Business Request & User Stories

The business request for this data analyst project was an executive sales report for sales managers. Based on their request the report should present following information:

- Date range: 2020-2021
- General insight regarding total revenue, total orders and total profit. In addition the report should present total profit and total order against targets which rise about 10%/month
- What is the most popular product that customer choose and what is the most profitable one.
- Overall details about customers including information about the most profitable customer.

Data that has been used for this analysis, comes from sample database Adventure Work (<u>AdventureWorks sample databases - SQL Server | Microsoft Docs</u>). In order to prepare this project, following steps have been applied:

- Data selection in SQL
- Tables cleansing and extraction necessary data
- Loading data to Power BI
- Creation of data model
- Preparation of data visualization

Data Cleansing and & Transformation

Data extraction out of SQL

In order to prepare sufficient data model that will fulfill business requirements, we need to extract data from our SQL data base. However not all information that are stored in data warehouse are necessary for our analysis. To get only those data that will be useful for analysis we need to process initial transformation.

Below are the SQL statements for cleansing and transforming necessary data:

```
--Cleansed Customer Table (DIM) --
SELECT
 c.customerkey AS CustomerKey,
 --[GeographyKey]--
 --[CustomerAlternateKey]--
  --[Title]--
 c.firstname AS [First Name],
  --[MiddleName]-
 c.lastname AS [Last Name],
  --[NameStyle]--
  c.firstname + ' ' + c.lastname AS [Full Name],
 c.birthdate AS [Birth Date],
 CASE c.maritalstatus WHEN 'M' THEN 'Married' WHEN 'S' THEN 'Single' END AS [Martial
Status],
  --[Suffix]--
 CASE c.gender WHEN 'M' THEN 'Male' WHEN 'F' THEN 'Female' END AS Gender,
 c.emailaddress AS [Email Address],
  c.yearlyincome AS [Annual Income],
  c.totalchildren AS [Total Children],
  --[NumberChildrenAtHome]--
  --[EnglishEducation]--
  --[SpanishEducation]--
  --[FrenchEducation]--
 c.englishoccupation AS Occupation,
  --[SpanishOccupation]--
  --[FrenchOccupation]--
  --[HouseOwnerFlag]--
  --[NumberCarsOwned]--
 c.addressline1 AS Address,
  g.city AS [Customer City] --Joined from DimGeography table--
  --[AddressLine2]--
  --[Phone]--
  --[DateFirstPurchase]--
  --[CommuteDistance]--
FROM
  [AdventureWorksDW2019].[dbo].[DimCustomer] AS c
  Left JOIN dbo.DimGeography as g ON g.geographykey = c.geographykey
  CustomerKey ASC --Order List by CustomerKey--
```

```
--Cleansed Date Table (DIM) --
SELECT
  [DateKey],
  [FullDateAlternateKey] AS Date,
  --[DayNumberOfWeek]-
  [EnglishDayNameOfWeek] AS [Day Name],
  --[SpanishDayNameOfWeek]--
  --[FrenchDayNameOfWeek]--
  --[DayNumberOfMonth]--
  --[DayNumberOfYear]--
  --[WeekNumberOfYear]--
  [EnglishMonthName] AS [Month Name],
  --[SpanishMonthName]--
  --[FrenchMonthName]--
  --[MonthNumberOfYear]--
  [CalendarQuarter] AS Quarter,
  [CalendarYear] AS Year --[CalendarSemester]--
  --[FiscalQuarter]--
  --[FiscalYear]--
  --[FiscalSemester]--
FROM
  [AdventureWorksDW2019].[dbo].[DimDate]
WHERE
  CalendarYear BETWEEN 2020
  AND 2021 -- Date range selected accordingly to analysis requirements--
```

```
--Cleansed Sales Table (FACT)
SELECT
  [ProductKey],
  [OrderDateKey],
  [DueDateKey],
  [ShipDateKey],
  [CustomerKey],
  --[PromotionKey]--
  --[CurrencyKey]--
  [SalesTerritoryKey],
  [SalesOrderNumber] AS [Order Number],
  [SalesOrderLineNumber],
  --[RevisionNumber]-
  [OrderQuantity] --[UnitPrice]--
  --[ExtendedAmount]--
  --[UnitPriceDiscountPct]--
  --[DiscountAmount]--
  --[ProductStandardCost]--
  --[TotalProductCost]--
  --[SalesAmount]--
  --[TaxAmt]--
  --[Freight]--
  --[CarrierTrackingNumber]--
  --[CustomerPONumber]--
  --[OrderDate]--
  --[DueDate]--
  --[ShipDate]--
FROM
  [AdventureWorksDW2019].[dbo].[FactInternetSales]
  LEFT (OrderDateKey, 4) BETWEEN 2020
  AND 2021
ORDER BY
  OrderDateKey ASC
```

```
--Cleansed Product Table (DIM) --
SELECT
  DISTINCT p.productkey,
  p.productalternatekey AS ProductSKU,
  --[ProductSubcategoryKey]--
  --[WeightUnitMeasureCode]--
  --[SizeUnitMeasureCode] --
  p.[EnglishProductName] AS [Product Name],
  ps.EnglishProductSubcategoryName AS [Sub Category],
  -- Joined in from Sub Category Table
  pc.EnglishProductCategoryName AS [Product Category],
  -- Joined in from Category Table
  --[SpanishProductName]--
  --[FrenchProductName]--
  --[StandardCost]--
  --[FinishedGoodsFlag]--
  p.Color AS [Product Color],
  sp.unitprice AS [Product Price], -- Joined in from FactInternetSales Table -
  sp.ProductStandardCost [Product Cost], -- Joined in from FactInternetSales Table -
  --[SafetyStockLevel]--
  --[ReorderPoint]--
  --[ListPrice]-
  ISNULL (p.Size, 'NA') AS [Product Size],
  --[SizeRange]--
  --[Weight]-
  --[DaysToManufacture]--
  --[ProductLine]--
  --[DealerPrice]--
  --[Class]--
  --[Style]--
  p.modelname AS [Model Name],
  --[LargePhoto]-
  --[EnglishDescription]--
  --[FrenchDescription]--
  --[ChineseDescription]--
  --[ArabicDescription]--
  --[HebrewDescription]--
  --[ThaiDescription]--
  --[GermanDescription]--
  --[JapaneseDescription]--
  --[TurkishDescription]--
  --[StartDate]--
  --[EndDate]--
  ISNULL(p.Status, 'Outdated') AS Status
  [AdventureWorksDW2019].[dbo].[DimProduct] AS p
  LEFT JOIN dbo.DimProductSubcategory AS ps ON ps.ProductSubcategoryKey =
p.ProductSubcategoryKey
  LEFT JOIN dbo.DimProductCategory AS pc ON ps.ProductCategoryKey = pc.ProductCategoryKey
  LEFT JOIN dbo.FactInternetSales AS sp ON sp.ProductKey = p.productkey
```

```
--Cleansed Territory Table --

SELECT

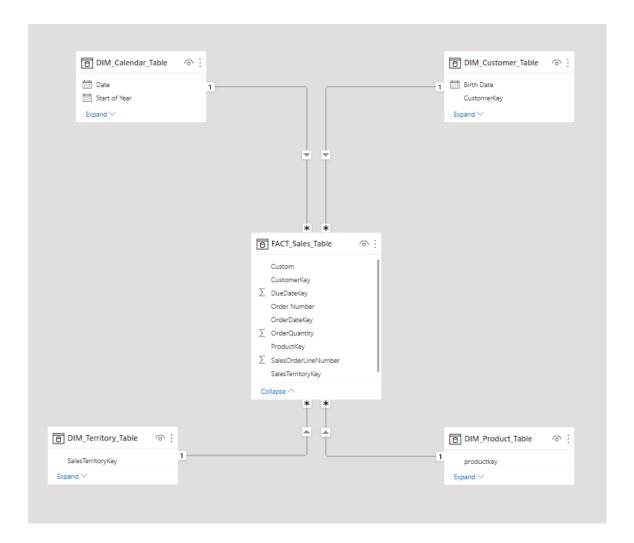
[SalesTerritoryKey],
--[SalesTerritoryAlternateKey]--
[SalesTerritoryRegion] AS Region,
[SalesTerritoryCountry] AS Country,
[SalesTerritoryGroup] AS Continent --[SalesTerritoryImage]--

FROM

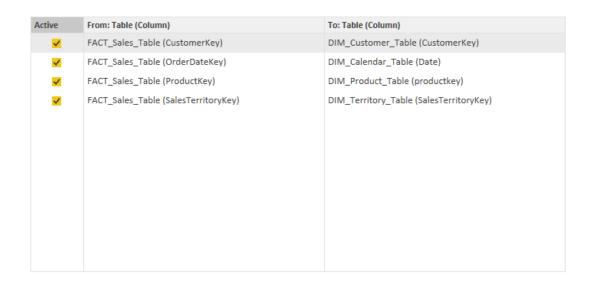
[AdventureWorksDW2019].[dbo].[DimSalesTerritory]
```

Data Model

Below screenshot shows how tables are connected in Power BI based on star schema.



Manage relationships



Dashboard

