Module 1

Introducing Power BI

Module Overview

- Power BI
- The Power BI Service

Lesson 1: Power BI

- What is Power BI?
- PowerBI.com
- Power BI Report Server
- Power BI Desktop
- Reports
- Dashboards
- Designing reports and dashboards

What is Power BI?

- The Power BI suite comprises Power BI Desktop, Power BI Service, Power BI Report Server, and Power BI Mobile. Use it to:
  - Quickly create reports using the app or portal
  - Import data from files, on-premises databases, and SaaS providers
  - Combine multiple data sources into one report
  - Publish reports in the cloud or on-premises
  - Create dashboards on the portal from report items
  - Share dashboards with colleagues
  - View reports and dashboards with the Power BI Mobile app for iOS and Android devices
  - Gain insights in your data with Power BI Q&A

PowerBI.com

- The Power BI Service is a web portal for sharing reports, data, and dashboards
- My Workspace comprises:
  - Dashboards
  - Reports
  - Workbooks
  - Datasets
- App workspaces:
  - Package contents into an app
  - Share app with other users
  - More granular security than traditional workspaces

Power BI Report Server

- On-premises enterprise reporting solution
- Combines the functionality of SSRS with Power BI
- Licensed with:
  - Power BI Premium
  - SQL Server Enterprise Edition with Software Assurance
- Download from Microsoft Download Center
- Configure using Report Server Configuration Manager

Power BI Desktop

- Power BI Desktop:
  - Combines Microsoft's Power Query engine, with data modeling, and visualizations
  - Free, stand-alone application for creating reports
  - Download from Microsoft website or Power BI portal
  - Report files can be saved with a .pbix extension
- Create reports using three-step process:
  1. Connect to data sources
  2. Shape the data to create the model
  3. Create reports to share with colleagues
- Workspace views: Report, Data, Model

Reports

- Create multipage reports in Power BI Desktop
  - Load datasets into a report, or use DirectQuery to query the data source and always return latest data
  - DirectQuery is useful for large datasets with long load time
  - Report view:
    - Add visualizations and additional report pages
    - Publish reports to the portal
  - Data view:
    - Shape data using transformations and Power Query Editor tools
  - Model view:
    - Manage relationships between datasets
    - Relationship autodetection runs by default
  - Use templates to share and reuse shaped data and formatted visuals

Dashboards

- Power BI dashboards are created by pinning visuals to a new or existing dashboard
- Pin Live Page creates a dashboard tile from a report page, including all items in the report
- Pin from one dashboard to another dashboard for easy duplication
- Dashboard sharing with other users for a read-only view
- Full Screen Mode displays the dashboard without menus or browser—ideal for presentations or TVs
- Last Refresh Time can be enabled for each tile
- Favorite dashboards for most frequently used
- Featured dashboard to return to most used first

Designing reports and dashboards

- Use techniques to design your reports and dashboards to make them easy to digest:
  - **Customize visuals**: use colors, labels, borders, and titles to enhance and group related visuals together
  - **Positioning**: most import information at top of report or dashboard, especially for viewing on mobile device
  - **Audience**: what metrics are most useful to end users? Think about displaying on TV screen or large monitor
  - **Storytelling**: only show relevant and related data, use multipage reports to break up data into context/subject
  - **Choosing a formatting a visual**: bigger visuals for more important data; try out charts to find best for scenarios

Demonstration and Exercise 1

You will see how to:

- Create a new report in Power BI Desktop
- Connect to the AdventureWorksDW SQL Server Database
- Add a chart to the report using AdventureWorksDW data

Lesson 2: The Power BI Service

- Licensing
- Tenant management
- Datasets
- Row-level security
- Apps
- Natural language queries

Licensing

- Per-user licensing:
  - Choice of Power BI Pro or free licenses
  - Only Power BI Pro accounts can publish shared content
- Capacity licensing:
  - Power BI Premium licenses
  - Dedicated capacity to improve performance
  - Enable free users to access shared content

Tenant management

- Power BI uses a self-service sign-up model:
  - Users can sign up without dependency on an Office 365 account, or organizational Office 365 administrator
  - When a user signs up, a tenant is created for the domain, or the user joins the tenant—for example, contoso.com
  - Users within a tenant can collaborate and share content
- Office 365 admins sign up using the Power BI portal or Office 365 Admin portal:
  - Users can be assigned a license, or sign up and join the tenant and acquire a license
  - Qualifying organizations receive 1 million licenses, and can request more from Microsoft

Datasets

- Create a dataset by importing data into Power BI Desktop or the PowerBI.com portal
  - Import data from data sources including on-premises or cloud databases, files, SaaS connectors
  - Scrape data from a webpage into Power BI tables
  - Copy and paste data from Excel into a Power BI table
- Load data into Power BI, or transform it first
  - Datasets in the Data view and Power Query Editor
  - Power Query Editor offers transformations such as column splits, rounding, aggregations, statistical operations
- Refresh datasets in Power BI Desktop and portal
  - Schedule the refresh of datasets on the portal

Row-level security

- Row-level security (RLS) uses roles and rules to restrict the data a user can see:
  - Configure RLS on imported datasets, and DirectQuery connections
  - Create new role, select table, and add filter in the form of a DAX expression—for example, [Region] = “North”
  - Combine with USERNAME() function and table relationships in model
  - Use View As Roles to filter report or data view
- Limitations
  - Needs a Power BI Pro subscription
  - Roles and rules created in the service must be recreated in Power BI Desktop
  - To use with Excel datasets, the Excel file must first be converted to a Power BI (.pbix) file

Apps

- Power BI apps are packaged reports, dashboards and datasets
  - Can be shared with other Power BI users
  - Can be customized for different users
  - Created in app workspaces
  - Give access to specific groups, or entire organizations
  - Add title, description and image or company logo
  - Can automatically install
- Import apps from SaaS providers, such as MailChimp, Insightly, Marketo, and Twilio

Natural language queries

- Power BI Q&A helps you ask questions about your data using natural query language
  - Anyone who has access to the data in Power BI can ask a question and receive a quick response
  - Users asks questions, just as they would with a search engine
  - Q&A helps you phrase your question, uses auto-complete, restates questions, and corrects spelling
  - Terminology for names, date keywords, date ranges, aggregations, equality, sort order, and verbs
  - Searches are done with datasets used by the dashboard
  - Pin the answers to your dashboard for future reference
  - Answer can be presented in chosen chart type—for example, a map

Demonstration and Exercise 2

You will see how to:

- Publish a report to the Power BI Service
- View Reports in online
- Use the report to create a dashboard