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 (AdventureWorks sample databases - SQL Server | Microsoft Docs). 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
ORDER BY
  CustomerKey ASC --Order List by CustomerKey--
```

```sql
--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--
```

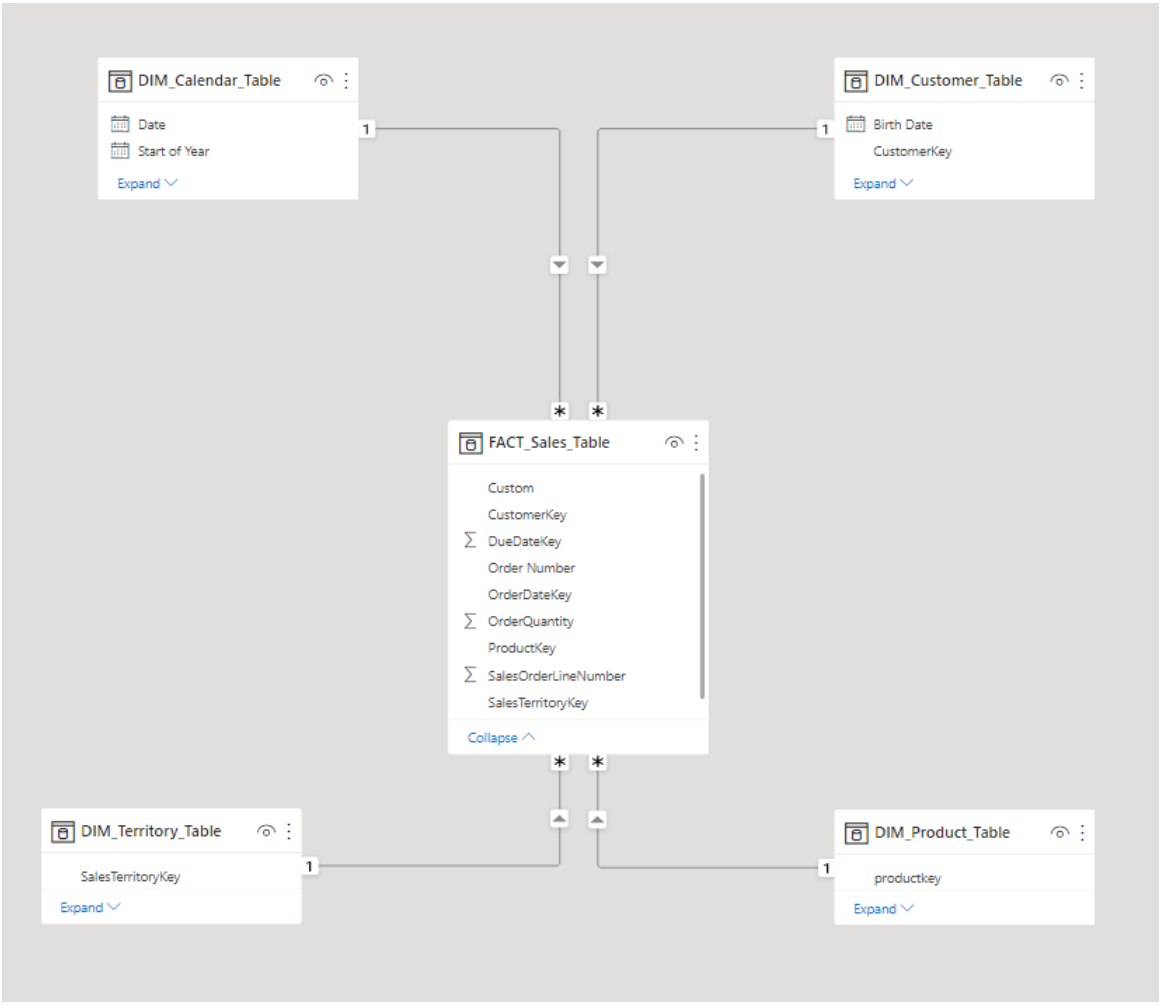
```sql
--Cleansed Sales Table (FACT)
SELECT
  [ProductKey],
  [OrderDateKey],
  [DueDateKey],
  [ShipDateKey],
  [CustomerKey],
  --[PromotionKey]--
  --[CurrencyKey]--
  [SalesTerritoryKey],
  [SalesOrderNumber] AS [Order Number],
  [SalesOrderLineNumber],
  --[RevisionNumber]--
  [OrderQuantity] --[UnitPrice]--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

```sql
--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
FROM
  [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
```

```sql
--Cleansed Territory Table --
SELECT
  [SalesTerritoryKey],
  --[SalesTerritoryAlternateKey]--
  [SalesTerritoryRegion] AS Region,
  [SalesTerritoryCountry] AS Country,
  [SalesTerritoryGroup] AS Continent --[SalesTerritoryImage]--
FROM
  [AdventureWorksDW2019].[dbo].[DimSalesTerritory]
```

Data Model

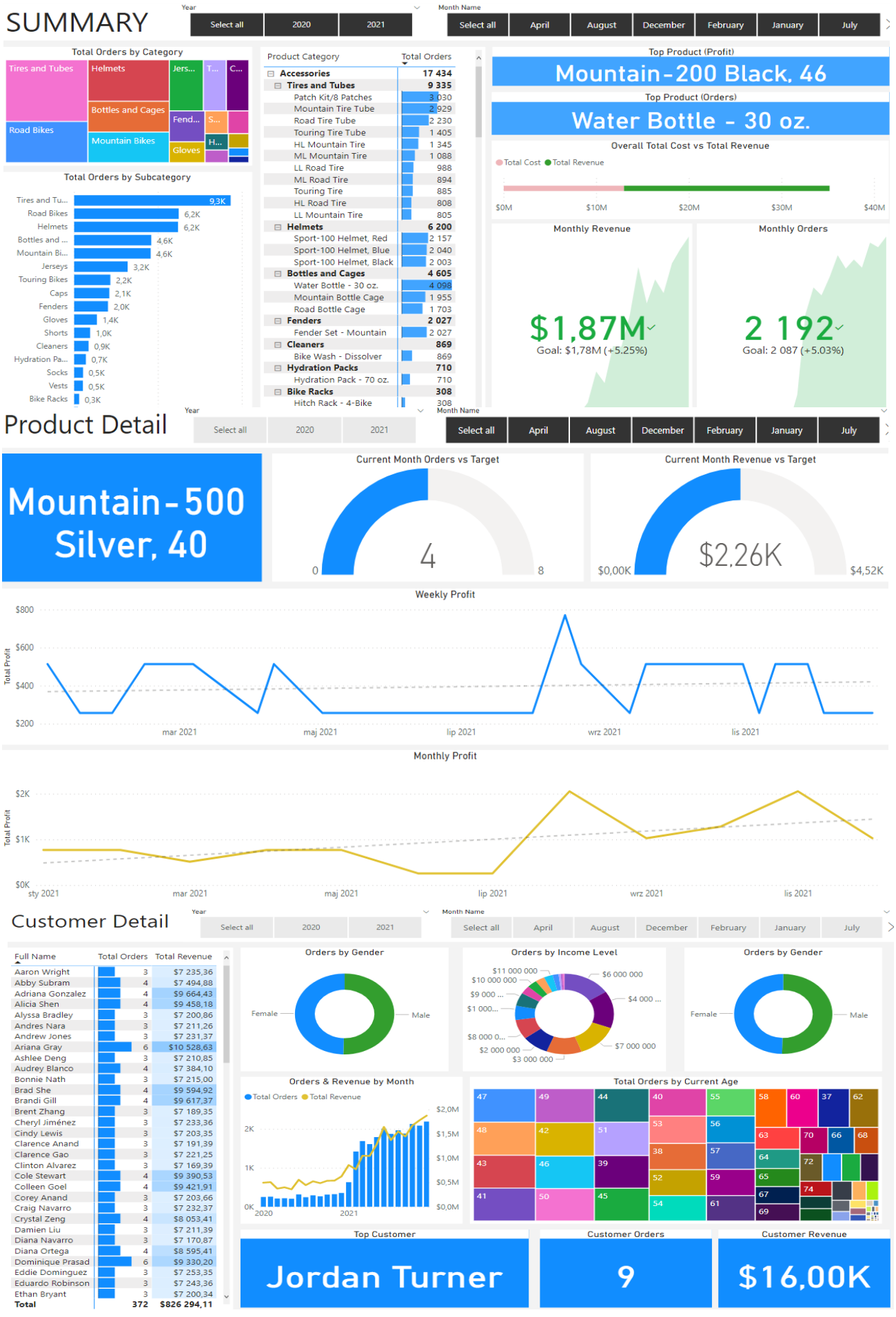
Below screenshot shows how tables are connected in Power BI based on star schema.



Manage relationships

Active	From: Table (Column)	To: Table (Column)
☑	FACT_Sales_Table (CustomerKey)	DIM_Customer_Table (CustomerKey)
☑	FACT_Sales_Table (OrderDateKey)	DIM_Calendar_Table (Date)
☑	FACT_Sales_Table (ProductKey)	DIM_Product_Table (productkey)
☑	FACT_Sales_Table (SalesTerritoryKey)	DIM_Territory_Table (SalesTerritoryKey)

Dashboard


SUMMARY
Year
Select all
2020
2021
Month Name
Select all
April
August
December
February
January
July
Total Orders by Category
Tires and Tubes
Helmets
Jers...
T...
C...
Bottles and Cages
Road Bikes
Fend...
S...
Mountain Bikes
H...
Gloves
Total Orders by Subcategory
Tires and Tu... 9,3K
Road Bikes 6,2K
Helmets 6,2K
Bottles and ... 4,6K
Mountain Bi... 4,6K
Jerseys 3,2K
Touring Bikes 2,2K
Caps 2,1K
Fenders 2,0K
Gloves 1,4K
Shorts 1,0K
Cleaners 0,9K
Hydration Pa... 0,7K
Socks 0,5K
Vests 0,5K
Bike Racks 0,3K
Product Category
Total Orders
Accessories 17 434
Tires and Tubes 9 335
Patch Kit/8 Patches 3 030
Mountain Tire Tube 2 929
Road Tire Tube 2 230
Touring Tire Tube 1 405
HL Mountain Tire 1 345
ML Mountain Tire 1 088
LL Road Tire 988
ML Road Tire 894
Touring Tire 885
HL Road Tire 808
LL Mountain Tire 805
Helmets 6 200
Sport-100 Helmet, Red 2 157
Sport-100 Helmet, Blue 2 040
Sport-100 Helmet, Black 2 003
Bottles and Cages 4 605
Water Bottle - 30 oz. 4 098
Mountain Bottle Cage 1 955
Road Bottle Cage 1 703
Fenders 2 027
Fender Set - Mountain 2 027
Cleaners 869
Bike Wash - Dissolver 869
Hydration Packs 710
Hydration Pack - 70 oz. 710
Bike Racks 308
Hitch Rack - 4-Bike 308
Top Product (Profit)
Mountain-200 Black, 46
Top Product (Orders)
Water Bottle - 30 oz.
Overall Total Cost vs Total Revenue
Total Cost
Total Revenue
$0M
$10M
$20M
$30M
$40M
Monthly Revenue
$1,87M
Goal: $1,78M (+5.25%)
Monthly Orders
2 192
Goal: 2 087 (+5.03%)
Product Detail
Year
Select all
2020
2021
Month Name
Select all
April
August
December
February
January
July
Mountain-500 Silver, 40
Current Month Orders vs Target
0
4
8
Current Month Revenue vs Target
$0,00K
$2,26K
$4,52K
Weekly Profit
Total Profit
$800
$600
$400
$200
mar 2021
maj 2021
lip 2021
wrz 2021
lis 2021
Monthly Profit
Total Profit
$2K
$1K
$0K
sty 2021
mar 2021
maj 2021
lip 2021
wrz 2021
lis 2021
Customer Detail
Year
Select all
2020
2021
Month Name
Select all
April
August
December
February
January
July
Full Name
Total Orders
Total Revenue
Aaron Wright 3 $7 235,36
Abby Subram 4 $9 494,88
Adriana Gonzalez 4 $9 664,43
Alicia Shen 4 $9 458,18
Alyssa Bradley 3 $7 200,86
Andres Nara 3 $7 211,26
Andrew Jones 3 $7 231,37
Ariana Gray 6 $10 528,63
Ashlee Deng 3 $7 210,85
Audrey Blanco 4 $7 384,10
Bonnie Nath 3 $7 215,00
Brad She 4 $9 594,92
Brandi Gill 4 $9 617,37
Brent Zhang 3 $7 189,35
Cheryl Jiménez 3 $7 233,36
Cindy Lewis 3 $7 203,35
Clarence Anand 3 $7 191,39
Clarence Gao 3 $7 221,25
Clinton Alvarez 3 $7 169,39
Cole Stewart 4 $9 390,53
Colleen Goel 4 $9 421,91
Corey Anand 3 $7 203,66
Craig Navarro 3 $7 232,37
Crystal Zeng 4 $8 053,41
Damien Liu 3 $7 211,39
Diana Navarro 3 $7 170,87
Diana Ortega 4 $8 595,41
Dominique Prasad 6 $9 330,20
Eddie Dominguez 3 $7 253,35
Eduardo Robinson 3 $7 243,36
Ethan Bryant 3 $7 200,34
Total 372 $826 294,11
Orders by Gender
Female
Male
Orders by Income Level
$11 000 000
$10 000 000
$9 000 ...
$1 000...
$8 000 0...
$2 000 000
$3 000 000
$6 000 000
$4 000 ...
$7 000 000
Orders by Gender
Female
Male
Orders & Revenue by Month
Total Orders
Total Revenue
2K
1K
0K
2020
2021
$2,0M
$1,5M
$1,0M
$0,5M
$0,0M
Total Orders by Current Age
47 49 44 40 55 58 60 37 62
48 42 51 53 56 63 70 66 68
43 46 39 38 57 64 72
52 59 65
41 50 45 54 61 67 74
69
Top Customer
Jordan Turner
Customer Orders
9
Customer Revenue
$16,00K