Sales report

Business Request

Value of change: visual dashboards and improved Sales representative sorting and for salesforce

Necessary system: Power BI, MS SQL Server Management Studio

Other relevant info: budget delivered in excel for 2021.

Data source: AdventureSampleWork2019

The report will be presented in a form of interactive dashboard. The dashboard needs to meet all of the business requests and it will be helpful for the company to make a data-driven decision.

With management team, dashboard needs to show:

- Sales overview of the company from 2019 to January 2021.
- Most popular product categories in the period of time.
- Top sales by customers in the period.
- Top best-selling products in the period.
- Comparison between Sales and Budget Amount overtime.
- Top sales by city in the country.
- Other request: Total or subtotal sales followed by city, category, sub category, and product.

With product management, dashboard needs to show:

- Total amount of sales and budget.
- Top best-selling by product.
- Top best-selling by category.
- Sales and budget comparison overtime.
- Details about sales by product in every month.
- Other request: the dashboard must be easily filtered by product name and category name, display subtotal and total sales by month.

With sales representatives, the dashboard needs to show:

- Top sales by customers
- Sales by customers every month with subtotal and total sales
- Other request: the dashboard must be easily filtered by product name and category name, display subtotal and total sales by month.

Tools needed:

- Microsoft Excel
- Microsoft SQL Management Studio
- Microsoft PowerBI

Data Cleansing And Transformation (SQL)

All data used for the dashboard will be extracted by SQL and selected only necessary information. The Microsoft SQL Server Management Studio plays an important tool to extract data and create data models for the dashboard. An extra data about the Budget will be provided in the excel file. All of the SQL Statement for cleansing and transforming data will show below:

DIM_CALENDAR: a table includes data mainly related to datetime of sales management and other important information.

```
--Cleansed DIM_DATE table
SELECT
  [DateKey],
  [FullDateAlternateKey] AS DATE,
  --,[DayNumberOfWeek]
  [EnglishDayNameOfWeek] AS DAY,
  -- ,[SpanishDayNameOfWeek]
  -- ,[FrenchDayNameOfWeek]
  --,[DayNumberOfMonth]
  -- ,[DayNumberOfYear]
  [WeekNumberOfYear] AS WEEKNO,
  [EnglishMonthName] AS MONTH,
  LEFT([EnglishMonthName], 3) AS MONTHSHORT,
```

```
  -- ,[SpanishMonthName]
  -- ,[FrenchMonthName]
  [MonthNumberOfYear] AS MONTHNO,
  [CalendarQuarter] AS QUARTER,
  [CalendarYear] AS YEAR -- ,[CalendarSemester]
  --,[FiscalQuarter]
  -- ,[FiscalYear]
  -- ,[FiscalSemester]
FROM
  [AdventureWorksDW2019].[dbo].[DimDate]
WHERE
  CalendarYear >= 2019
```

```
13    LEFT([EnglishMonthName], 3) AS MONTHSHORT,
14    -- ,[SpanishMonthName]
15    -- ,[FrenchMonthName]
16    [MonthNumberOfYear] AS MONTHNO,
17    [CalendarQuarter] AS QUARTER,
18    [CalendarYear] AS YEAR -- ,[CalendarSemester]
19    --,[FiscalQuarter]
20    -- ,[FiscalYear]
21    -- ,[FiscalSemester]
22  FROM
23    [AdventureWorksDW2019].[dbo].[DimDate]
24  WHERE
25    CalendarYear >= 2019
```

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Results | Messages

	DateKey	DATE	DAY	WEEKNO	MONTH	MONTHSHORT	MONTHNO	QUARTER	YEAR
1	20190101	2019-01-01	Tuesday	1	January	Jan	1	1	2019
2	20190102	2019-01-02	Wednesday	1	January	Jan	1	1	2019
3	20190103	2019-01-03	Thursday	1	January	Jan	1	1	2019
4	20190104	2019-01-04	Friday	1	January	Jan	1	1	2019
5	20190105	2019-01-05	Saturday	1	January	Jan	1	1	2019
6	20190106	2019-01-06	Sunday	2	January	Jan	1	1	2019
7	20190107	2019-01-07	Monday	2	January	Jan	1	1	2019
8	20190108	2019-01-08	Tuesday	2	January	Jan	1	1	2019
9	20190109	2019-01-09	Wednesday	2	January	Jan	1	1	2019
10	20190110	2019-01-10	Thursday	2	January	Jan	1	1	2019
11	20190111	2019-01-11	Friday	2	January	Jan	1	1	2019

DIM_CUSTOMER: a table includes all information about customers such as last name, first name, date of purchases, and city where they live.

```
-- Cleansed DIM_PRODUCT table
SELECT
  p.[ProductKey],
  p.ProductAlternateKey AS ProductItemCode,
  -- ,[ProductSubcategoryKey]
  -- ,[WeightUnitMeasureCode]
  -- ,[SizeUnitMeasureCode]
  p.[EnglishProductName] AS [Product Name],
  ps.EnglishProductSubcategoryName AS [Sub Category],
  pc.EnglishProductCategoryName AS [Category Name],
  -- ,[SpanishProductName]
  -- ,[FrenchProductName]
  -- ,[StandardCost]
  -- ,[FinishedGoodsFlag]
  p.[Color] AS [Product Color],
  -- ,[SafetyStockLevel]
  -- ,[ReorderPoint]
  -- ,[ListPrice]
  p.[Size] AS [Product Size],
  -- ,[SizeRange]
  -- ,[Weight]
  -- ,[DaysToManufacture]
  p.[ProductLine] AS [Product Line],
  -- ,[DealerPrice]
  -- ,[Class]
  -- ,[Style]
  p.[ModelName] AS [Product Model Name],
  -- ,[LargePhoto]
  p.[EnglishDescription] AS [Product Description],
  -- ,[FrenchDescription]
  -- ,[ChineseDescription]
  -- ,[ArabicDescription]
  -- ,[HebrewDescription]
  -- ,[ThaiDescription]
```

```
  -- ,[GermanDescription]
  -- ,[JapaneseDescription]
  -- ,[TurkishDescription]
  -- ,[StartDate]
  -- ,[EndDate]
  ISNULL (p.status, 'Outdate') AS [Product 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
ORDER BY
  p.ProductKey ASC
```

```
11  -- ,[NameStyle]
12  -- ,[BirthDate]
13  -- ,[MaritalStatus]
14  -- ,[Suffix]
15  CASE c.gender WHEN 'M' THEN 'Male' WHEN 'F' THEN 'Female' END AS Gender,
16  -- ,[EmailAddress]
17  -- ,[YearlyIncome]
18  -- ,[TotalChildren]
19  -- ,[NumberChildrenAtHome]
20  -- ,[EnglishEducation]
21  --,[SpanishEducation]
22  -- ,[FrenchEducation]
23  -- ,[EnglishOccupation]
24  --  ,[SpanishOccupation]
```

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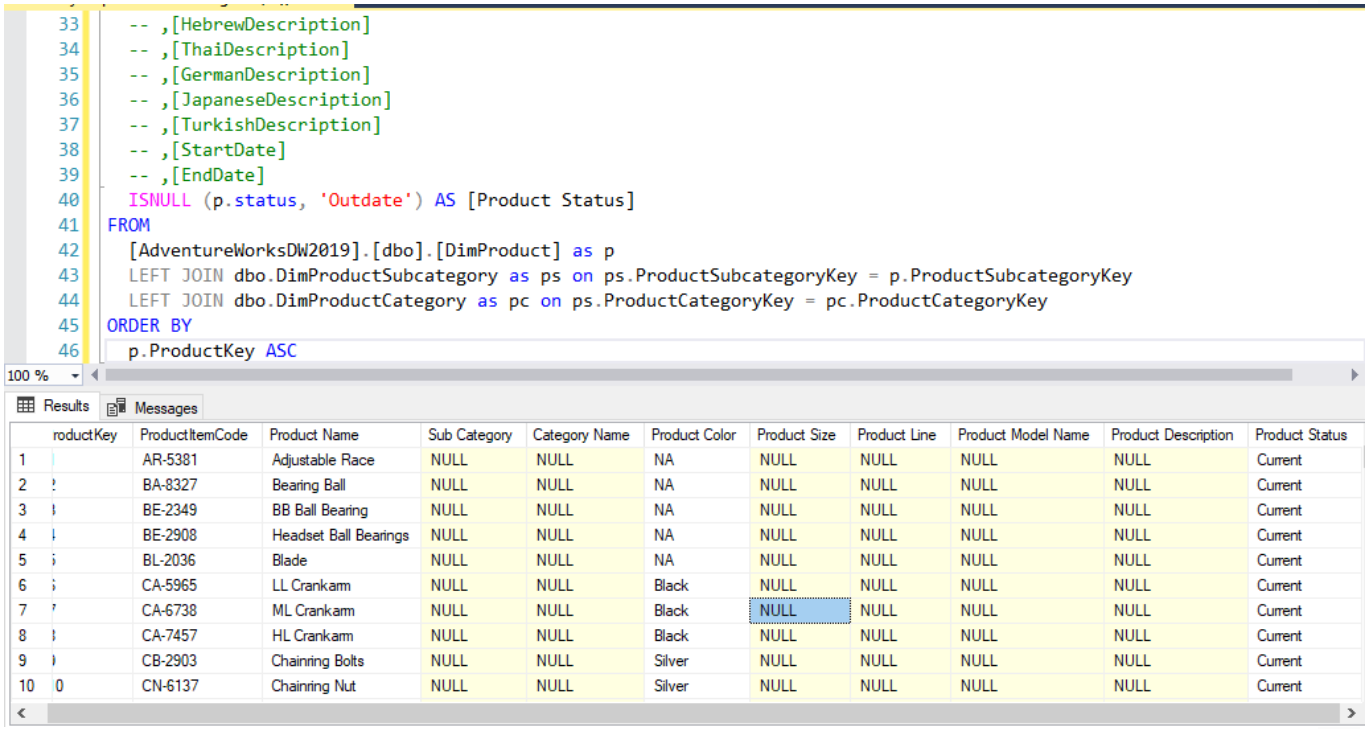
Results | Messages

	Customerkey	First Name	LastName	Full Name	Gender	Datefirstpurchase	Customer City
1	11000	Jon	Yang	Jon Yang	Male	2018-01-19	Rockhampton
2	11001	Eugene	Huang	Eugene Huang	Male	2018-01-15	Seaford
3	11002	Ruben	Torres	Ruben Torres	Male	2018-01-07	Hobart
4	11003	Christy	Zhu	Christy Zhu	Female	2017-12-29	North Ryde
5	11004	Elizabeth	Johnson	Elizabeth Johnson	Female	2018-01-23	Wollongong
6	11005	Julio	Ruiz	Julio Ruiz	Male	2017-12-30	East Brisbane
7	11006	Janet	Alvarez	Janet Alvarez	Female	2018-01-24	Matraville
8	11007	Marco	Mehta	Marco Mehta	Male	2018-01-09	Warrnambool
9	11008	Rob	Verhoff	Rob Verhoff	Female	2018-01-25	Bendigo
10	11009	Shannon	Carlson	Shannon Carlson	Male	2018-01-27	Hervey Bay
11	11010	Jacquelyn	Suarez	Jacquelyn Suarez	Female	2018-01-14	East Brisbane

DIM_PRODUCT: a table contains information about products such as category, sub-category, product name, selling price, colour, product size, etc.

```
-- Cleansed DIM_PRODUCT table
SELECT
  p.[ProductKey],
  p.ProductAlternateKey AS ProductItemCode,
  -- ,[ProductSubcategoryKey]
  -- ,[WeightUnitMeasureCode]
  -- ,[SizeUnitMeasureCode]
  p.[EnglishProductName] AS [Product Name],
  ps.EnglishProductSubcategoryName AS [Sub Category],
  pc.EnglishProductCategoryName AS [Category Name],
  -- ,[SpanishProductName]
  -- ,[FrenchProductName]
  -- ,[StandardCost]
  -- ,[FinishedGoodsFlag]
  p.[Color] AS [Product Color],
  -- ,[SafetyStockLevel]
  -- ,[ReorderPoint]
  -- ,[ListPrice]
  p.[Size] AS [Product Size],
  -- ,[SizeRange]
  -- ,[Weight]
  -- ,[DaysToManufacture]
  p.[ProductLine] AS [Product Line],
  -- ,[DealerPrice]
  -- ,[Class]
  -- ,[Style]
  p.[ModelName] AS [Product Model Name],
  -- ,[LargePhoto]
  p.[EnglishDescription] AS [Product Description],
  -- ,[FrenchDescription]
  -- ,[ChineseDescription]
  -- ,[ArabicDescription]
  -- ,[HebrewDescription]
  -- ,[ThaiDescription]
```

```
  -- ,[GermanDescription]
  -- ,[JapaneseDescription]
  -- ,[TurkishDescription]
  -- ,[StartDate]
  -- ,[EndDate]
  ISNULL (p.status, 'Outdate') AS [Product 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
ORDER BY
  p.ProductKey ASC
```



```
  -- ,[HebrewDescription]
  -- ,[ThaiDescription]
  -- ,[GermanDescription]
  -- ,[JapaneseDescription]
  -- ,[TurkishDescription]
  -- ,[StartDate]
  -- ,[EndDate]
  ISNULL (p.status, 'Outdate') AS [Product 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
ORDER BY
  p.ProductKey ASC
```

100 %

Results | Messages

	roductKey	ProductItemCode	Product Name	Sub Category	Category Name	Product Color	Product Size	Product Line	Product Model Name	Product Description	Product Status
1		AR-5381	Adjustable Race	NULL	NULL	NA	NULL	NULL	NULL	NULL	Current
2		BA-8327	Bearing Ball	NULL	NULL	NA	NULL	NULL	NULL	NULL	Current
3		BE-2349	BB Ball Bearing	NULL	NULL	NA	NULL	NULL	NULL	NULL	Current
4		BE-2908	Headset Ball Bearings	NULL	NULL	NA	NULL	NULL	NULL	NULL	Current
5		BL-2036	Blade	NULL	NULL	NA	NULL	NULL	NULL	NULL	Current
6		CA-5965	LL Crankarm	NULL	NULL	Black	NULL	NULL	NULL	NULL	Current
7		CA-6738	ML Crankarm	NULL	NULL	Black	NULL	NULL	NULL	NULL	Current
8		CA-7457	HL Crankarm	NULL	NULL	Black	NULL	NULL	NULL	NULL	Current
9		CB-2903	Chainring Bolts	NULL	NULL	Silver	NULL	NULL	NULL	NULL	Current
10	0	CN-6137	Chainring Nut	NULL	NULL	Silver	NULL	NULL	NULL	NULL	Current

FACT_SALES: a table includes all of information about sales such as products, due date, ship date, order date, etc.

```
-- Cleansed FACT_SALES table
SELECT
  [ProductKey],
  [OrderDateKey],
  [DueDateKey],
  [ShipDateKey],
  [CustomerKey] -- ,[PromotionKey]
  -- ,[CurrencyKey]
  -- ,[SalesTerritoryKey]
  ,
  [SalesOrderNumber] -- ,[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) >= YEAR(
    GETDATE()
  ) -2 --make sure there is always 2 years gap from the report.
```

```
ORDER BY
  OrderDateKey ASC
```

```
22    -- ,[Freight]
23    -- ,[CarrierTrackingNumber]
24    -- ,[CustomerPONumber]
25    -- ,[OrderDate]
26    -- ,[DueDate]
27    -- ,[ShipDate]
28  FROM
29    [AdventureWorksDW2019].[dbo].[FactInternetSales]
30  WHERE
31    LEFT(OrderDateKey, 4) >= YEAR(
32      GETDATE()
33    ) -2 --make sure there is always 2 years gap from the report.
34  ORDER BY
35    OrderDateKey ASC
```

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Results | Messages

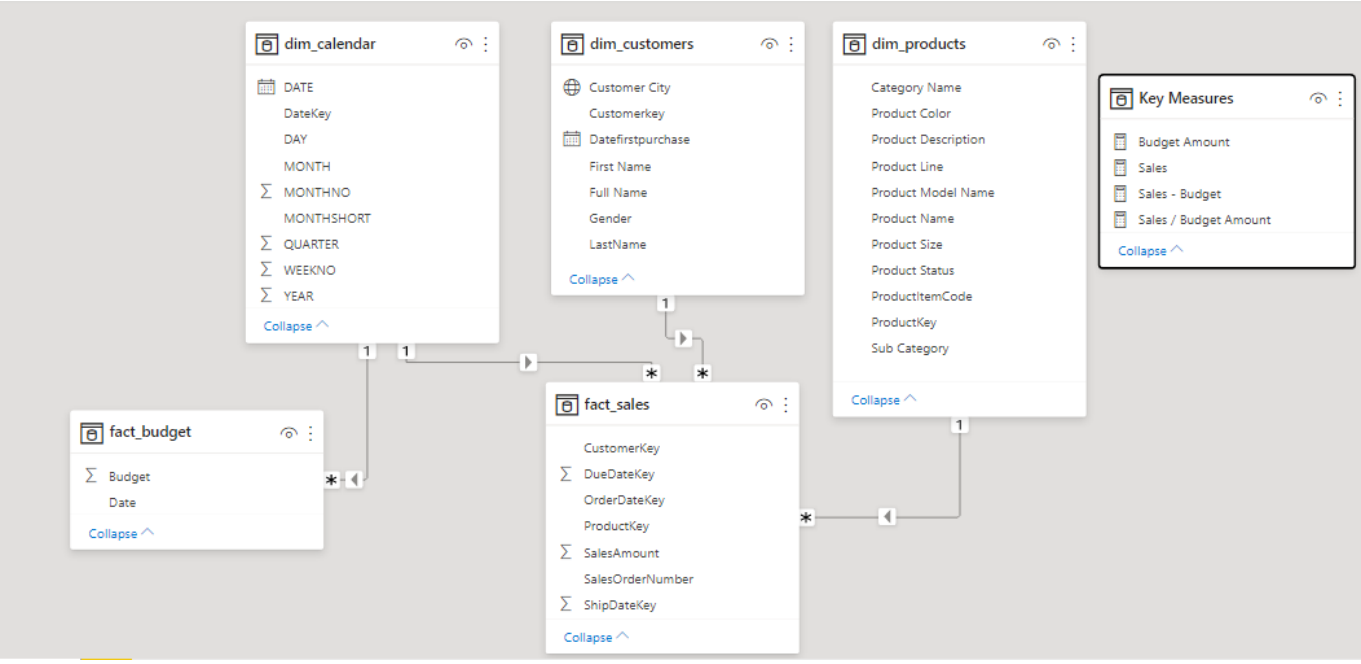
	ProductKey	OrderDateKey	DueDateKey	ShipDateKey	CustomerKey	SalesOrderNumber	SalesAmount
1	381	20190101	20190113	20190108	16942	SO46700	1000.4375
2	375	20190101	20190113	20190108	15114	SO46701	2181.5625
3	369	20190101	20190113	20190108	15116	SO46702	2443.35
4	337	20190101	20190113	20190108	20576	SO46703	782.99
5	370	20190101	20190113	20190108	13059	SO46704	2443.35
6	370	20190101	20190113	20190108	13085	SO46705	2443.35
7	352	20190101	20190113	20190108	20186	SO46706	2071.4196
8	337	20190101	20190113	20190108	15199	SO46707	782.99
9	377	20190101	20190113	20190108	21200	SO46708	2181.5625
10	387	20190102	20190114	20190109	19172	SO46709	1000.4375
11	356	20190102	20190114	20190109	11484	SO46710	2071.4196

Data Model

Below is a screenshot of the data model after cleansed and prepared tables were read into Power BI.

This data model also shows how FACT_Budget has been connected to FACT_Sales and other necessary DIM tables.

A table of Key Measures includes all key calculations or formulas that are used in Power BI to calculate key numbers for the dashboard.



Dashboard

The final dashboard includes 3 pages, the first page is Sales Overview. It shows all of the business requests for the management and sales department. The second page, Product Details will allow you to see the best-selling products and other information related to product management. The last page is about Customer Details, it provides a list of customers who buy the most products and which products need to focus on to improve sales.

Key findings:

Bikes accounted for 99.95% sales in 2019 but slightly dropped to 93.93% in 2020.

Mountain bike model 200 Black-46 and 200 Black-42 are selling the best with over 1.4 million in sales in the last 2 years (2019-2020).

December is the best month with 2.5 million in sales.

February is the worst month for selling with only 1.2 mil.

Sales trending could break down into 3 period:

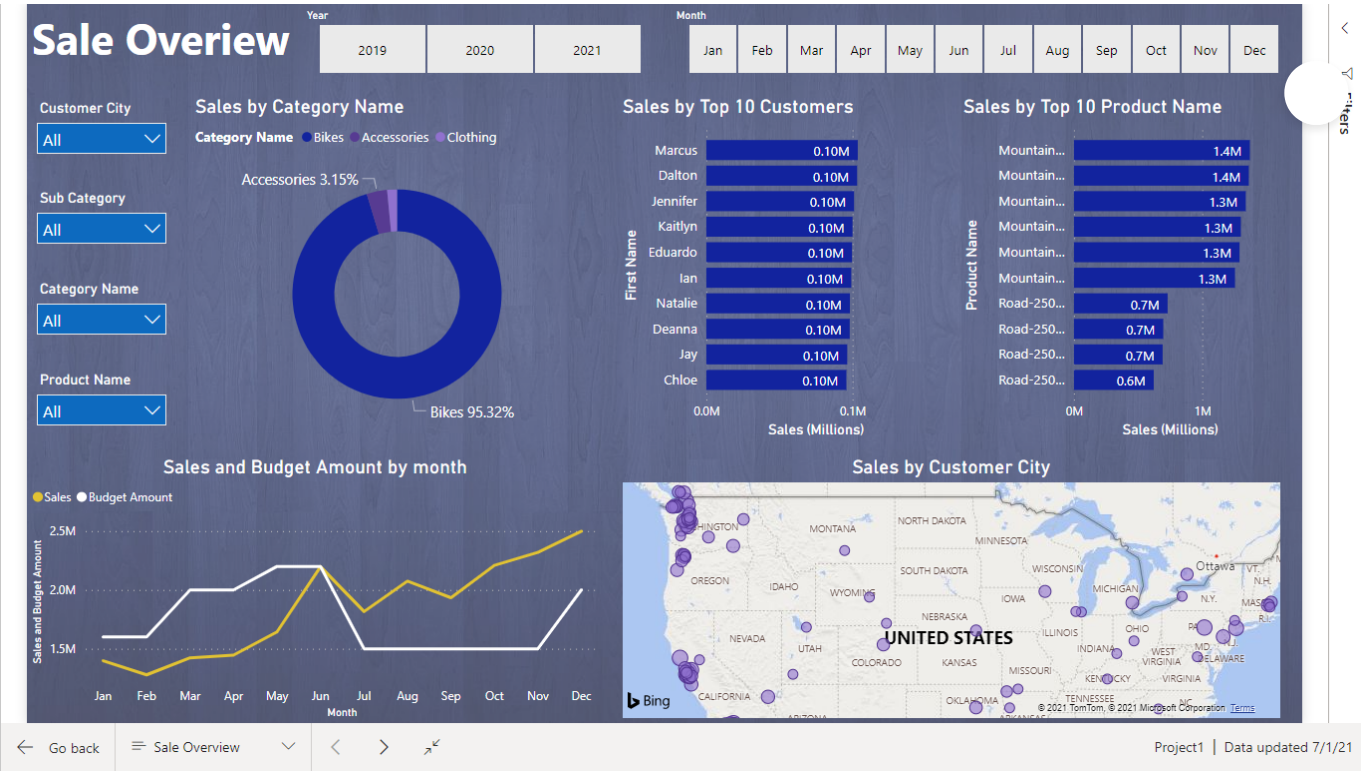
– First, slow and low in sales started from January to April.

– Second, gradually increased sales from May to August, except July with slightly dropped in sales.

– Third, continually increased from September to December.

Sales appear mostly along the west coast region of the US and Canada (from Vancouver to LA) and New England region in the US.

For more details, click a picture to experience the dashboard…



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