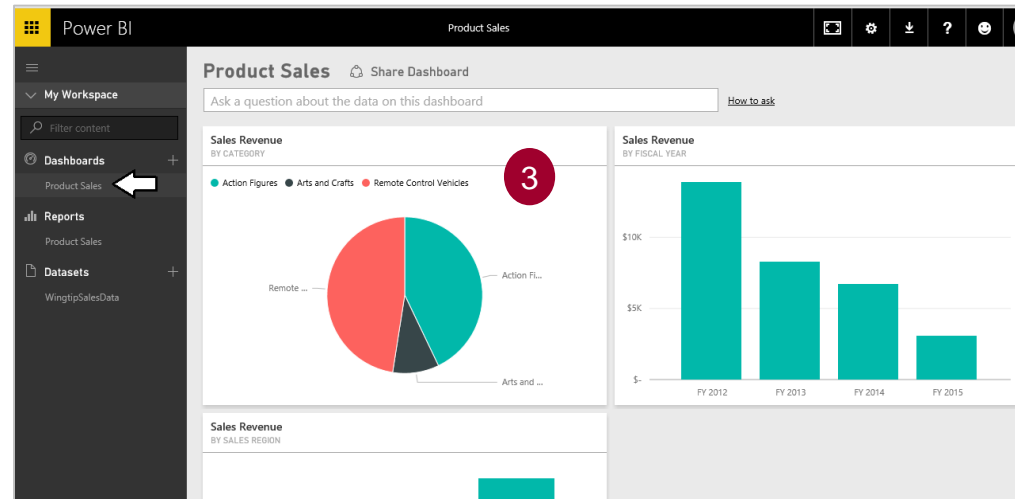
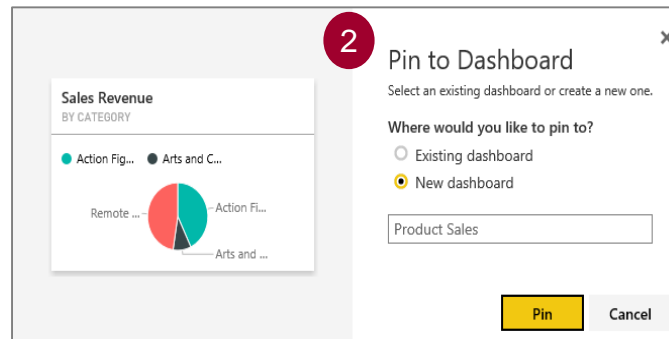
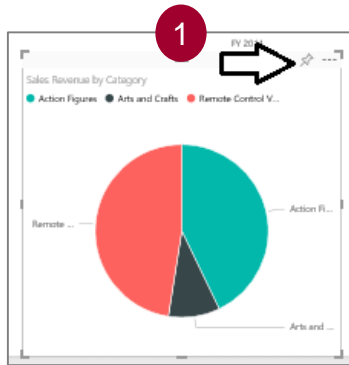
Report and Datasets

- Each report is based on an underlying dataset
 - **Fields** list in report designer shows tables and fields
 - Report author sees tables & fields as dataset consumer



Creating Dashboards

- Dashboards contain tiles
- Tiles created from visuals on report pages





DEMO

Getting started with Datasets, Reports and Dashboards

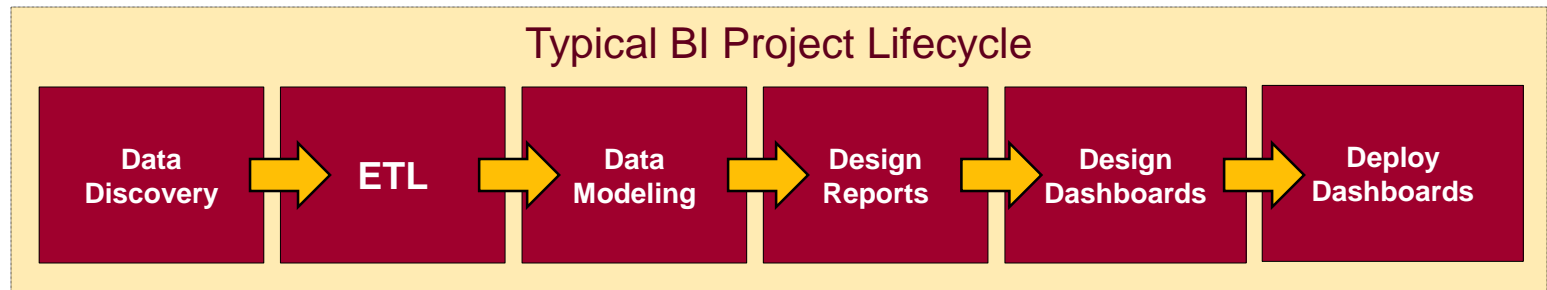
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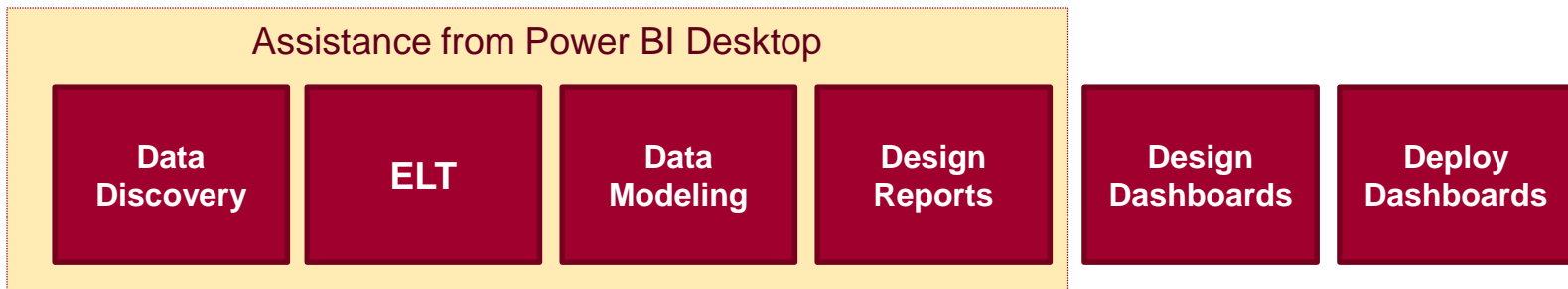
Project Lifecycle for a Custom BI Solution

- Lifecycle of a typical BI project includes...
 - Discover where the data lives
 - Extract, transform and load (ETL) data
 - Model data to create dataset for analytics and reporting
 - Design and implement reports on top of dataset
 - Consolidate reports into one or more dashboards
 - Package project artifacts for deployment
 - Deploy to production environment



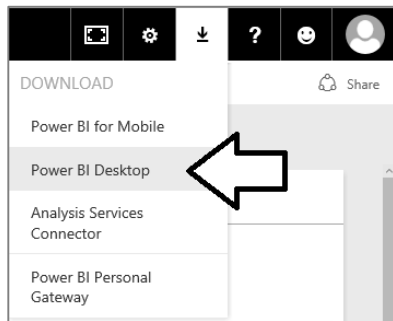
Working with Power BI Desktop

- Power BI Desktop focuses on first four phases
 - Query features for Data Discovery
 - Query features for ETL
 - Design features and DAX language for data modeling
 - Report design using a visual report designer
 - No support for designing dashboards
 - No support for packaging an entire solution



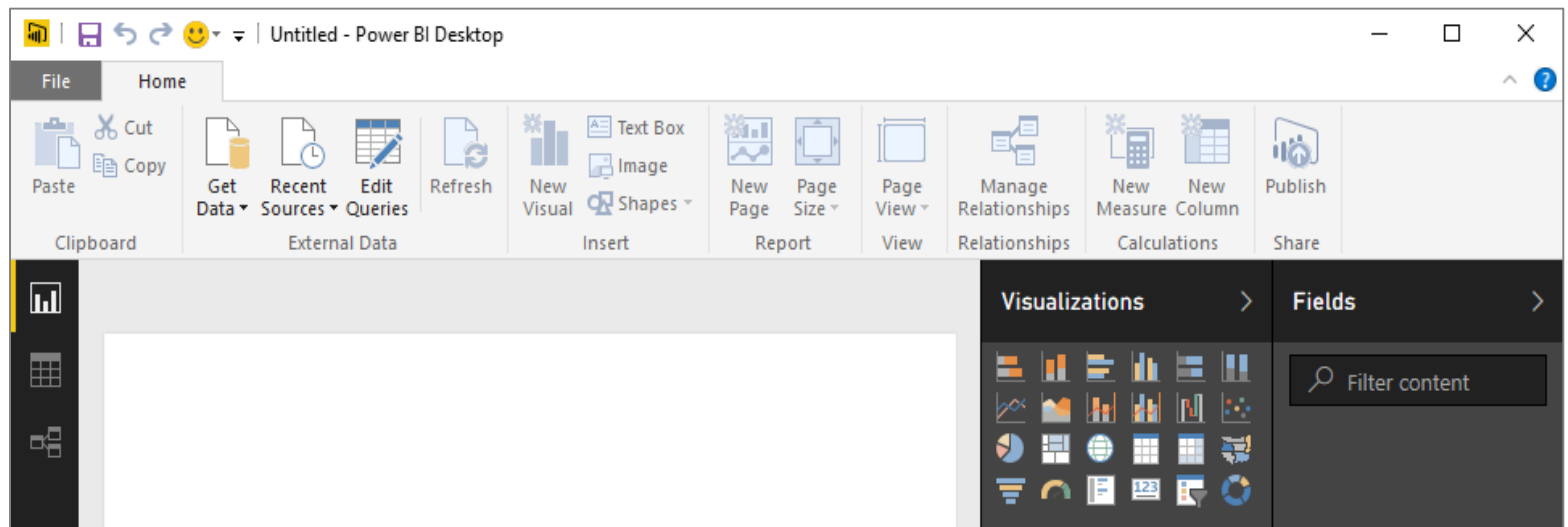
Installing Power BI Desktop

- Power BI Desktop quick & easy to install over the Internet
 - Select Power BI Desktop option from Power BI Download menu
 - Power BI Desktop downloads & installs in less than a minute



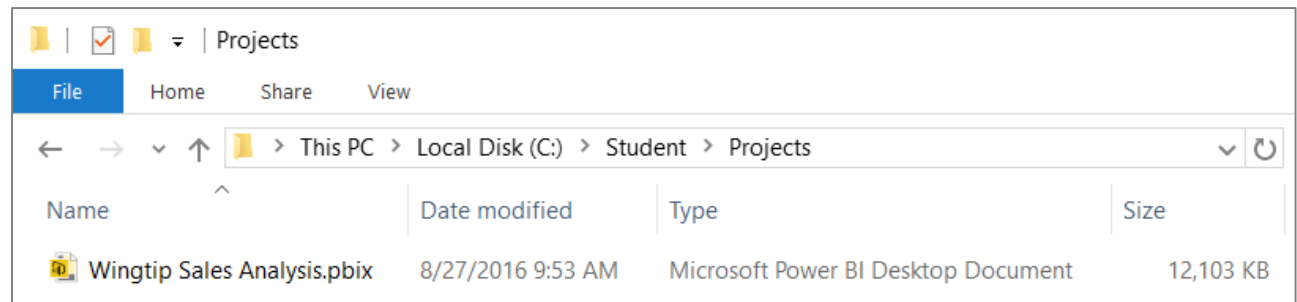
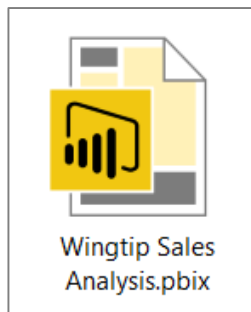
Working with Power BI Desktop

- Power BI Desktop is a Windows application
 - Work is saved and published in terms of projects
 - You can work on multiple projects at once
 - Each project runs in its own Power BI Desktop instance
 - Power BI Desktop can freeze up or act buggy
 - Quit & restart Power BI Desktop if it acts strangely



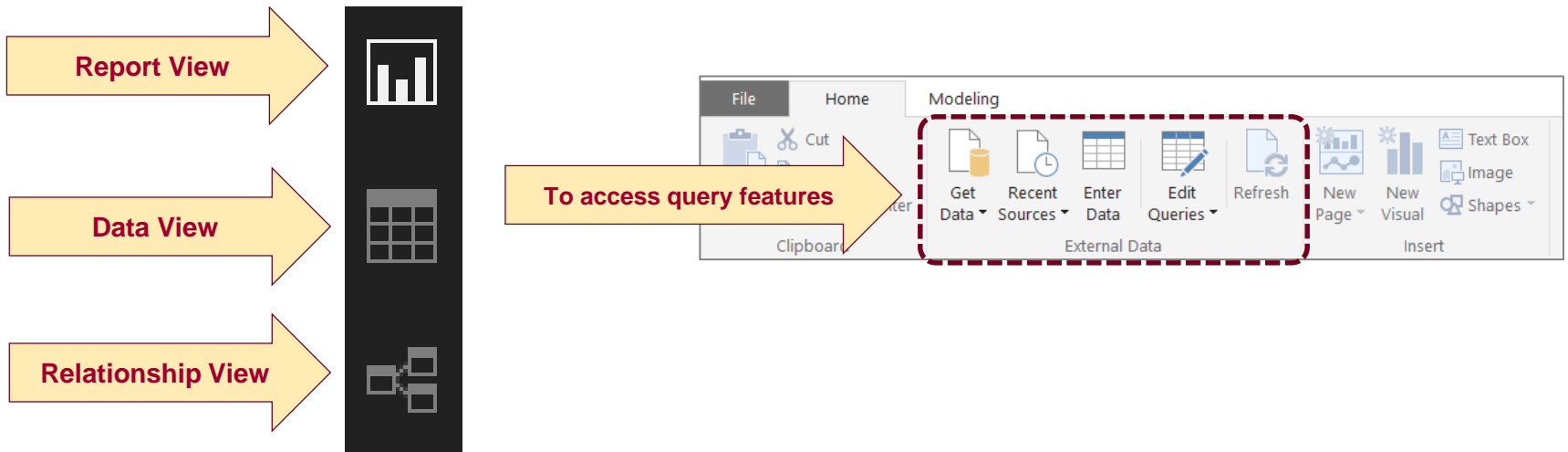
Projects and PBIX Files

- Power BI Desktop projects saved using PBIX files
 - PBIX file contains data source definitions
 - PBIX file contains query definitions
 - PBIX file contains data imported from queries
 - PBIX file contains exactly one data model definition
 - PBIX file contains exactly one report
 - PBIX file never contains data source credentials



Getting Around in Power BI Desktop

- What do you need to learn to use Power BI Desktop?
 - Query features for importing data
 - Design features for modeling data
 - Report designer for creating reports
- Navigating between view modes



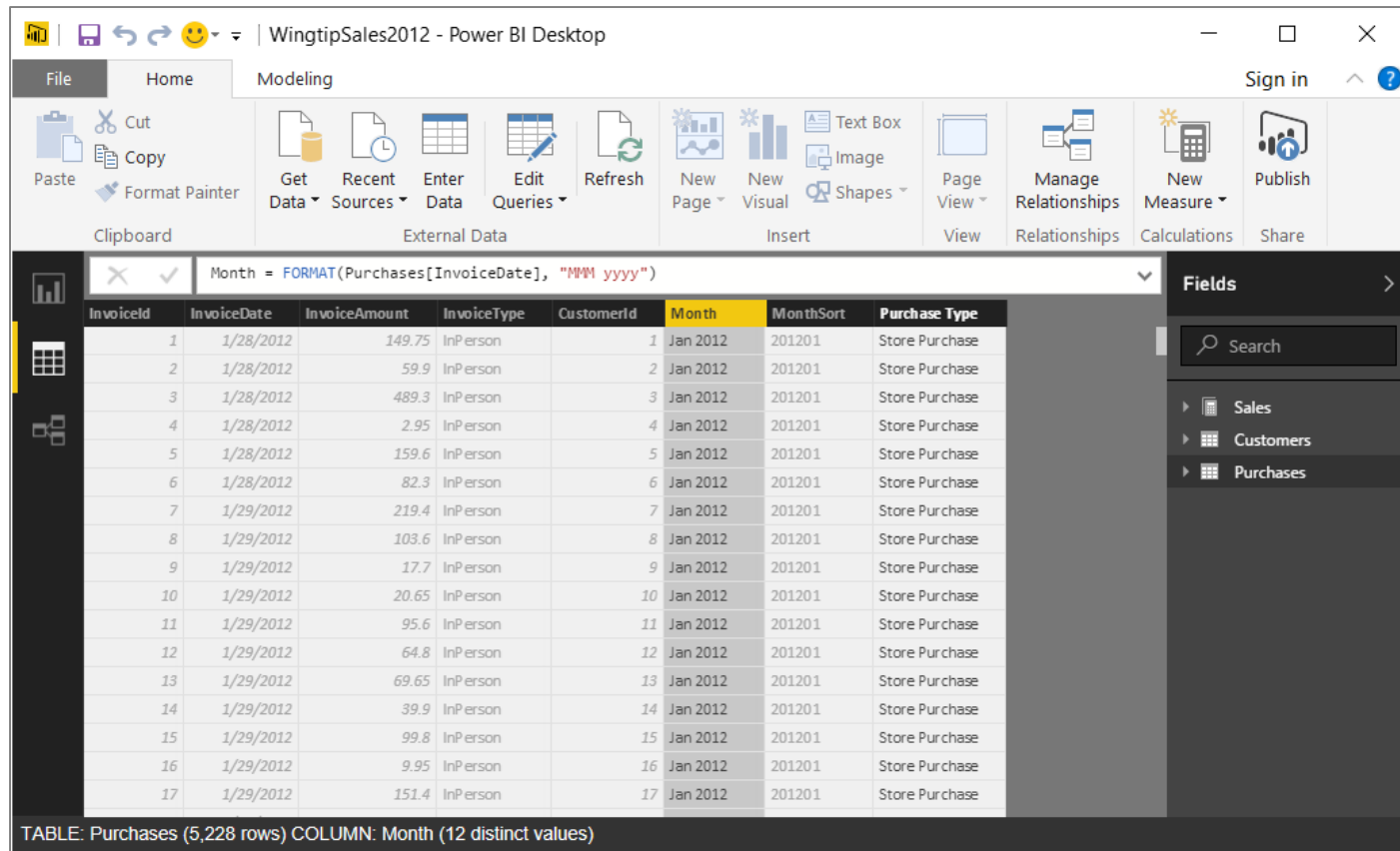
Query Editor Window

- Power BI Desktop provides separate Query Editor window
 - Provides powerful features for designing queries
 - Displays list of all queries in project on the left
 - Displays **Properties** and **Applied Steps** for selected query on right
 - Preview of table generated by query output shown in the middle
 - Query can be executed using **Apply** or **Close & Apply** command



Data View

- Data view is used for data modeling
 - Data View displays columns and rows of data for each table
 - Data View used to create calculated columns and measures



The screenshot shows the Power BI Desktop interface with the Data View selected. The ribbon includes File, Home, and Modeling tabs. The Modeling tab is active, showing options like Get Data, Recent Sources, Enter Data, Edit Queries, Refresh, New Page, New Visual, Text Box, Image, Shapes, Page View, Manage Relationships, New Measure, and Publish. A red arrow points to the Data View icon in the left-hand pane.

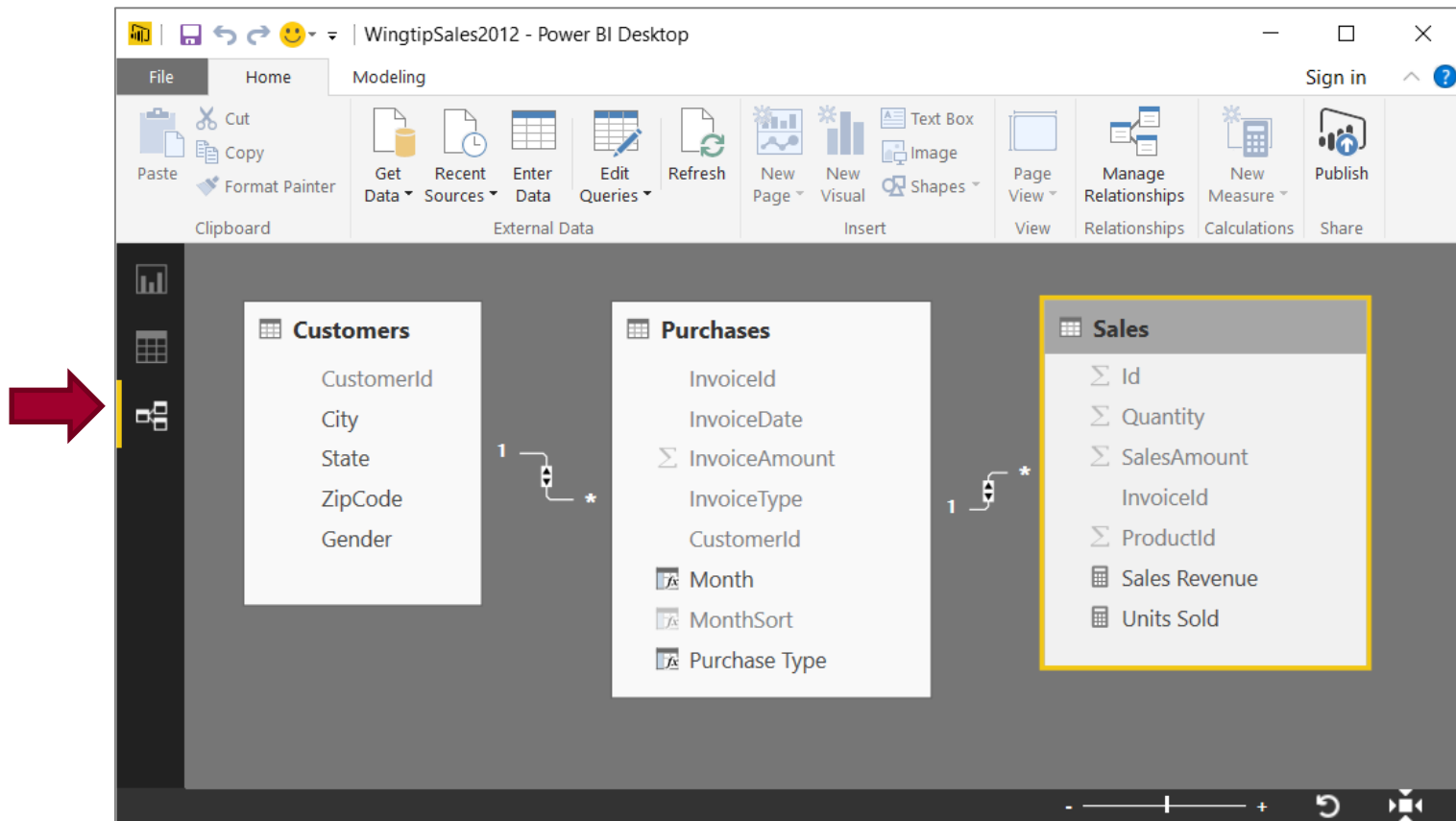
The main area displays a table with the following columns: InvoiceId, InvoiceDate, InvoiceAmount, InvoiceType, CustomerId, Month, MonthSort, and Purchase Type. The 'Month' column is highlighted in yellow and contains the formula: `Month = FORMAT(Purchases[InvoiceDate], "MMM yyyy")`. The table shows 17 rows of data, all with a 'Store Purchase' type and 'In Person' invoice type, occurring in January 2012.

Fields pane on the right shows the 'Purchases' table selected, with columns 'Sales', 'Customers', and 'Purchases' listed.

TABLE: Purchases (5,228 rows) COLUMN: Month (12 distinct values)

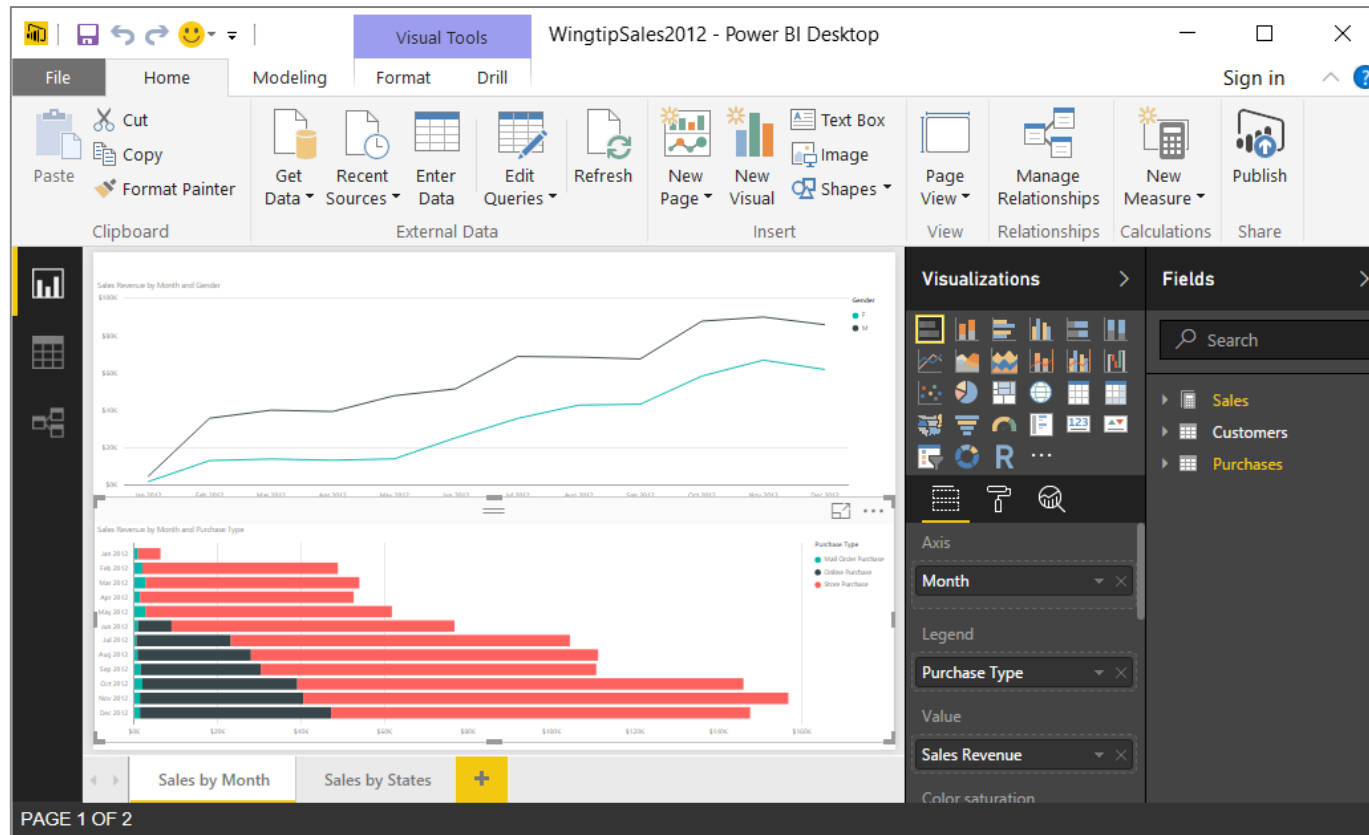
Relationship View

- Displays tables, fields and relationships
 - Used to view tables, fields and relationships in project's dataset
 - Used to create relationships when importing new tables



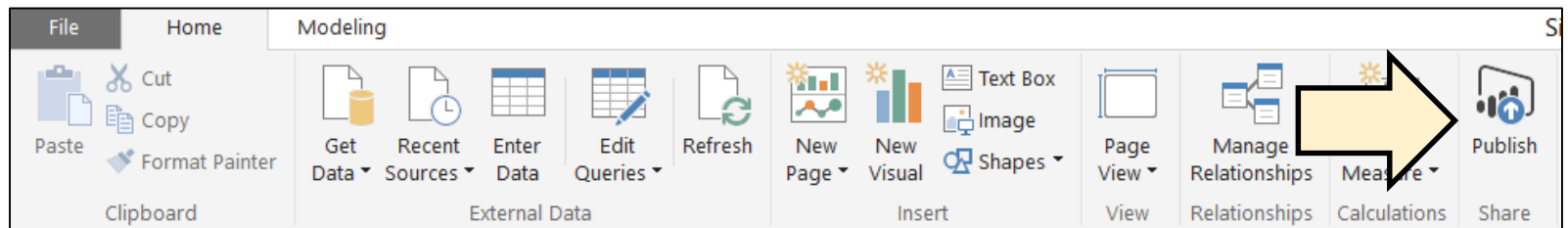
Report View

- Report view used to design report for current project
 - Report designer is very similar to Power BI service
 - Dataset can be simplified for Report View by hiding fields

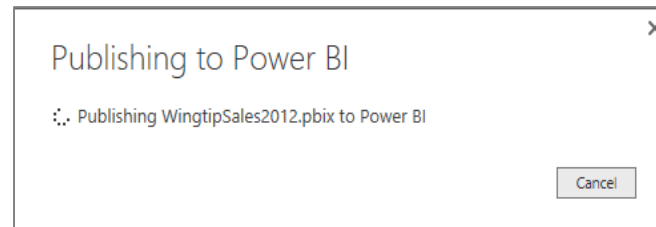
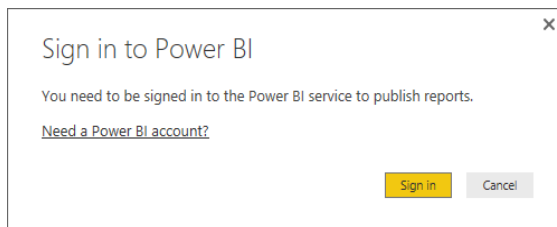


Publishing a Power BI Desktop Project

- Power BI Desktop provides **Publish** command
 - Used to publish project to Power BI service



- Requires logging into your Office 365 account



- Published articles added to target workspace





DEMO

Getting Up and Running with Power BI Desktop

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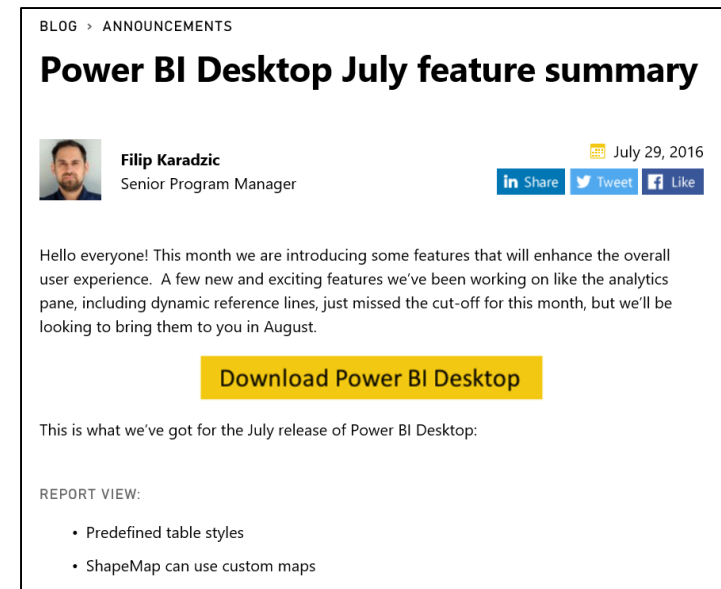
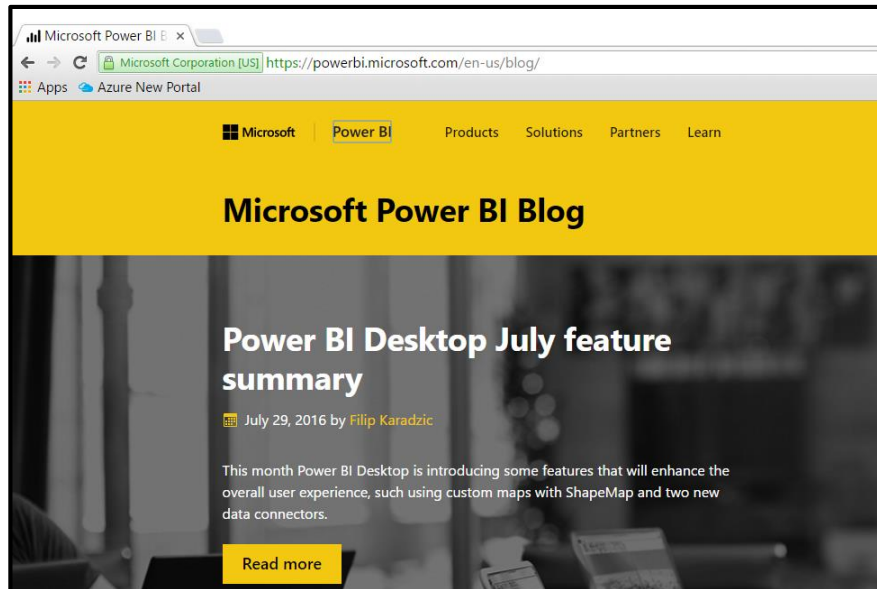


Power BI Team Blog

- Power BI Team Blog is an Essential Resource

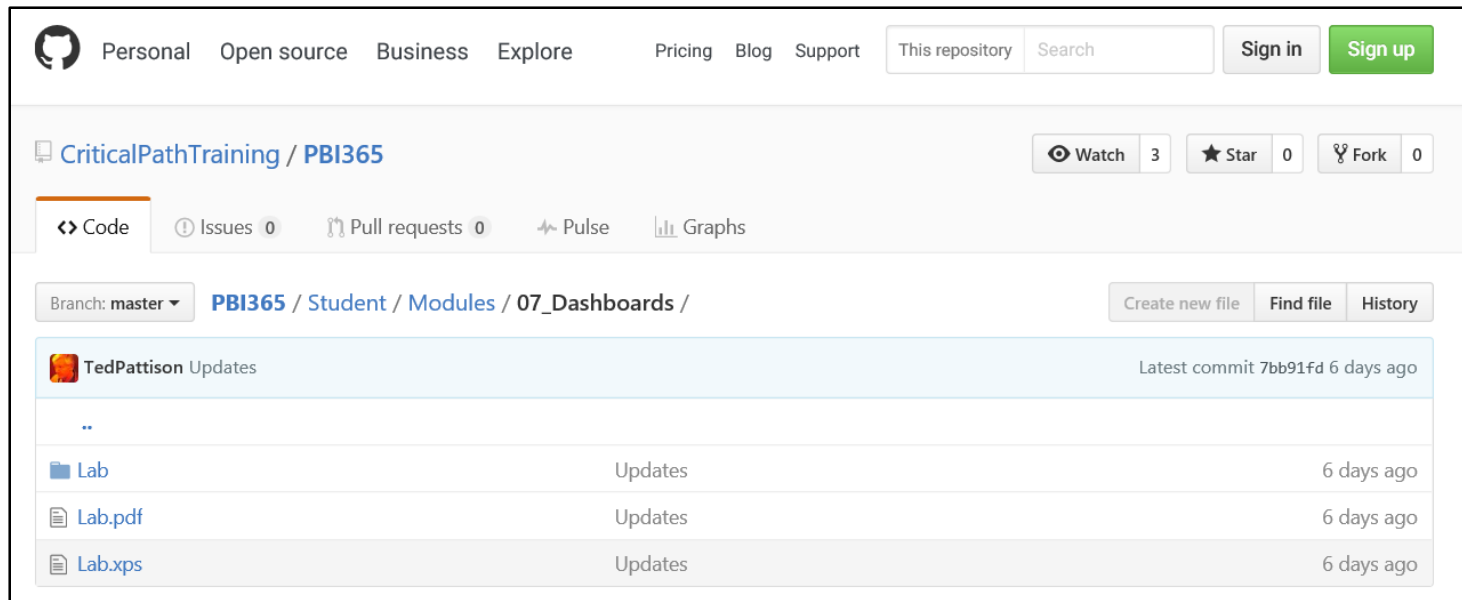
<https://powerbi.microsoft.com/en-us/blog/>

- Be on the lookout for monthly updates



Live Labs for PBI365

- Student files for this course maintained in GitHub
 - Students files updated on a monthly basis
 - Lab write-ups available in PDF and XPS formats
 - Go to <https://github.com/CriticalPathTraining/PBI365>



Summary

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