

# BI Dashboards using AdventureWorksDW2017

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# BUSINESS INTELLIGENCE GUIDEBOOK

*From Data Integration to Analytics*

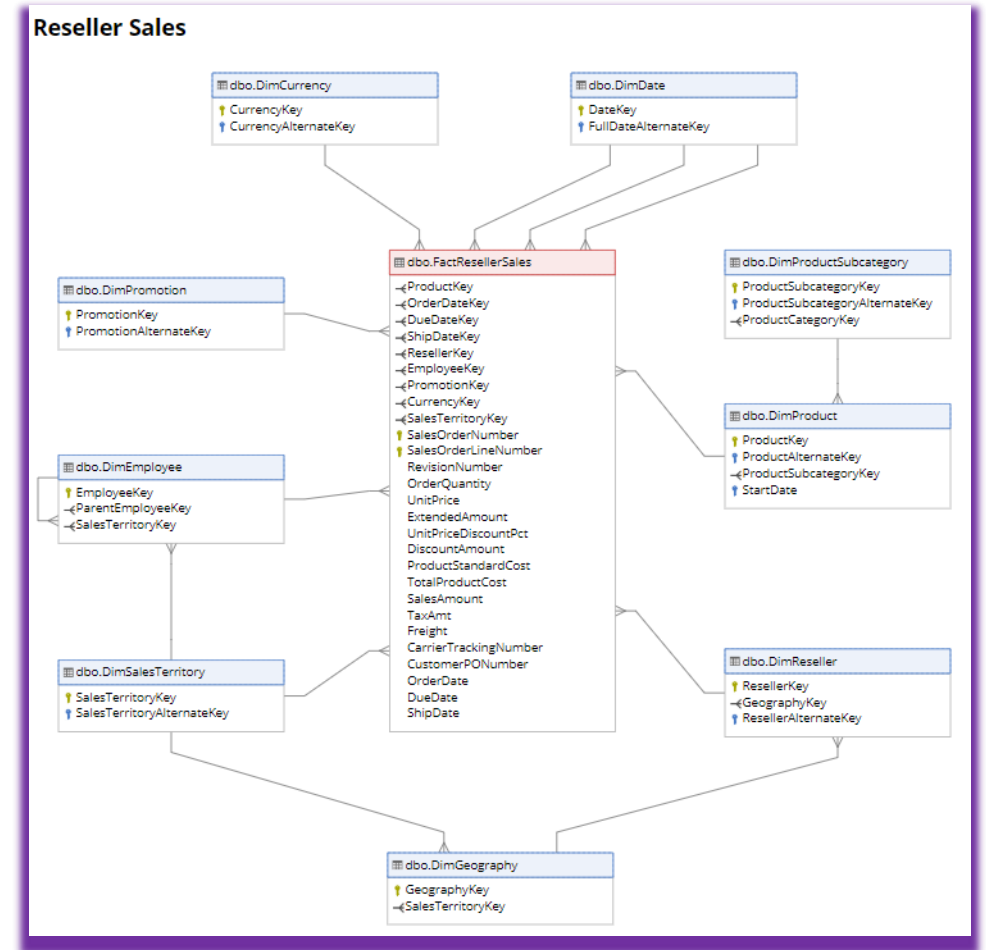
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**MK**  
MORGAN KAUFMANN

# Background

- Resellers are businesses that resell AdventureWorks products
- Resellers have employees who are sales people
- Dimensional Hierarchies
  - Product (Category, Subcategory & Product)
  - Reseller Business (business type, reseller name)
  - Geography related to resellers location
  - Date related to orders, shipments or due dates
- Sales Amount = Extended Sales - Discount Amount
- Profit = Sales Amount - Total Product Costs



# Reseller ?s – Tabular Reports

- What are the sales, discount amounts, product costs, profit, quantity ordered, number of orders & average order size (sales amount) for reseller sales by Product Hierarchy (Category, Subcategory, Model & Product) and ranked by sales?
- What are the sales, discount amounts, product costs, profit, quantity ordered, number of orders & average order size (sales amount) for reseller sales reseller hierarchy (business type, reseller name)?
- What are the sales, discount amounts, product costs, profit, quantity ordered, number of orders & average order size (sales amount) for reseller sales by Geo Hierarchy (Country, State & City)?
- What are the sales, discount amounts, product costs, profit, quantity ordered, number of orders & average order size (sales amount) for reseller sales by Promotion Hierarchy (Category, Type, Name)?

# Reseller Visualizations

- What are the sales amount vs profit by month & year?
- Rank product sales amount within each Subcategory
- Provide contribution analysis to sales amount by product hierarchy
- Top 10 product subcategories by sales amount
- Rank city sales amount within each state & country
- Provide contribution analysis to sales amount by geo hierarchy
- Top 10 cities by sales amount
- Map with sales amount by city
- What are the ranked sales of the sales people (employees)
- What are the sales amount and profit of resellers based on a years open (use a bin size of 10 years)

# Reseller ?s

- What products and product subcategories are not profitable overall and for specific years?
- What countries and states/provinces are not profitable overall and for specific years?
- What reseller business types and resellers are not profitable overall and for specific years?
- What promotions sell products for a loss overall and for specific years?

# Reseller Dashboards

Create dashboards with previously built tabular reports and visualizations and Enable filters for:

- Geo sales
- Product sales
- Reseller sales
- Promotions sales

# Deliverables

- Answer the questions by creating tabular reports, visualizations and dashboard using Tableau
- Save and upload:
  - Tableau Workbook (\*.twb) file
  - Tableau Data Extract (\*.hyper) file
- Create a PowerPoint presentation with a screenshot of each tabular report, visualization and dashboard on a slide and then upload that presentation



# AdventureWorksDW2017

- Data Model
- Analytical Requirements





# Sample Databases - AdventureWorks

- AdventureWorks sells bikes & related products (parts & accessories) through two sales channels:
  - direct to customers via **internet**
  - indirectly through **resellers (or stores)**
- Business transactions tracked are: sales, purchases & inventory.
- These transactions may have some of the following dimensions:
  - Products sold or purchased: Hierarchy – Products, Product Subcategories & Product Categories
  - Address for customer, employees, stores & others - Geography Hierarchy – City, State, Country
  - Resellers (or Store)
  - Customers (Individuals buying over the internet)
  - Ship, Order, Due, Purchase & other Dates - Date Hierarchy - Year, Quarter, Month, Day
  - Employees – including sales people
  - Vendors – product and part suppliers
  - Sales promotions



# Sample Databases - AdventureWorks

- AdventureWorks2017
  - OLTP (on-line transactional processing) database
  - **System of record (SOR)** for AdventureWorks company
  - Normalized ER Model
- AdventureWorksDW2017
  - **Data Warehouse (DW)**
  - Data source is AdventureWorks2017 (sort of...)
  - Dimensional data model

# Sample Databases - AdventureWorks

- Microsoft's documentation has not been kept up-to-date (similar to most IT's BI & DW documentation BTW) but is useful when trying to understand the overall model and business rules:
  - [Schemas in AdventureWorks](#)
  - [AdventureWorks Data Dictionary](#)
  - [Adventure Works Cycles Business Scenarios](#)
- Additional documentation
  - [AdventureWorks – Data Dictionary](#) – by Datedo (sells data dictionary software & ERD)
  - [AdventureWorks \(printer friendly\).pdf](#) - pdf of above
- AdventureWorks Data Model (both old)
  - [AdventureWorks OLTP Database Diagram](#)
  - [AdventureWorks DW Schema](#)

# AdventureWorks Databases

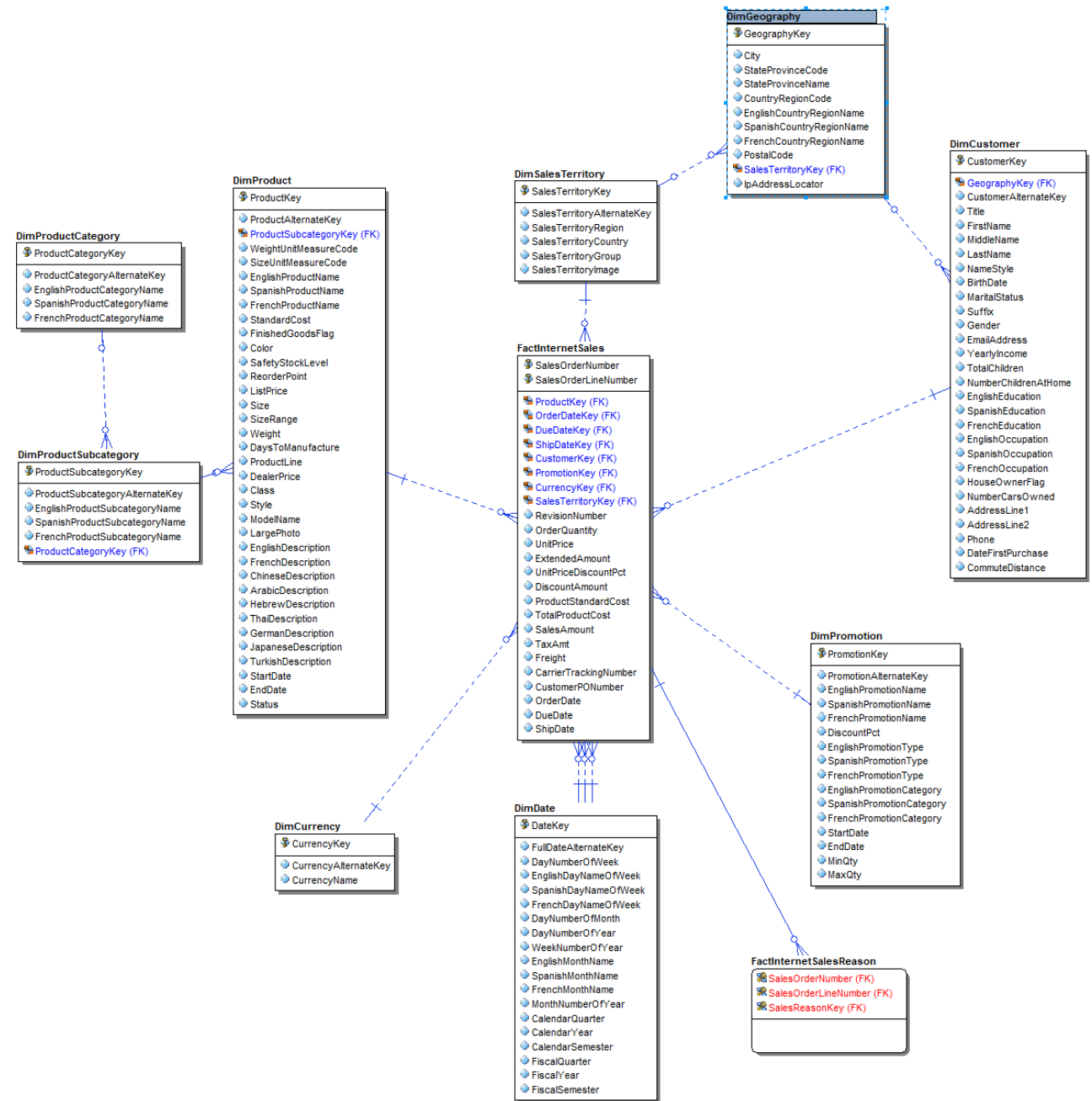
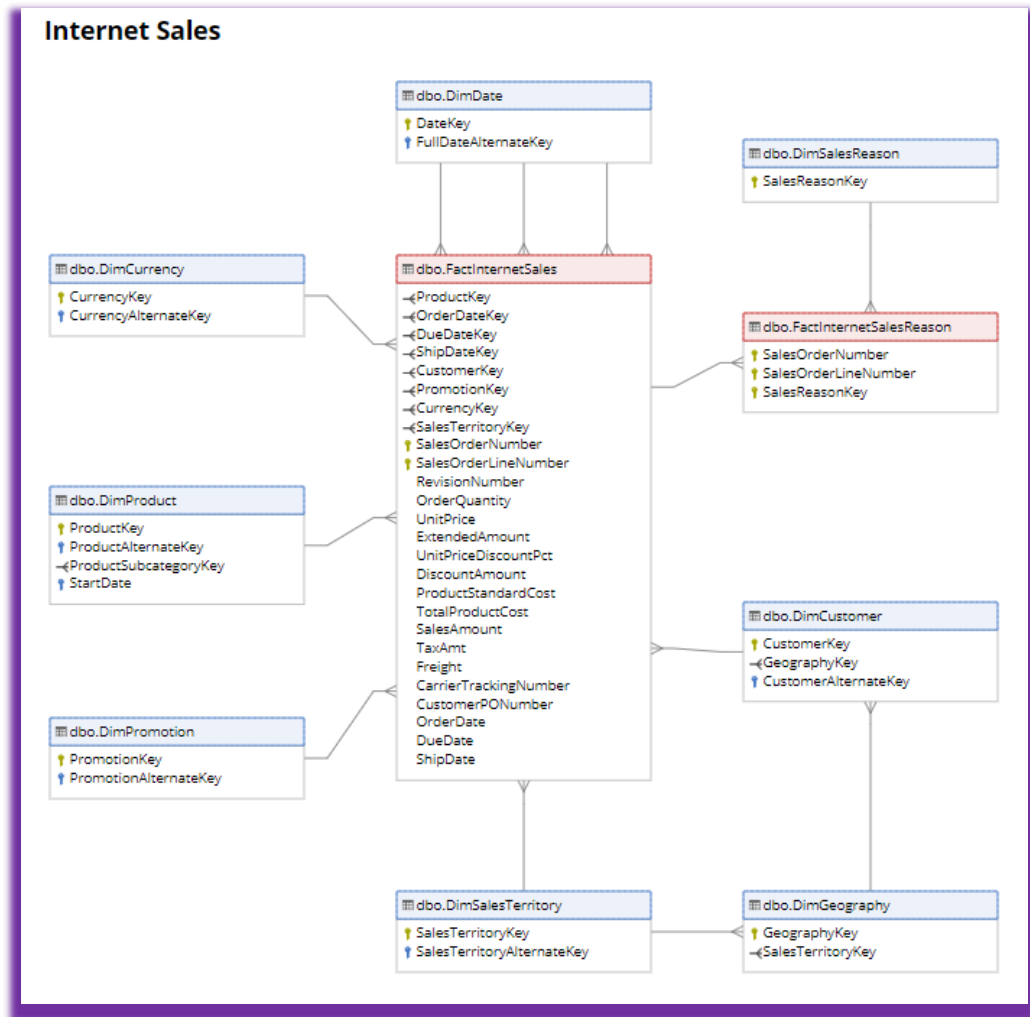
- AdventureWorks2017
  - Sales
  - Inventory
  - Purchasing Sales
- AdventureWorksDW2017
  - Internet Sales
  - Reseller Sales
  - Inventory

TableName	Table_Rows
DimAccount	99
DimCurrency	105
DimCustomer	18,484
DimDate	3,652
DimDepartmentGroup	7
DimEmployee	296
DimGeography	655
DimOrganization	14
DimProduct	606
DimProductCategory	4
DimProductSubcategory	37
DimPromotion	16
DimReseller	701
DimSalesReason	10
DimSalesTerritory	11
DimScenario	3
FactAdditionalInternationalProductDescription	15,168
FactCallCenter	120
FactCurrencyRate	14,264
FactFinance	39,409
FactInternetSales	60,398
FactInternetSalesReason	64,515
FactProductInventory	776,286
FactResellerSales	60,855
FactSalesQuota	163
FactSurveyResponse	2,727
NewFactCurrencyRate	50
ProspectiveBuyer	2,059

# AdventureWorksDW2017

Reseller Sales	Internet Sales	Table	Row Counts
x	x	DimCurrency	105
	x	DimCustomer	18,484
x	x	DimDate	3,652
x		DimEmployee	296
x	X	DimGeography	655
x	X	DimProduct	606
x	X	DimProductCategory	4
x	X	DimProductSubcategory	37
x	X	DimPromotion	16
x		DimReseller	701
x	X	DimSalesTerritory	11
	X	FactInternetSales	60,398
x		FactResellerSales	60,855

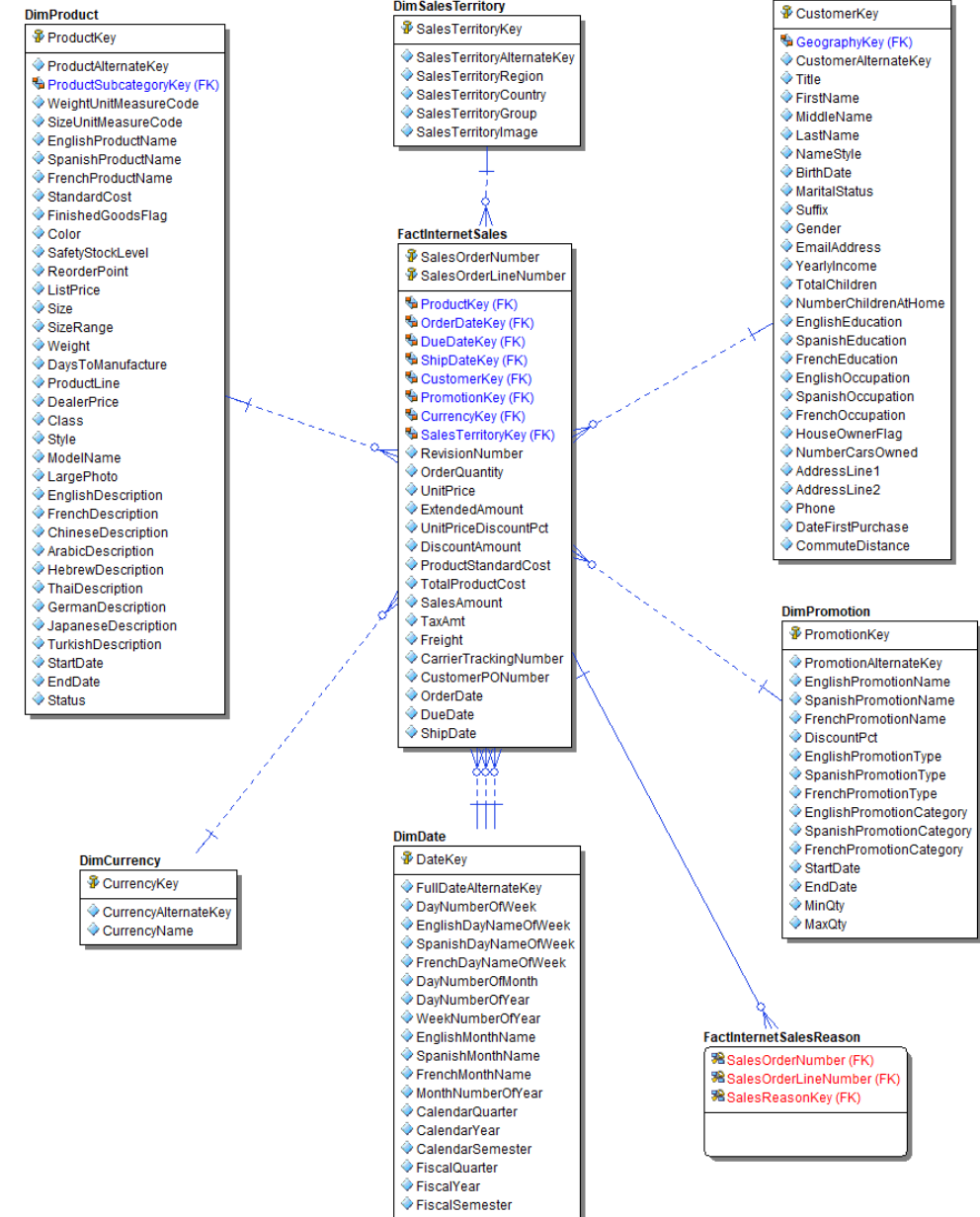
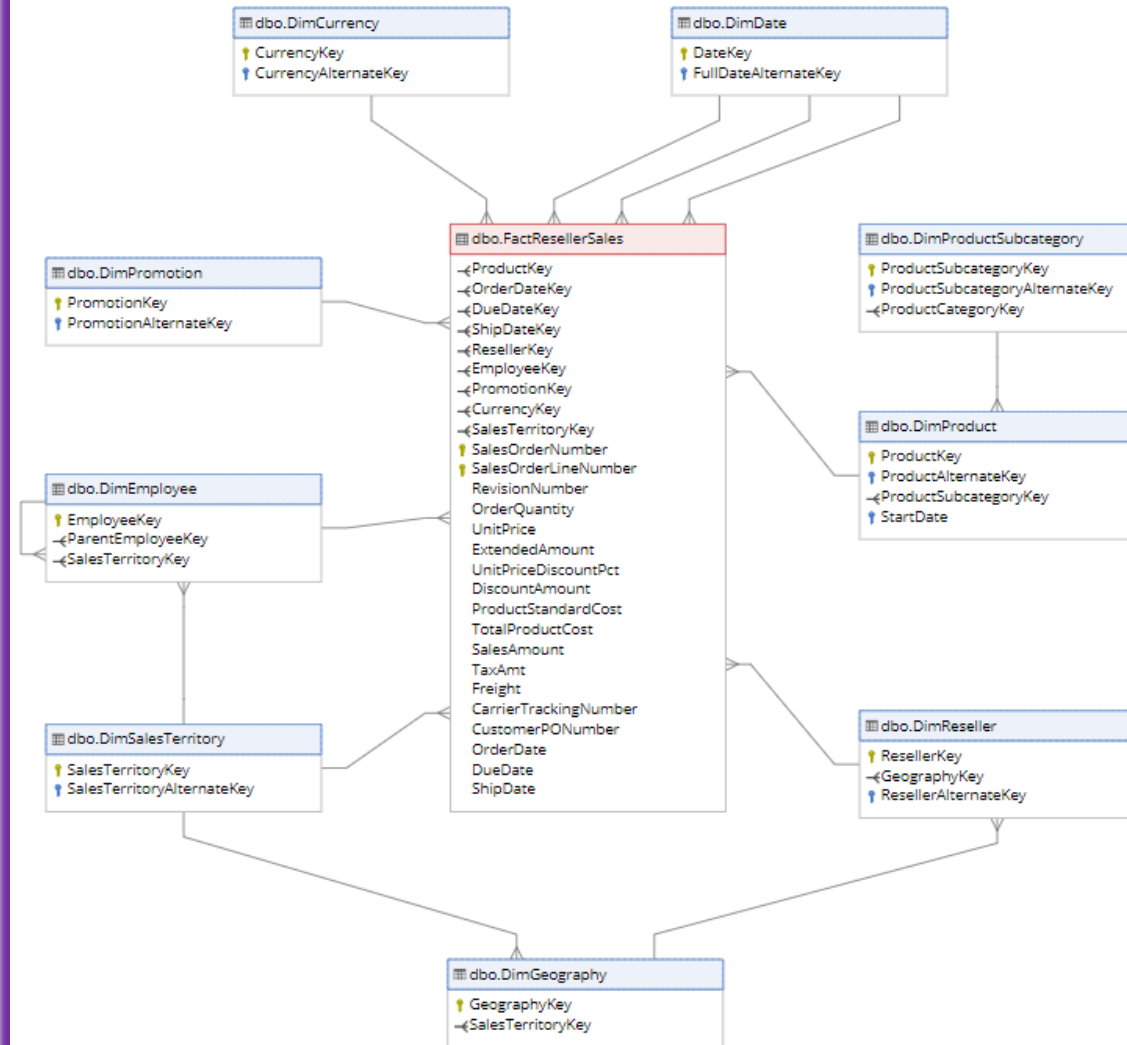
# Internet Sales





# Reseller Sales

## Reseller Sales



# AdventureWorksDW2017

- DimCurrency\_qvw
  - DimCustomer\_qvw
  - DimDate\_qvw
  - DimDueDate\_qvw
  - DimEmployee\_qvw
  - DimGeography\_qvw
  - DimOrderDate\_qvw
  - DimProduct\_qvw
  - DimPromotion\_qvw
  - DimReseller\_qvw
  - DimSalesTerritory\_qvw
  - DimShipDate\_qvw
  - FactInternetSales\_qvw
  - FactResellerSales\_qvw
- Run script: OneDrive  
info7370\_2020\_Spring\Workshops – Data\  
create BI views AdventureWorksDW2017.sql