Advanced Power BI

Lab Guide

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PowerBI Review

Exercise 1 – AdventureWorks Data Warehouse Lite

The AdventureWorksLightDW csv files are exports of a sample database provided by Microsoft. This is a data warehouse that is designed in a Star Schema.

1. Open a new report in PowerBI. Navigate to `DatFiles/AdventureWorskLightDW` and load the CSV files into your new PowerBI report file.

   ```
   DimCategory
   DimCustomer
   DimDate
   DimProduct
   DimPromotion
   DimSalesTerritory
   FactInternetSales
   ```

2. Save and Load the data. Ensure that each dimension table in the model is related to the fact table through the Key fields.

   Note: FactInternetSales has 3 date keys. For this exercise you just need to create a relationship for the **OrderDateKey**.

3. Create a report with some visuals of your choice to test the model.

Module 2 Exercises
Scrubbing Source Data with Power Query

Exercise 1 – Using PowerQuery to perform ETL

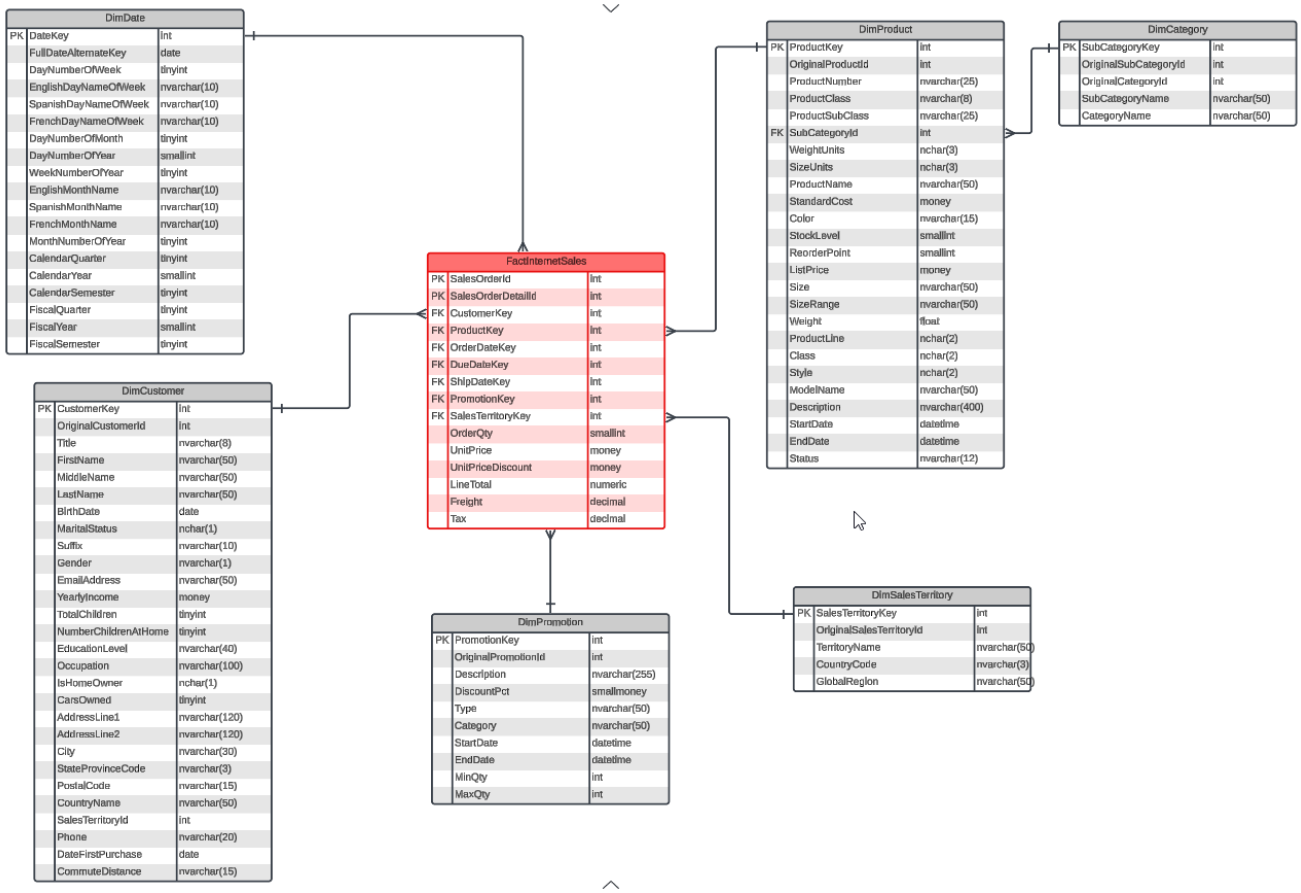
In this exercise you will import raw data from CSV files

1. Using Power BI Desktop, create a new report and save it to your exercises folder.

   `02_AdventureWorks_PowerQuery_ETL.pbix`

2. Using the PowerQuery editor, import the csv files from the DataFiles/AdventureWorksLight folder. Cleans the data to match the AdventureWorksLightDW star schema (the schema diagram is in the pdf file in the).

   NOTE: you will NOT create the DimDate dimension during this exercise.



3. Remember to Merge the following tables

```
SubCategories - Categories -> DimCategory
SalesOrderHeader - SalesOrderDetails -> FactSales
```

4. Test your model by creating a report.

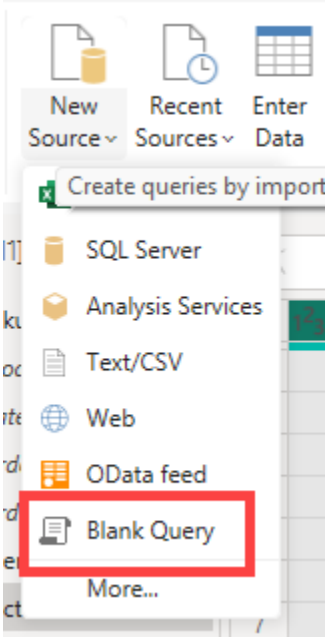
Exercise 2 – Create a Date Dimention and add Hierarcies to your Model

In this exercise you will create the Date Dimention using M code and PowerQuery

1. Create copy of your AdventureWorks report and name it

```
02_AdventureWorks_PowerQuery_ETL_Step_2.pbix
```

2. Using PowerQuery create a new Table by adding a Blank Query and rename the new query `DimDate`.



3. Open the Advanced Editor to create and enter the following code snippet to generate a table with a single column of dates.

```
let
    StartDate = #date(1996, 1, 1),
    EndDate = #date(1999, 1, 1),
    NumberOfDays = Duration.Days(Duration.From(EndDate-StartDate)),
    Source = List.Dates(StartDate,NumberOfDays
,#duration(1,0,0,0)),
    TableFromList =
Table.FromList(Source,Splitter.SplitByNothing(),{"Date"})
in
    TableFromList
```

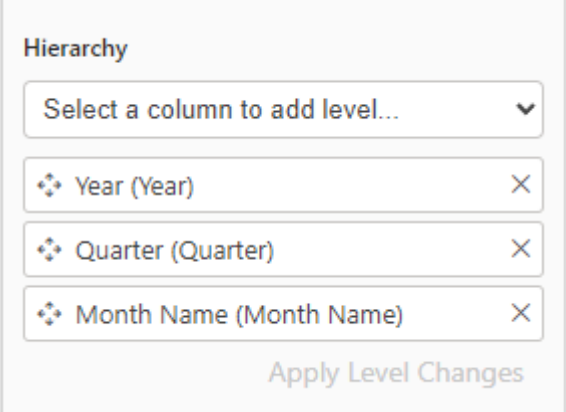
4. Use the PowerQuery toolbar to create the remaining DimDate columns to match this table schema.

DimDate		
PK	DateKey	int
	FullDate	date
	StartOfYear	date
	StartOfMonth	date
	StartOfWeek	date
	Year	int
	Quarter	int
	Month	int
	MonthName	string
	Day	int
	DayOfWeek	int
	DayName	string
	IsWeekend	boolean

5. Close the PowerQuery editor to apply your changes.

6. In the model editor add a new calendar hierachy to the DimDate dimension.

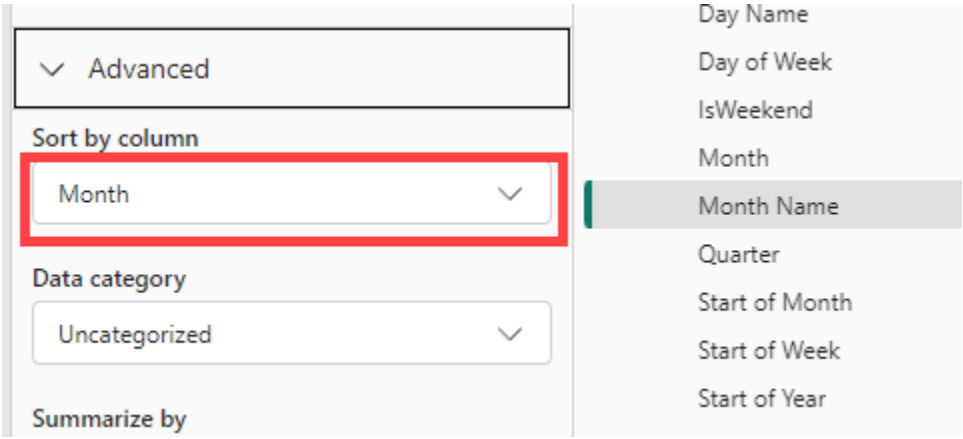
   Hint: don't forget to click the "Apply Level Changes" link once you have created the hierarchy.



7. Add another hierarchy to the DimCustomer dimension. This hierachy will be geographical, use the following columns

   Country > StateProvinceCode > City

8. Test your new hierachies in your report. Is the data sorted correctly? (Ensure that you have set the sort order of Month Name to be sorted by the Month column)



Module 3 Exercises
Working With DAX

Exercise 1 – Creating Calculated Columns

In this exercise you will add new columns to your model using DAX

1. Using Power BI Desktop, create a copy of your `02_AdventureWorks_PowerQuery_ETL_Step_2` report and name it.

   `03_AdventureWorks_DAX_Step_1.pbix`

2. While working in the Table View of PowerBI Create a new calculated column for the DimCustomer dimension. The new column should be named **Full Name**

   ```
   Full Name = [FirstName] & " " & [LastName]
   ```

3. Create a new DimDate column to allow users to filter by Month and Year. The format of the values should look like

   ```
   Jan - 2024
   Feb - 2024
   etc.
   ```

4. The new "Month and Year" column is sorted alphabetically. You need to create another column that can be used to sort the new column. Name this column "Year Month Number". The format of the column should be

   ```
   202401
   202402
   etc.
   ```

5. Modify the default sort order of the "Month and Year" column to use the new columns value

Exercise 2 – Creating Measures

In this exercise you will add new measures to your Model and organize them in a custom Measuers Table

1. Using Power BI Desktop, create a copy of your `03_AdventureWorks_PowerQuery_ETL_Step_1` report and name it.

   `03_AdventureWorks_DAX_Step_2.pbix`

2. Create a new table Measures Table

3. Add a new calculated measure to calculate the sum of gross sales

   ```
   Sum(FactInternetSales[OrderTotal])
   ```

4. Add a new calculated measure to calculate the average of gross sales

   ```
   Average(FactInternetSales[OrderTotal])
   ```

5. Add a new calculated measure to calculate the total of all sales (do not honor filter context).

   Hint: You will need to use the CALCULATE and ALL functions

6. Create a new calculated measure to display the Percent of Total Sales

   Hint: Use the Gross Sales and Total Sales measures to perform this calculation