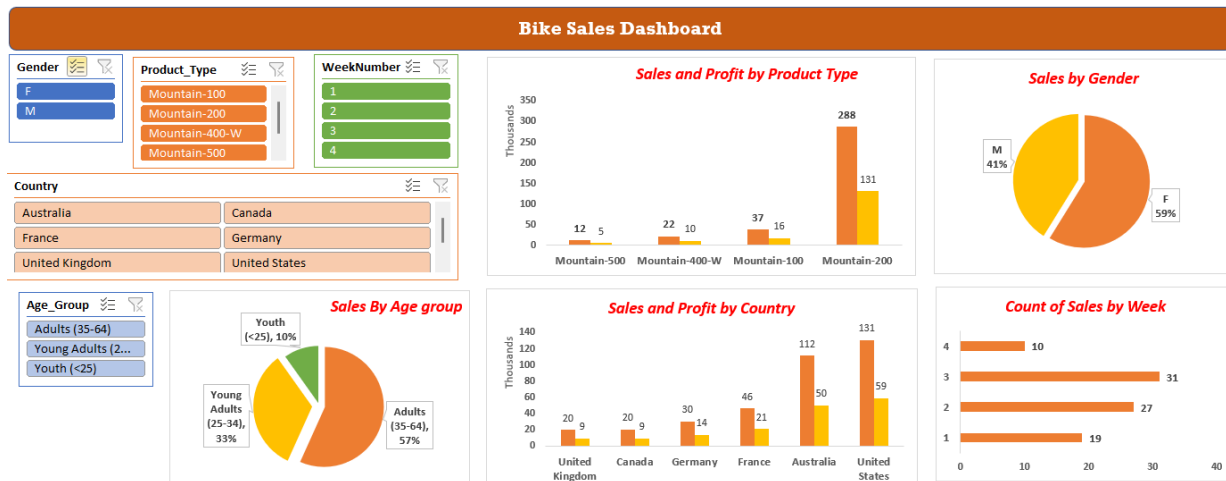# Bike Sales Data Analysis With Excel

Insights gained from this Dashboard where all slicer's values are selected

1. Product Type Mountain-200 had the most sales. It is the best-selling model
2. More Females bought Bikes than Males across all countries, in all age groups and for all product types
3. More Adults in the age group of 35-64 purchased bikes for all Product Types than other age groups.
4. Australia and United States produce the highest sales and profit
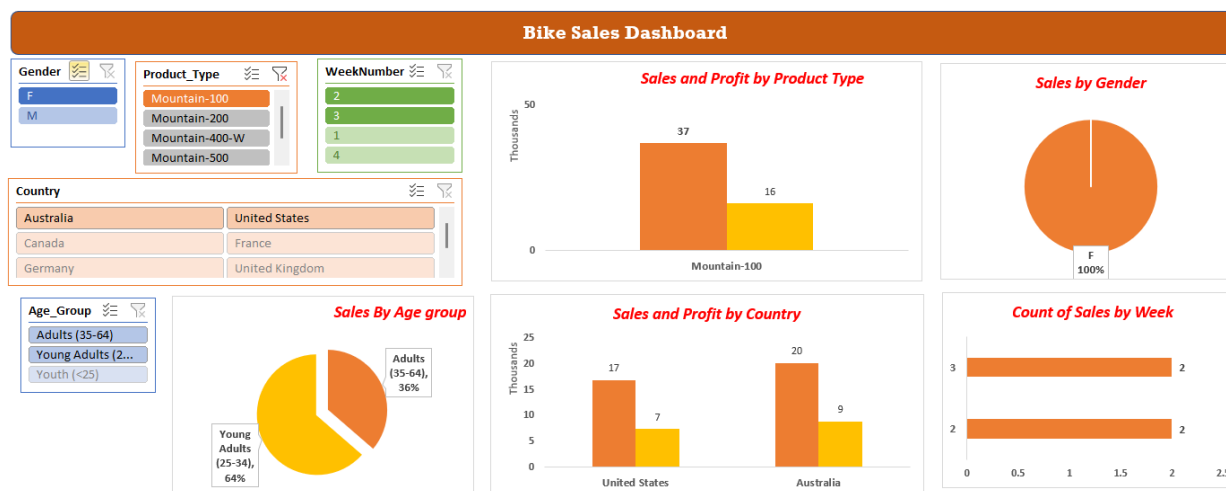
Insights from above Dashboard where the product type is Mountain-100

1. Product Type Mountain-100 was purchased by females only
2. In the age group of Young Adults and Adults.
3. Mountain-100 was sold in United States and Australia only. And it is more popular in Australia. So, this model should be targeted more for females in Australia.
4. Mountain-100 was sold only in the 2nd and 3rd weeks of December

Bike Sales Dashboard
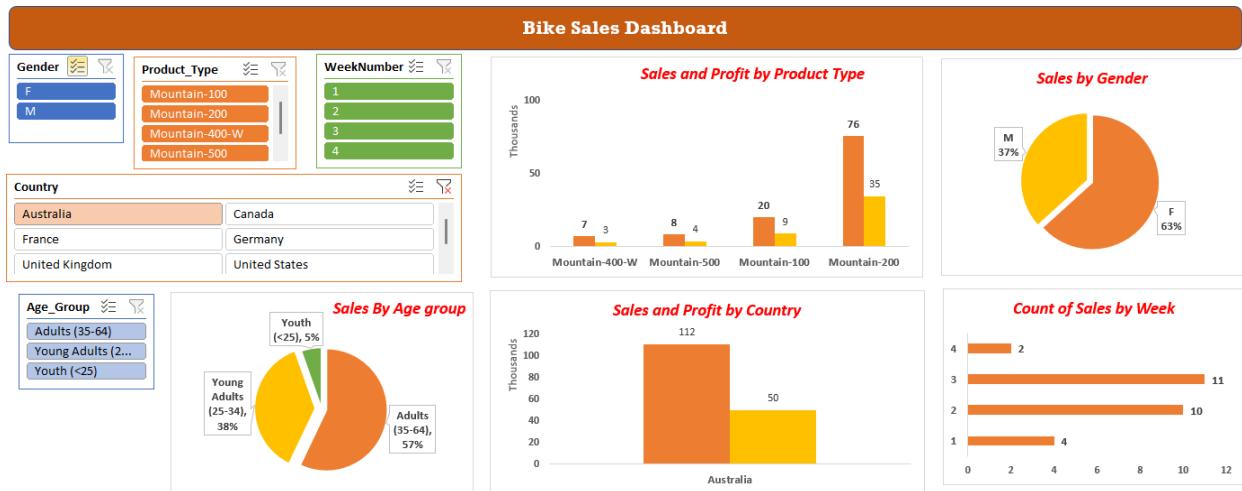
Insights gained from the above dashboard where country is Australia

1. Mountain-200 is the most popular bike in Australia
2. More female customers bought bikes in Australia
3. Most customers are in the Adults, Young Adults age group
4. Profit in Australia is about 45% of sales
5. More bikes were sold in 3rd week of December
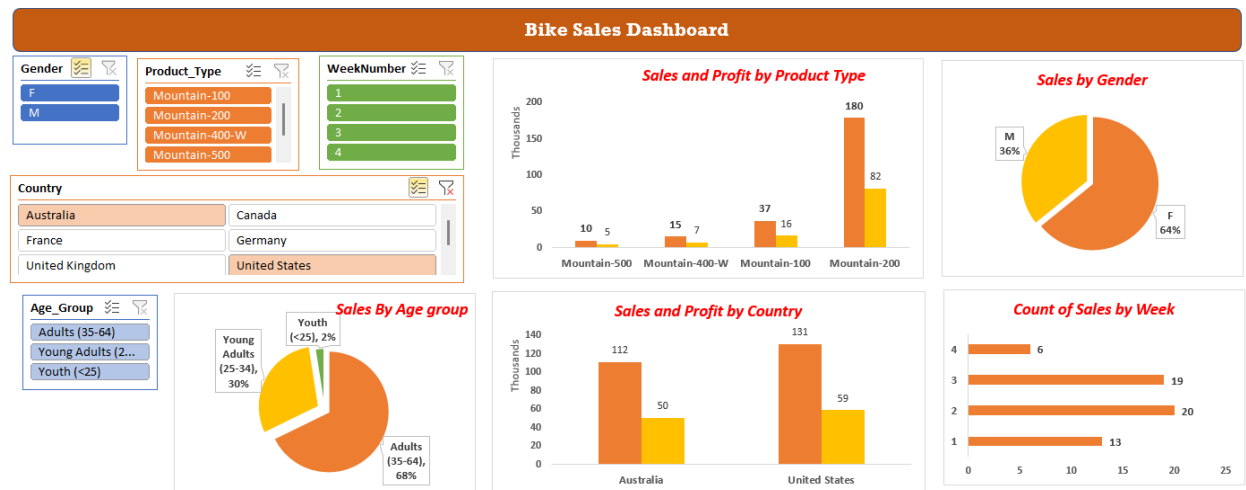

Bike Sales Dashboard
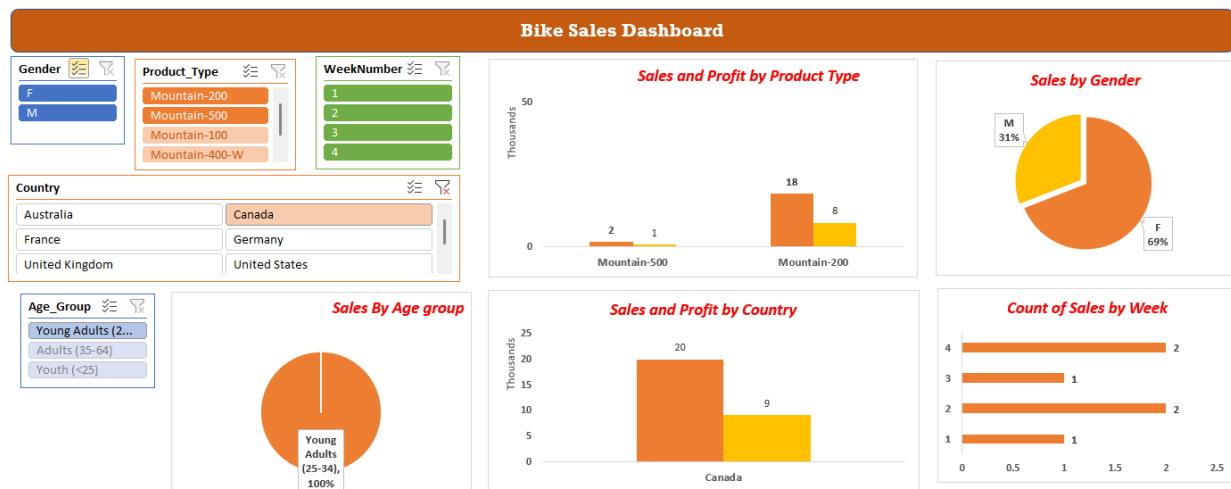
Insights gained from above dashboard where the country is Canada

1. Canadians like Mountain-500 and Mountain-200 bikes
2. Again, more females bought these bikes
3. Only one age group of Young Adults (25-34) bought these two bikes

Bike Sales Dashboard
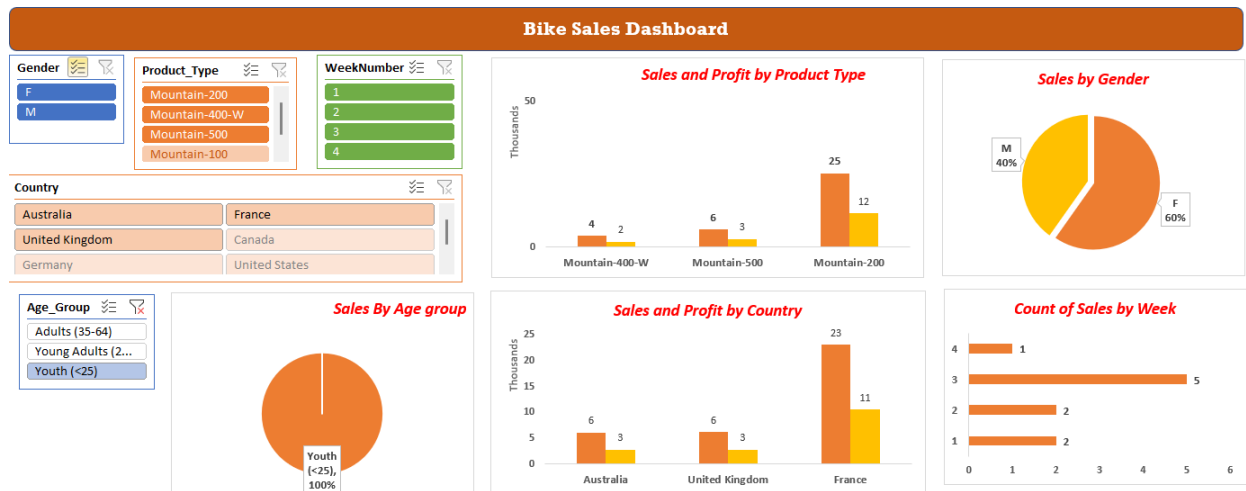
Insights gained from above dashboard where age group is Youth

1. In this age group, Mountain-100 bike is not popular. They like the Mountain-200 bike most
2. It's bought by Customers in Australia, France and United Kingdom only. Most popular in France
3. The Profit to sales margin is about 50% for this age group
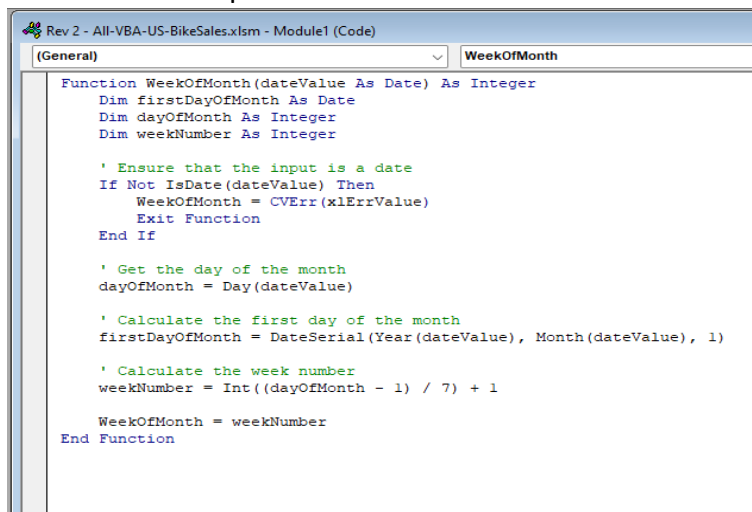4. Most bikes were sold in 3rd week

Bike Sales Dashboard

Insights gained from above dashboard where Sale countries are Australia and United States

1. All types of bikes are sold in these 2 countries
2. All age groups bought bikes in these countries with the most sales among Females and in the age group of Adults
3. Profits are about 45% of sales
4. With most sales happening in 2nd and 3rd week

Steps for ETL

1. Data Source – Bike Sales -This data source shows the sales of different types of Mountain Bikes to different countries in different age groups in the month of December

   https://www.kaggle.com/code/stolltho/eda-hypothesis-testing-bike-sales/input?select=Sales.csv

2. Created a backup of the original sheet and named it Working then applied the following transformations.
3. Deleted calculated columns (Cost, Revenue) from Working sheet.
4. Normalization - Created another sheet called Products with unique Products and Unit_Cost and Unit_Price. This was done to reduce the redundancy in the data.
5. Then using XLOOKUP, the Product details were populated into the Working sheet and later the Product ID column was deleted.
6. From Working sheet, I removed blank record, duplicate record and separated Product_Description into Product_Type, Product_Color, Product_Size columns.
7. Converted Sales Numbers which was in text to Numbers format.
8. Data Cleaning – Removed rows that did not have Product Id, Order_Quantity, Day values.
9. Added a VBA script to calculate the week of month.

```
Rev 2 - All-VBA-US-BikeSales.xlsm - Module1 (Code)
(General)                                    WeekOfMonth

Function WeekOfMonth(dateValue As Date) As Integer
    Dim firstDayOfMonth As Date
    Dim dayOfMonth As Integer
    Dim weekNumber As Integer

    ' Ensure that the input is a date
    If Not IsDate(dateValue) Then
        WeekOfMonth = CVErr(xlErrValue)
        Exit Function
    End If

    ' Get the day of the month
    dayOfMonth = Day(dateValue)

    ' Calculate the first day of the month
    firstDayOfMonth = DateSerial(Year(dateValue), Month(dateValue), 1)

    ' Calculate the week number
    weekNumber = Int((dayOfMonth - 1) / 7) + 1

    WeekOfMonth = weekNumber
End Function
```

10. Created all Pivot tables in PVSheet.
11. Created a Dashboard sheet that displays the graphs related to all the pivot tables in the PVSheet.
12. These interactive charts display the sales per Gender, per Product_Type, WeekNumber, Country, Age_Group. Using the slicers, different combination of data can be analyzed.
13. Below are the pivot tables that were used to generate the charts in the Dashboard.

Gender	▼	Sum of Sales
F		210,919
M		147,478
Grand Total		358,397

Product_Type	▼↑	Sum of Sales	Sum of Profit
Mountain-500		11,590	5,265
Mountain-400-W		21,532	9,772
Mountain-100		37,150	16,258
Mountain-200		288,125	130,925
Grand Total		358,397	162,220

Age_Group	▼	Sum of Sales
Adults (35-64)		203,421
Young Adults (25		119,646
Youth (<25)		35,330
Grand Total		358,397

Week_Number	▼	Count of Sales
1		19
2		27
3		31
4		10
Grand Total		87

Country	▼↑	Sum of Sales	Sum of Profit
United Kingdom		19,972	9,072
Canada		20,080	9,123
Germany		30,010	13,636
France		46,175	20,981
Australia		111,506	50,326
United States		130,654	59,082
Grand Total		358,397	162,220