

Microsoft Certified: Data Analyst Associate



1. Introduction



Introduction

- ✓ Overview for PL – 300 exam
 - ✓ Setting up Power BI desktop and Power BI service
 - ✓ Measured skills review
 - ❖ Prepare the Data (15-20 %)
 - ❖ Model the data (30-35%)
-

Introduction continued...

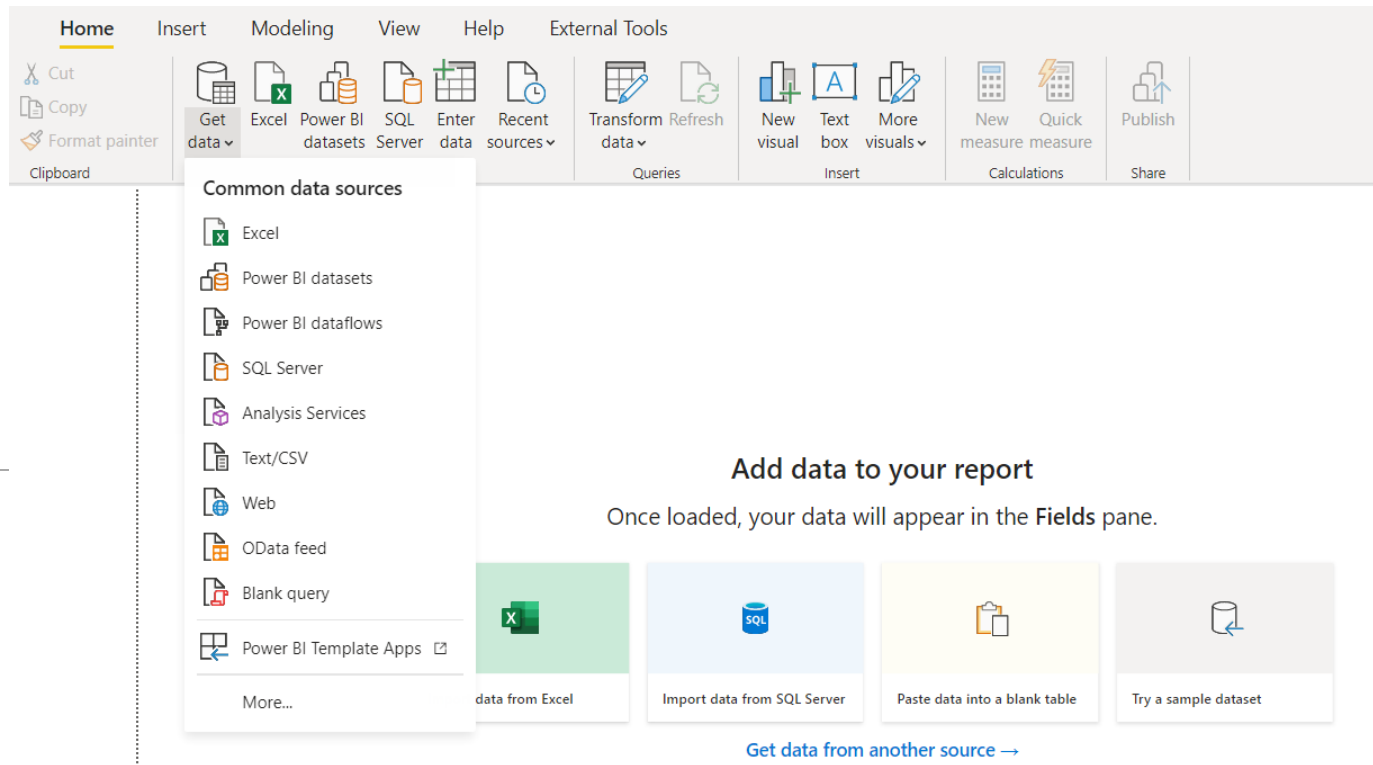
- ✓ Measured skills review

- ❖ Visualise and Analyse the data (25-30%)

- ❖ Deploy and Maintain Assets (20-25%)

Prepare the data -get data from different data sources

✓ Identify and connect to a data source



Prepare the data -get data from different data sources

✓ Change data source settings

SQL Server database

Server ⓘ
localhost

Database (optional)
AdventureWorksDW2012

Data Connectivity mode ⓘ
☒ Import
☐ DirectQuery

Advanced options

Command timeout in minutes (optional)

SQL statement (optional, requires database)

☒ Include relationship columns
☐ Navigate using full hierarchy
☐ Enable SQL Server Failover support

OK Cancel

Prepare the data -get data from different data sources

✓ Select a storage mode

SQL Server database

Server ①
localhost

Database (optional)
AdventureWorksDW2012

Data Connectivity mode ①
☒ Import
☐ DirectQuery

Advanced options
Command timeout in minutes (optional)

SQL statement (optional, requires database)

☒ Include relationship columns
☐ Navigate using full hierarchy
☐ Enable SQL Server Failover support

OK Cancel

Prepare the data -get data from different data sources

- ✓ Select a shared dataset or create a local dataset
 - ✓ Use Microsoft Dataverse
 - ✓ Change the value in a parameter
 - ✓ Connect to a dataflow
-

Prepare the data -clean transform and load the data

✓ Profile the data

= AdventureWorksDW2017{[Schema="dbo",Item="DimDate"]}[Data]							
	123 DateKey	FullDateAlternateKey	1.2 DayNumberOfWeek	A ^B _C EnglishDayNameOfWeek	A ^B _C SpanishDayNameOfWe...	A ^B _C FrenchDayNameOfWeek	
	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	Valid 100% Error 0% Empty 0%	
1	20050101	1/01/2005	7	Saturday	Sábado	Samedi	
2	20050102	2/01/2005	1	Sunday	Domingo	Dimanche	
3	20050103	3/01/2005	2	Monday	Lunes	Lundi	
4	20050104	4/01/2005	3	Tuesday	Martes	Mardi	
5	20050105	5/01/2005	4	Wednesday	Miércoles	Mercredi	
6	20050106	6/01/2005	5	Thursday	Jueves	Jeudi	
7	20050107	7/01/2005	6	Friday	Viernes	Vendredi	
8	20050108	8/01/2005	7	Saturday	Sábado	Samedi	
9	20050109	9/01/2005	1	Sunday	Domingo	Dimanche	
10	20050110	10/01/2005	2	Monday	Lunes	Lundi	
11	20050111	11/01/2005	3	Tuesday	Martes	Mardi	
12	20050112	12/01/2005	4	Wednesday	Miércoles	Mercredi	
13	20050113	13/01/2005	5	Thursday	Jueves	Jeudi	

Prepare the data -clean transform and load the data

- ✓ Resolve the inconsistencies, unexpected or null values, and data quality issues

	FullDateAlternateKey	1.2 DayNumberOfWeek	A ^B _C EnglishDayNameOfWeek	A ^B _C SpanishDayNameOfWe...	A ^B _C FrenchDayNameOfW
100%	Valid	100%	Valid	100%	Valid
0%	Error	0%	Error	0%	Error
0%	Empty	0%	Empty	0%	Empty
20050101	1/01/2005	7	Saturday	Sábado	Samedi
20050102					
20050103					
20050104					
20050105					
20050106					
20050107					
20050108					
20050109					
20050110					
20050111					
20050112					
20050113					
20050114	14/01/2005	6	Friday	viernes	vendredi
20050115	15/01/2005	7	Saturday	Sábado	Samedi
20050116	16/01/2005	1	Sunday	Domingo	Dimanche

Replace Values

Replace one value with another in the selected columns.

Value To Find

Replace With

OK Cancel

Prepare the data -clean transform and load the data

✓ Evaluate and transform column data types

The screenshot shows the Power Query Editor interface. The formula bar at the top displays the query name: `= AdventureWorksDW2017{[Schema="dbo",Item="DimDate"]}[Data]`. The main area shows a table with columns: `DateKey`, `FullDateAlternateKey`, `DayNumberOfWeek`, `EnglishDayNameOfWeek`, and `SpanishDayNameOfWeek`. The `FullDateAlternateKey` column is selected, and a context menu is open. The 'Change Type' option is highlighted, which has opened a sub-menu. In this sub-menu, the 'Date' option is selected with a checkmark. The table data includes rows with date keys from 20050101 to 20050119, and corresponding day names in English and Spanish.

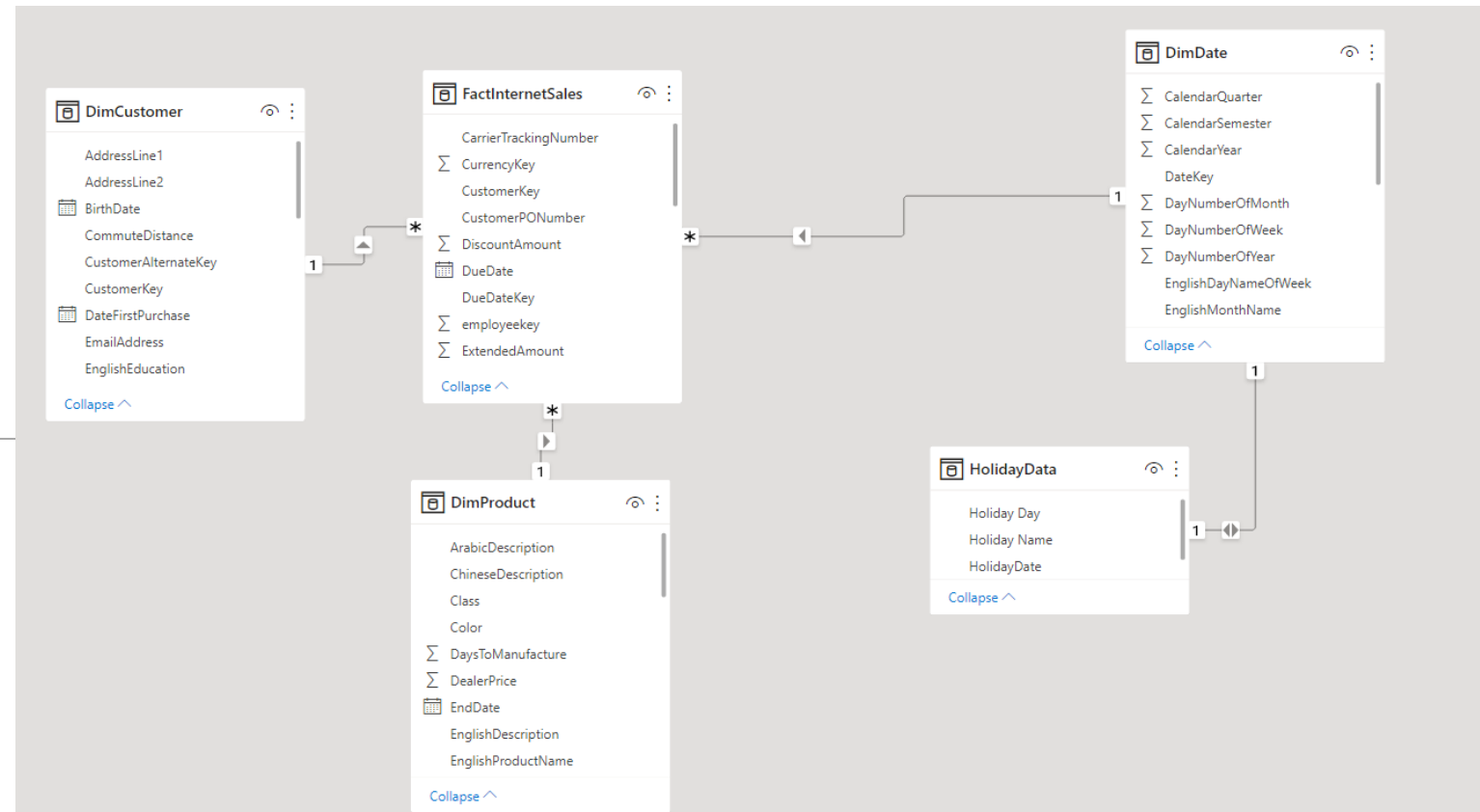
	DateKey	FullDateAlternateKey	DayNumberOfWeek	EnglishDayNameOfWeek	SpanishDayNameOfWeek
1		20050101		Saturday	Sábado
2		20050102		Sunday	Domingo
3		20050103		Monday	Lunes
4		20050104		Tuesday	Martes
5		20050105		Wednesday	Miércoles
6		20050106		Thursday	Jueves
7		20050107		Friday	Viernes
8		20050108		Saturday	Sábado
9		20050109		Sunday	Domingo
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13		20050113		Thursday	Jueves
14		20050114		Friday	Viernes
15		20050115		Saturday	Sábado
16		20050116		Sunday	Domingo
17		20050117		Monday	Lunes
18		20050118		Tuesday	Martes
19		20050119		Wednesday	Miércoles
20		20050120	4	Thursday	Jueves

Prepare the data -clean transform and load the data

- ✓ Identify and create appropriate keys for joins
 - ✓ Shape and transform tables
 - ✓ Combine queries
 - ✓ Apply user friendly naming conventions to columns and queries
 - ✓ Configure data loading
-
- ✓ Resolve data import errors

Model the data- Design a data model

✓ Design a data model



Model the data- Design a data model

- ✓ Configure table and column properties
 - ✓ Design and implement role playing dimensions
 - ✓ Design a data model that uses a star schema
 - ✓ Create a common date table
-

Model the data- Design a data model

- ✓ Create calculated tables
 - ✓ Create hierarchies
 - ✓ Create calculated columns
 - ✓ Implement row-level security roles
 - ✓ Use the Q & A feature
-

Model the data- Develop a data model

- ✓ Define a relationships cardinality and cross filter direction

×

Edit relationship

Select tables and columns that are related.

FactInternetSales

ProductKey	OrderDateKey	DueDateKey	ShipDateKey	CustomerKey	PromotionKey	CurrencyKey	S
528	20130128	20130209	20130204	14870	1	100	
528	20130129	20130210	20130205	15319	1	100	
528	20130131	20130212	20130207	16384	1	100	

DimDate

DateKey	FullDateAlternateKey	DayNumberOfWeek	EnglishDayNameOfWeek	SpanishDayNameOfWeek	Fr
20100701	Thursday, 1 July 2010	5	Thursday	Jueves	Je
20100702	Friday, 2 July 2010	6	Friday	Viernes	Vi
20100703	Saturday, 3 July 2010	7	Saturday	Sábado	Se

Cardinality 1

Many to one (*:1)

Cross filter direction 2

Single

☒ Make this relationship active

☐ Assume referential integrity

☐ Apply security filter in both directions

OK

Cancel

Model the data- Develop a data model

- ✓ Create calculated tables
 - ✓ Create hierarchies
 - ✓ Create calculated columns
 - ✓ Implement row-level security roles
 - ✓ Use the Q & A feature
-

Model the data- Create model calculations using DAX

- ✓ Create basic measures by using DAX

```
1 SalesAmount = Sum(salesam
```

- FactInternetSales[SalesAmount]
- FactInternetSales[TaxAmt]
- FactInternetSales[DiscountAmount]
- FactInternetSales[ExtendedAmount]
- FactInternetSales[SalesOrderNumber]
- FactInternetSales[SalesOrderLineNumber]
- FactInternetSales[CarrierTrackingNumber]

Model the data- Create model calculations using DAX

- ✓ Use calculate to manipulate filters
 - ✓ Implement time intelligence using DAX
 - ✓ Replace implicit measures with explicit measures
 - ✓ Use basic statistical functions
 - ✓ Create semi additive measures
-

Model the data- Create model calculations using DAX

✓ Use quick measures

Quick measures

Calculation

Select a calculation

Fields

Search

> DimCustomer

> DimDate

> DimProduct

> FactInternetSales

> HolidayData

> Sheet1

[Post an idea](#)

OK

Cancel

Model the data- Create model calculations using DAX

✓ Use quick measures

Quick measures

Calculation

Select a calculation

Fields

Search

> DimCustomer

> DimDate

> DimProduct

> FactInternetSales

> HolidayData

> Sheet1

[Post an idea](#)

OK

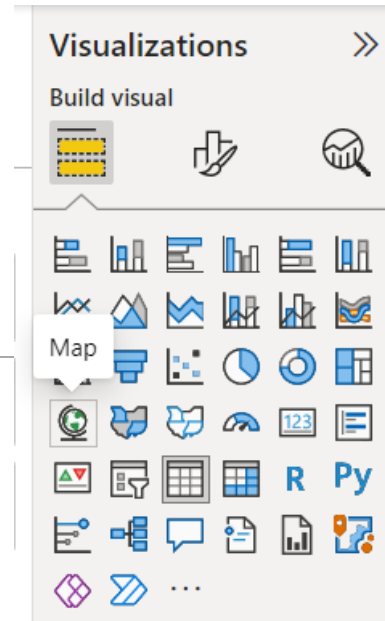
Cancel

Model the data- Optimise model performance

- ✓ Remove unnecessary rows and columns
 - ✓ Identify poorly performing measures, relationships and visuals
 - ✓ Reduce cardinality levels to improve performance
-

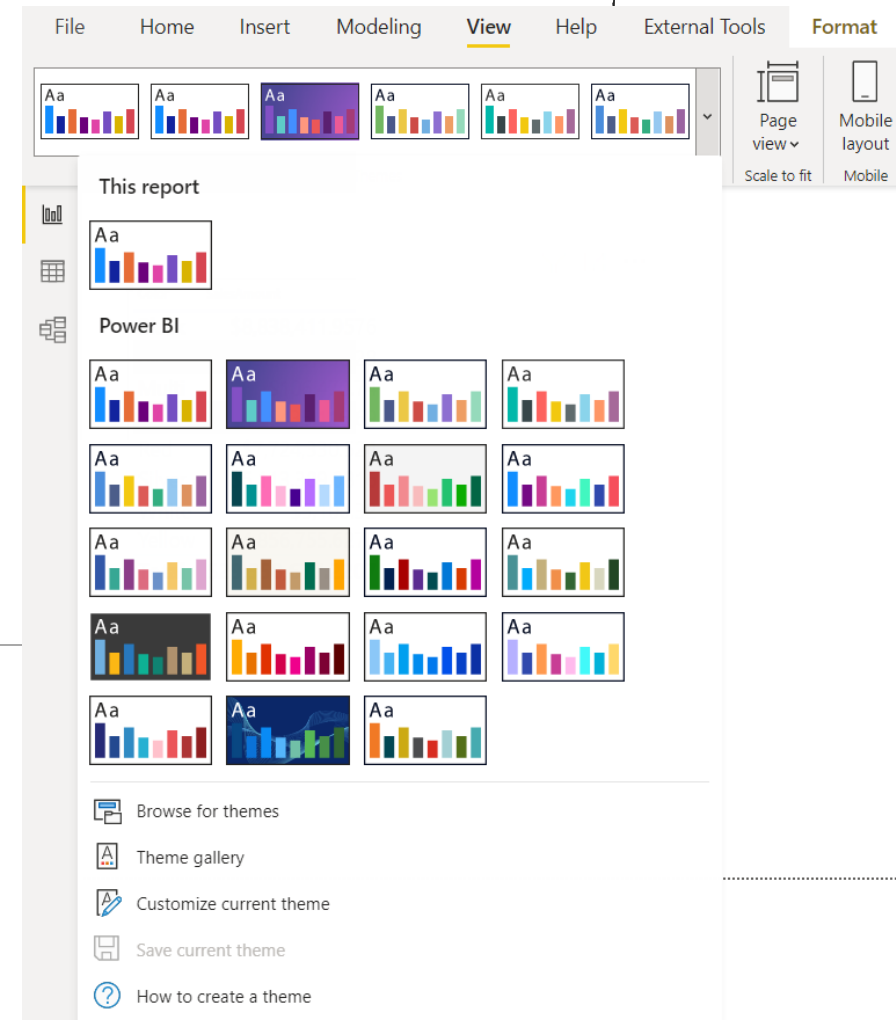
Visualise and analyse data – create reports

- ✓ Add visualization items to reports
- ✓ Choose and appropriate visualisation type



Visualise and analyse data – create reports

- ✓ Format and configure visualisations
- ✓ Use a custom visual
- ✓ Apply and customise a theme



Visualise and analyse data – create reports

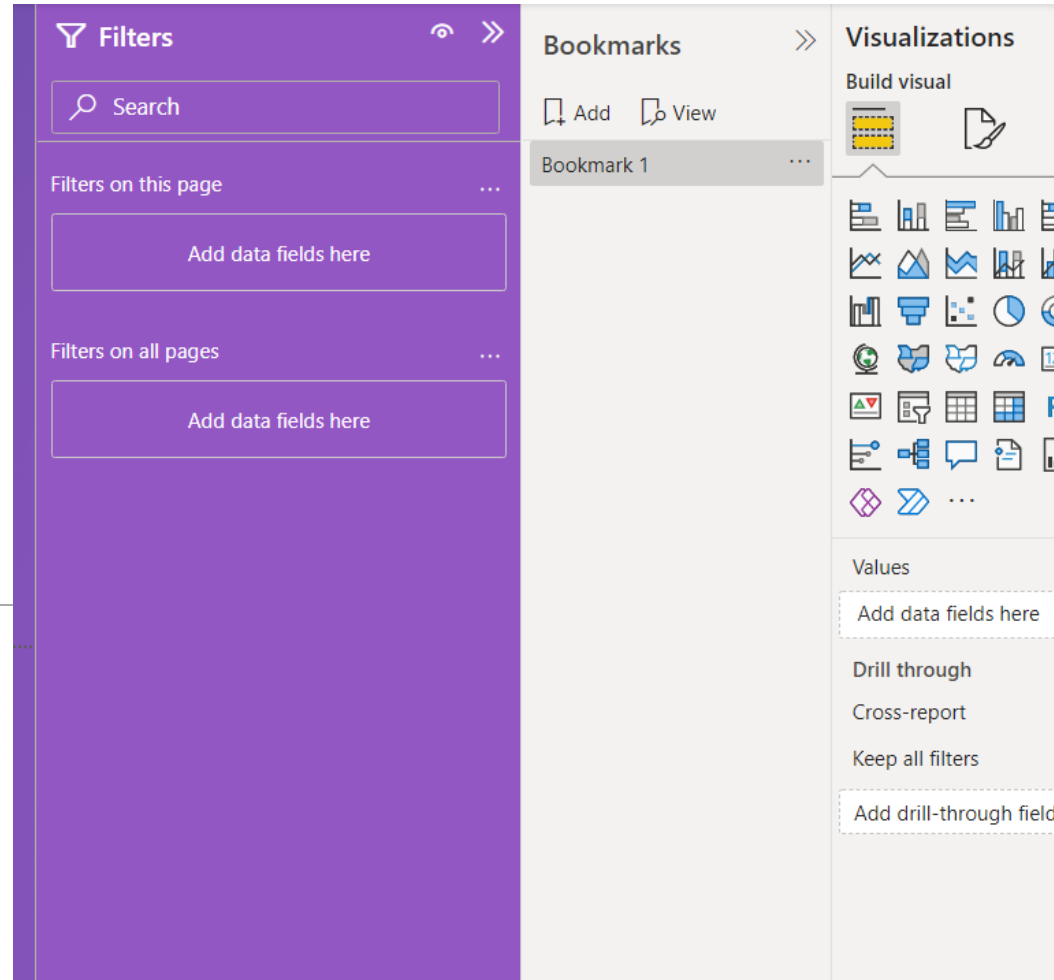
- ✓ Configure conditional formatting
 - ✓ Apply slicing and filtering
 - ✓ Configure the report page
 - ✓ Use the analyse in excel feature
 - ✓ Choose when to use a paginated report
-

Visualise and analyse data – create dashboards

- ✓ Manage tiles on a dashboard
 - ✓ Configure mobile view
 - ✓ Use the Q&A feature
 - ✓ Add a quick insights result to a dashboard
 - ✓ Apply a dashboard theme
-
- ✓ Pin a live page to a dashboard

Visualise and analyse data – enhance reports for usability and story telling

✓ Configure bookmarks



Visualise and analyse data – enhance reports for usability and story telling

- ✓ Create custom tool tips
 - ✓ Edit and configure interactions between visuals
 - ✓ Configure navigation for a report
 - ✓ Apply sorting
 - ✓ Configure sync slicers
-

Visualise and analyse data – enhance reports for usability and story telling

- ✓ Group and layer visuals by using the selection pane
 - ✓ Drilldown into data using interactive visuals
 - ✓ Export report data
 - ✓ Design reports for mobile devices
-

Visualise and analyse data – identify patterns and trends

- ✓ Use the analyse feature in Power BI
 - ✓ Identify outliers
 - ✓ Choose between continuous and categorical axes
 - ✓ Use groupings, binning's, and clustering
 - ✓ Use AI visuals
-
- ✓ Use the forecast feature
 - ✓ Create reference lines by using the Analytics pane

Deploy and maintain Assets – Manage files and datasets

- ✓ Identify when a gateway is required
 - ✓ Configure a dataset schedule refresh
 - ✓ Configure row-level security group membership
 - ✓ Provide access to datasets
 - ✓ Manage global options for files
-

Deploy and maintain Assets – Manage workspaces

- ✓ Create and configure a workspace
 - ✓ Assign workspace roles
 - ✓ Configure and update a workspace app
 - ✓ Publish, import, or update assets in a workspace
 - ✓ Apply sensitivity labels in workspace content
-
- ✓ Configure subscriptions and data alerts
 - ✓ Promote or certify Power BI content

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Case Study



Case study



Situation

You have been hired as the principal data analysts for PBI CycleWorks. PBI CycleWorks is a boutique bicycle equipment shop

Case

Build an end-to-end business intelligence solution. Use raw data about sales information, product, product category, Employee and customer information.

Build and distribute Power BI reports using the **Microsoft Power BI Ecosystem**

Tools

- Extract, Transform and Load the data using Power Query Editor
- Model the data in Power BI Desktop
- Visualise the data
- Analyse the data
- Distribute the reports and dashboards using Power BI Service

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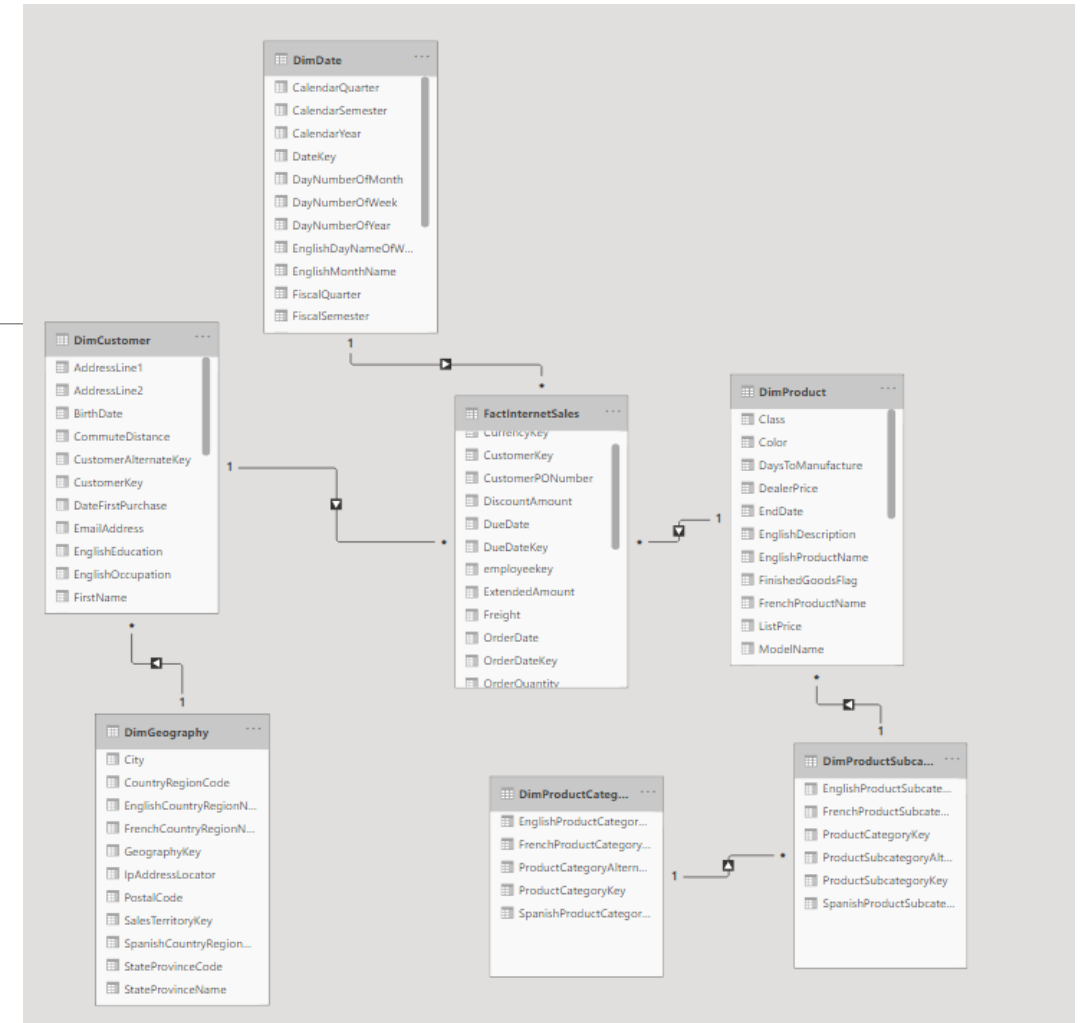


Data Model



Data Model

Table Name	Table Description
DimCustomer	Information about customers who purchase cycles and cycle accessories with PBI CycleWorks
DimDate	Date related information like day, week, month, quarter and year for a given date
DimGeography	Geographical information about the customers who buy our products
DimProduct	Contains information about the products available for sale
DimProductCategory	Contains information about the product categories
DimProductSubCategory	Contains information about product subcategories
FactInternetSales	This tables contains information about the sales transactions for PBI cycleworks



Additional Sources:

- MS SSAS Tabular
- MS Dataverse