## Data Analysis Using AdventureWorks2019 (DataBase)

# Step 1: Extracting Data Using SQL

**Description**:  
The first step involved extracting all products and sales details from the AdventureWorks2019 database. At this stage, I retrieved all available columns for further processing.

Step 2: Data Processing in Excel  
 After exporting the data to Excel, I performed the following steps to clean and prepare it for analysis:

### Remove unnecessary columns:

* + - Columns that were irrelevant to the analysis, such as system-generated or duplicate columns, were removed.

### Format and clean data:

* + - Dates were standardized for consistency.
    - Missing or incorrect data was checked and handled appropriately.
    - Replaced undefined rows in productLine column to make it more clear
    - Replaced Null rows in Color to make it more clear

### Add a calculated column:

* + - **Added Tax Percentage using the formula : (TaxAmt/TotalDue)x100%**
    - **Added Net TotalDue using the formula : (totalDue-TaxAmt) to see the effect of the tax on the product**
    - Added **Freight Percentage** Column using the formula : (Fright/TotalDue)x100%

# Step 3. Creating a Dashboard in Excel

* **Goals:  
  The dashboard was designed to visually represent Sales metrics and make insights easily understandable. It used Excel features like Pivot Tables and Charts**

#### 1 . Product Line Revenue :

The relation between product Line and Total Due using pie chart to see the revenue of every product line

#### 2 . Tax Over Time :

The tax over time using Line chart to the the effect of tax amount over time

#### 3 . Most Wanted Color :

The relationship between Color and line total using bar chart to see the most wanted colors

#### 4 . Product Line :

The effect of Quantity and line total and unite price on product line using clustered coulmn

# Insights:

* 1. From the pie chart we can see that the road product line is the highest revenue with and the second highest mountain
  2. From the line chart we can see that the peak of tax was in 2013 by 46.25% and it was $83,802,671.18 in 2012 but by the time it dropped down to $37,474,713.77 In 2014
  3. From the color by line total bar chart we can see that the black color is the most selling one with $38,247,018.63 and the second is red with $21,623,269.54
  4. And from the multi bar chart that show the relationship between product line and quantity and sum of line total and unite price we can see that the quantity doesn’t effect that much on the line total same as the sum of line total

we can see that the product line : Road is the highest with $48,295,261.58 sales as Line Total and with $26,393,034.55 sales as Unite price and 75203 piece

**Issue : Forgot to add Freight column so I exported it from sql to CSV file then add it the the excel sheet then add it as a custom coulnm using :**

**Table.SelectColumns(Freight, {"ColumnName"}){0}**