

# **HYUNDAI: AUTOMATIC PARTS SALES AND PROFIT ANALYSIS**

# Power BI Project Documentation: Hyundai Dashboard

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# 1. Project Overview

This project involves creating a comprehensive Power BI dashboard for Hyundai. The dashboard provides key insights into sales and profit data, incorporating various interactive features such as currency conversion, KPI cards, and Pareto charts. The design and colour scheme align with Hyundai's branding to ensure consistency and visual appeal.

# 2. Dataset Description

The primary dataset used in this project includes the following columns:

- Invoice No
- Product Name
- Product No
- Country
- Total Sales
- Year
- Monthly Sales (Jan to Dec)
- Total Profit

## Additional tables include:

- **Region Data:** Contains 'Country' and 'Region' columns.
- **Product Data:** Contains 'Product Name' and 'Product Type' columns.
- **Currency Table:** Contains 'Currency' and 'ExchangeRate' columns.

### 3. Task to be mandatory done

Create following Visuals in Power BI using this data.

- Quarter wise distribution of sales (this should be a drill down chart which can go from Year->Qtr->Month)
- Distribution of Sales vs. Profit by Region (also add drill down feature to switch from Region to Country)
- Distribution of Sales vs. Profit by Month (also add a button to change chart view from Month to Quarter)
- KPI Card with sales performance against goal of \$100K
- Distribution of profit % by product Type
- Pareto showing top and bottom 5 product Types
- KPI Card with YoY Sales performance

### 4. Report Functionalities

- Ability to Switch Currency across report from USD to EURO & INR (Consider 1 USD = 0.9 EURO & 1 USD to 79 INR)
- Ability to Drill Down for all major visuals
- Slicer for Product, Country, Date
- Date data should be taken from separate date table

## **5. Data Preparation**

### **1. Promoted Headers**

To manipulate and analyse data more efficiently. Promoted headers are essentially row headers that can be used as column headers

### **2. Remove Blank Empty Columns**

To ensure that empty columns do not lead to unnecessary storage and computation time. It is also the important step in data preprocessing to reduce noises in data.

### **3. Check Data Type**

Check data type of each column as incorrectly assigned data types can lead to errors, inconsistencies, and poor data quality. It is important to create custom columns that accurately process and transform the data.

### **4. Unpivoting Monthly Sales**

To create a more dynamic and analysable dataset, the monthly sales data (Jan to Dec) were unpivoted into a single column named 'Month', with corresponding columns for 'Sales' and 'Profit'. We get two new columns 'Date' and 'Monthly sales'

### **5. Extract Text Before Delimiter**

The 'Date' field obtained after Unpivoting monthly sales data (Jan to Dec) contained data in Jan Sales, Feb sales etc. format, by using text before delimiter I extracted months name (Jan to Dec) from Date field to create proper Date field.

### **6. Creating Date Column**

A 'Date' column was created by combining the 'Month' and 'Year' columns to ensure proper time series analysis.

We can also use custom column to create 'Date' field using below formula.

**let**

**MonthNum =**

**if Text.Contains([Months], "Jan") then 1 else  
if Text.Contains([Months], "Feb") then 2 else  
if Text.Contains([Months], "Mar") then 3 else  
if Text.Contains([Months], "Apr") then 4 else  
if Text.Contains([Months], "May") then 5 else  
if Text.Contains([Months], "Jun") then 6 else  
if Text.Contains([Months], "Jul") then 7 else  
if Text.Contains([Months], "Aug") then 8 else  
if Text.Contains([Months], "Sep") then 9 else  
if Text.Contains([Months], "Oct") then 10 else  
if Text.Contains([Months], "Nov") then 11 else 12,**

**MonthText = if MonthNum < 10 then "0" & Text.From(MonthNum) else  
Text.From(MonthNum)**

**in**

**MonthText & "/" & Text.From([Year])**

## **7. Calculating Monthly Profit**

The monthly profit was calculated using the formula:

**Monthly Profit = [Sales] \* ([Total Profit] / [Total Sales])**

## **8. Append Data**

We have two tables for sales i.e. 2021 Sales and 2022 Sales. Using Append data append two tables to create combine sales data of two years for creating visuals and getting insights of data.

## **6. Data Modeling**

Established a relationship between the 'Product Name' columns in both tables, to enable analysis of sales and profit data by product type

## **7. Dashboard Features**

### **7.1 Currency Conversion**

A currency conversion feature was implemented to allow dynamic switching between USD, EURO, and INR. This was achieved using a Currency Table and a slicer visualization.

### **7.2 KPI Cards**

KPI cards were created to show performance metrics, such as sales against a goal of \$100K and year-over-year (YoY) sales growth.

### **7.3 Pareto Chart**

A Pareto chart was developed to display the top and bottom 5 product types based on sales, with cumulative sales percentages for better insight into product performance.



## 8. Visuals and Insights

### Key Visuals

**8.1 Distribution of Sales vs. Profit by Month:** This visual shows sales and profit distribution across different months, with the ability to drill down from months to quarters.

**8.2 Sales Performance KPI:** A KPI card that shows sales performance against a goal of \$100K, highlighting the percentage of the goal achieved.

**8.3 YoY Sales Growth:** A visual representation of year-over-year sales growth, indicating performance improvements or declines.

**8.4 Profit Percentage by Product Type:** A visual showing the profit percentage distribution across different product types.

## 9. Currency Conversion Implementation

### 9.1 Currency Table

A Currency Table was created using the following formula:

CurrencyTable =

```
DATATABLE(  
    "Currency", STRING,  
    "ExchangeRate", FLOAT,  
    {  
        {"USD", 1},  
        {"EURO", 0.9},  
        {"INR", 79}  
    }  
)
```

### 9.2 SelectedCurrency:

SelectedCurrency = SELECTEDVALUE('CurrencyTable'[Currency], "USD")

### 9.3 SelectedCurrencyRate:

SelectedCurrencyRate = SELECTEDVALUE('CurrencyTable'[ExchangeRate], 1)

### 9.4 Converted Sales:

ConvertedSales = SUM('Append Data'[Sales]) \* [SelectedCurrencyRate]

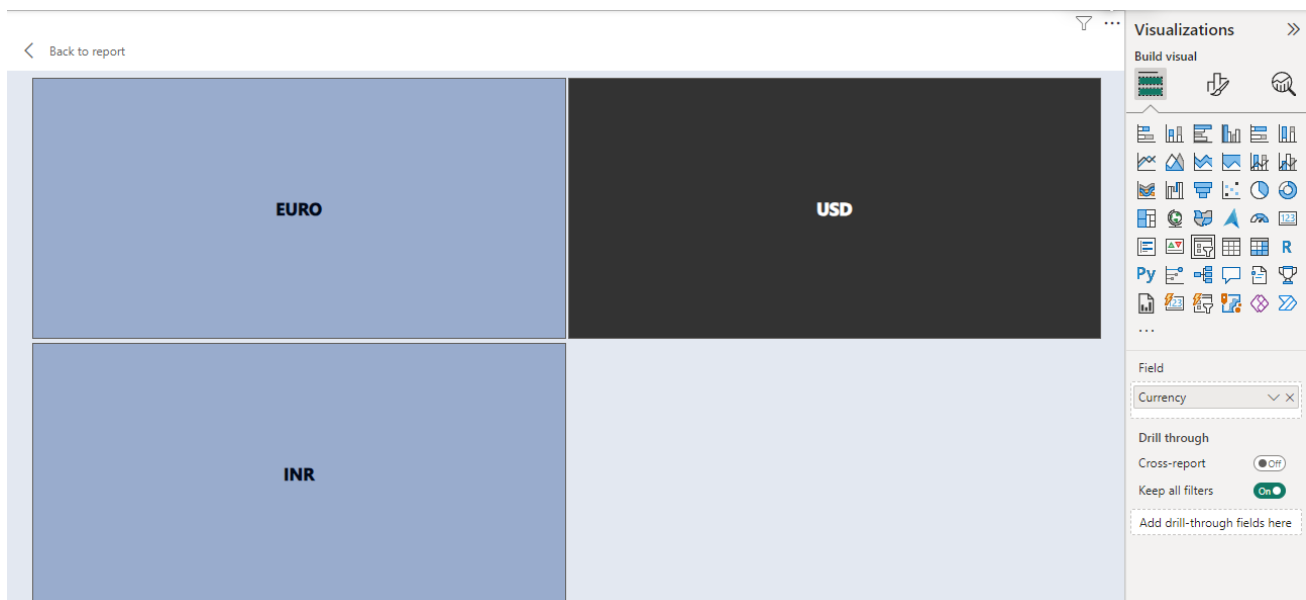
## 9.5 Formatted Sales:

FormattedSales =

```
SWITCH(  
    SELECTEDVALUE('CurrencyTable'[Currency]),  
    "USD", "$" & FORMAT([ConvertedSales], "#,0.00K"),  
    "EURO", "€" & FORMAT([ConvertedSales], "#,0.00K"),  
    "INR", "₹" & FORMAT([ConvertedSales], "#,0.00K"),  
    "$" & FORMAT([ConvertedSales], "#,0.00K")  
)
```

### Applying Currency Formatting to All Visuals

All relevant visuals were updated to use the FormattedSales measure to display the appropriate currency symbol and formatted value.



**Fig 9.1 Currency Slicer**

## 10. KPI Cards

To quickly assess how current sales compare to the \$100K target, with a clear indication (red for underperformance).

### 10.1 Sales Performance Against Goal

- **Total Sales Measure:**

Total Sales = SUM('Append Data'[Sales])

- **Sales Goal Measure:**

Sales Goal = 100000

- **Sales Performance KPI:**

ConvertedSalesGoal =

CALCULATE(

'Append Data'[Sales Goal] \* VALUES(CurrencyTable[ExchangeRate])

)

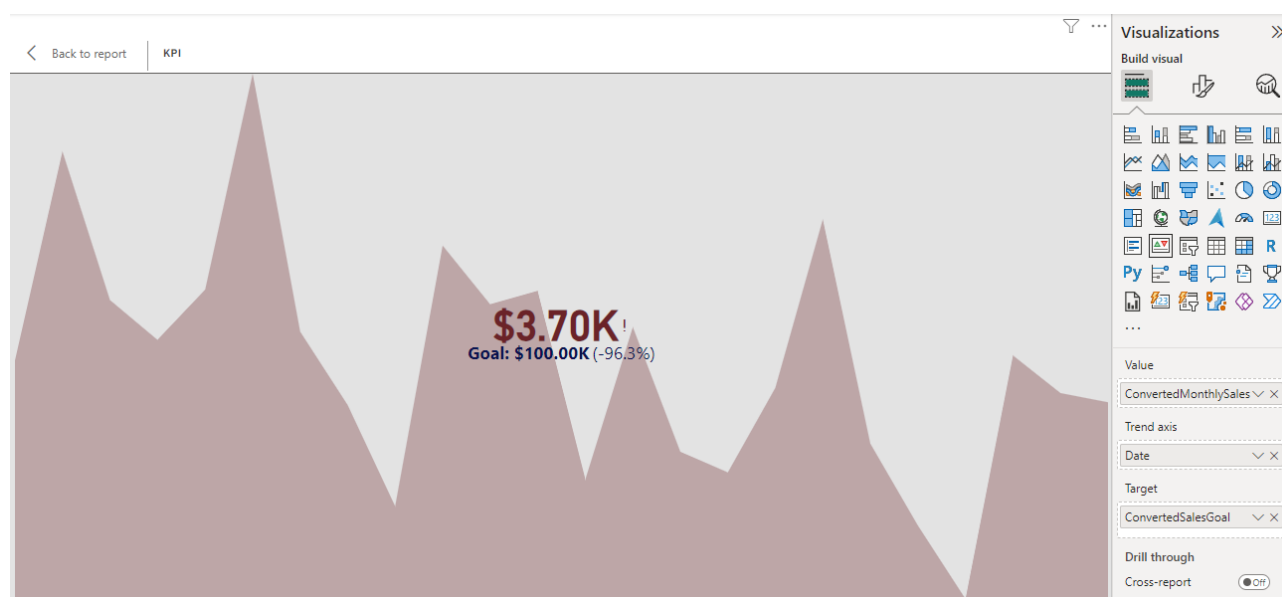


Fig 10.1. KPI

## 10.2 Year-over-Year (YoY) Sales Performance

To visualize the year-over-year growth or decline in sales.

- **Total Sales of Year 2021 :**

TotalSales2021 =

CALCULATE(

SUM('Append data'[Sales]),

YEAR('Append data'[Date]) = 2021

)

- **Total Sales of 2022 :**

TotalSales2022 =

CALCULATE(

SUM('Append data'[Sales]),

YEAR('Append data'[Date]) = 2022

)

- **YoY Sales Growth:**

YoYSalesGrowth =

DIVIDE(

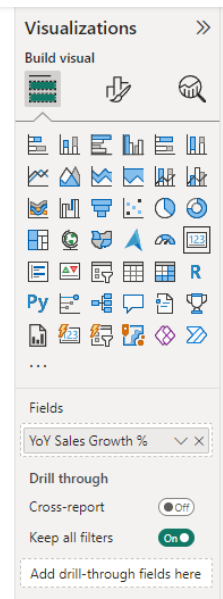
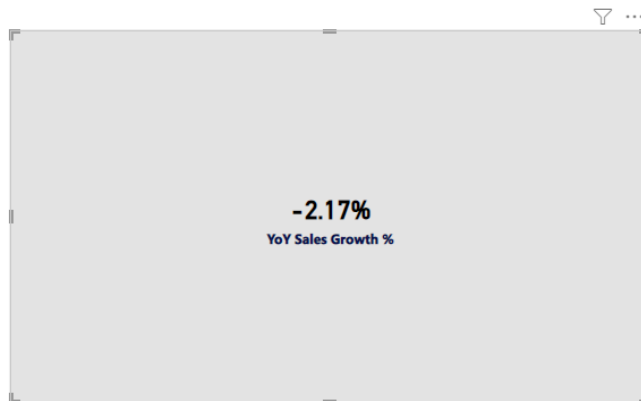
[TotalSales2022] - [TotalSales2021], [TotalSales2021],0

)

- **Formatted YoY Sales Growth :**

FormattedYoYSalesGrowth =

FORMAT([YoYSalesGrowth], "0.00%")



**Fig 10.2. YOY Sales**

## 11. Pareto Chart

### Measures for Pareto Chart

- **Sales Count**

Sales Count = COUNTROWS('Append Data')

- **Total Sales By Product Type**

TotalSalesByProductType = SUM('Append Data'[Sales])

- **Product Type Rank**

ProductTypeRank =

```
RANKX(  
    ALL('Product data'[Product Type]),  
    [TotalSalesByProductType],  
    ,  
    DESC,  
    DENSE  
)
```

- **CumulativeSales**

CumulativeSales =

```
CALCULATE(  
    [TotalSalesByProductType],  
    FILTER(  
        ALL('Product data'[Product Type]),
```

```

[ProductTypeRank] <= MAXX(ALLSELECTED('Product data'[Product Type]),
[ProductTypeRank])
)
)

```

- **Cumulative Sales Percentage**

```

CumulativeSalesPercentage =
DIVIDE(
    [CumulativeSales],
    CALCULATE([TotalSalesByProductType], ALL('Product data')),
    0
) * 100

```

- **Pareto percentage**

```

Pareto % =
IF(
    ISINSCOPE('Product Data'[Product Type]),
    VAR __AllSelectedProduct = ALLSELECTED('Product Data'[Product Type])
    VAR __Producttab = ADDCOLUMNS( __AllSelectedProduct , "Count" , [Sales Count])
    VAR __CurrentCount = [Sales Count]
    VAR __CumCompTable = FILTER(__Producttab , [Count] >= __CurrentCount )
    VAR __CumComp = SUMX( __CumCompTable , [Count] )
    VAR __AllSelectedComplaintCount = CALCULATE([Sales Count] ,
    __AllSelectedProduct)
    VAR __Result = DIVIDE( __CumComp , __AllSelectedComplaintCount )
    RETURN
    __Result)

```

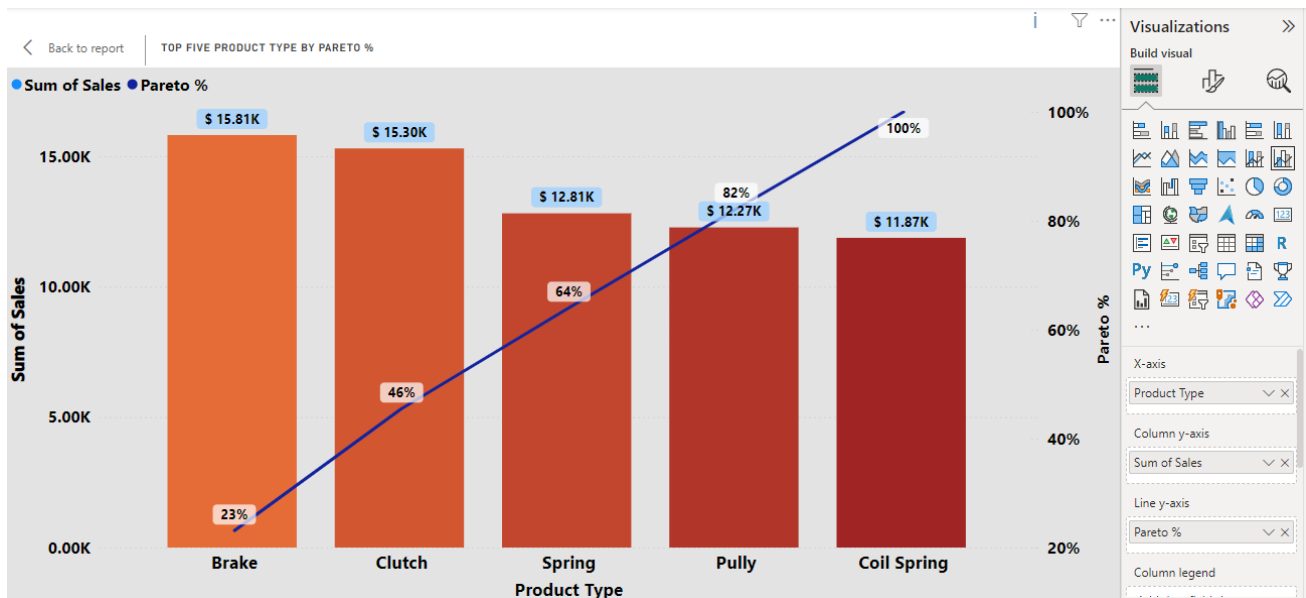


- **Pareto Chart for Top/Bottom 5 Product Sales:**

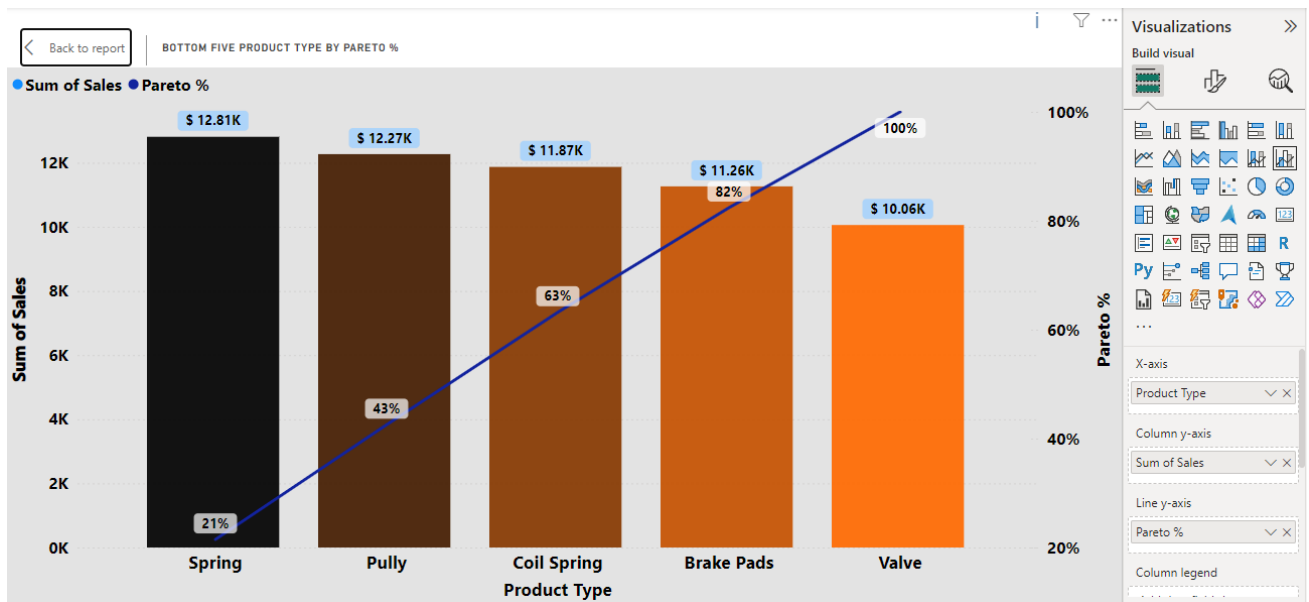
**Measure:**

- TotalSalesByProductType
- CumulativeSalesPercentage

**Purpose:** To identify the top/bottom 5 product types driving sales and show their cumulative contribution to total sales.



**Fig 11.1 Top Five Product Type By Pareto %**



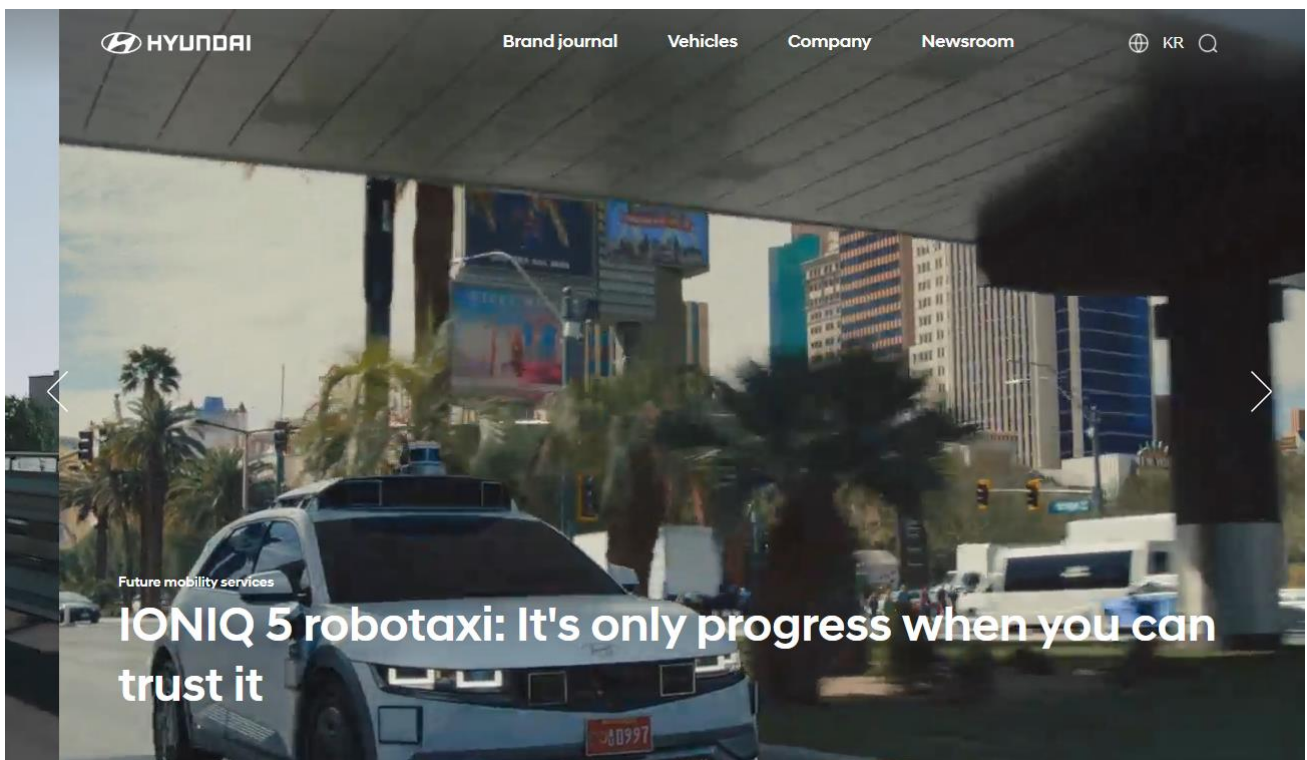
**Fig 11.1 Bottom Five Product Type By Pareto %**

## 12. Dashboard Design

### 12.1. Theme and Layout:

#### Hyundai Theme:

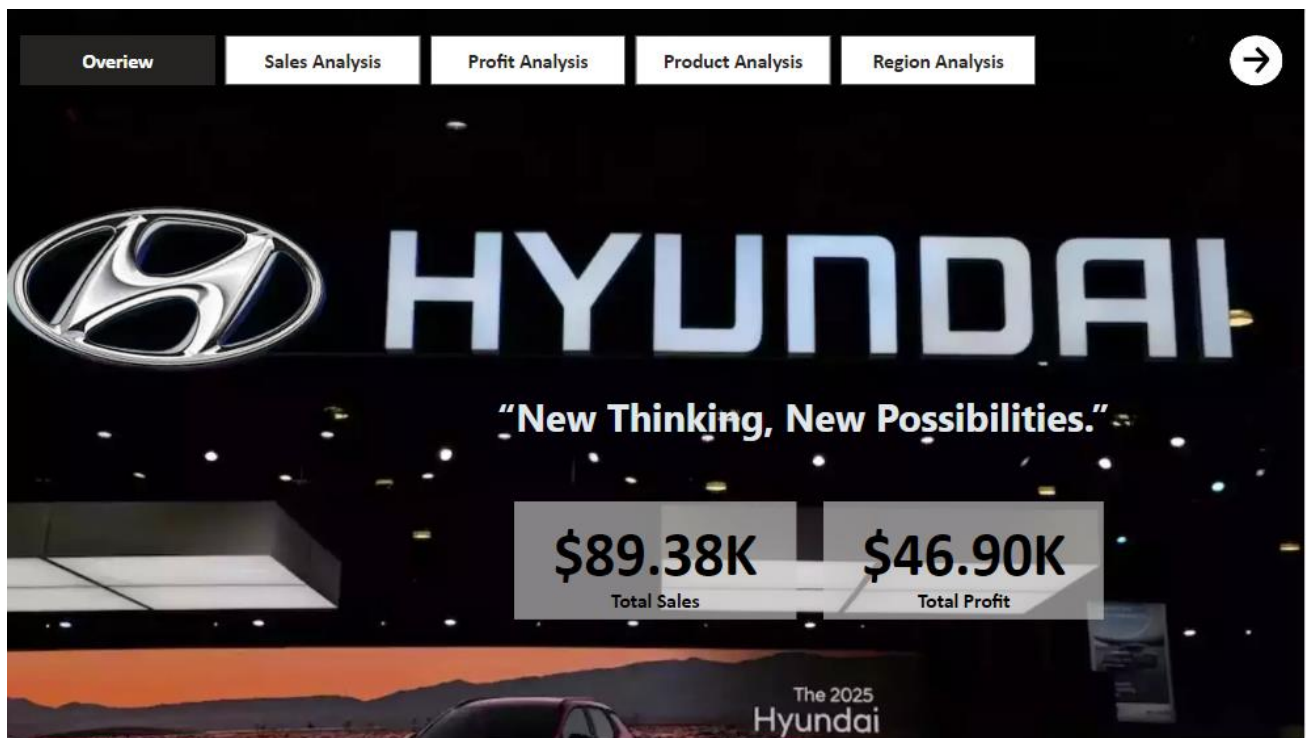
- **Background Color:** Hyundai Blue or a matching neutral color.
- **Font Colors:** White or light grey for titles, and Hyundai Blue for key visual elements.
- **Purpose:** To maintain consistency with Hyundai's branding, ensuring a professional and cohesive look.



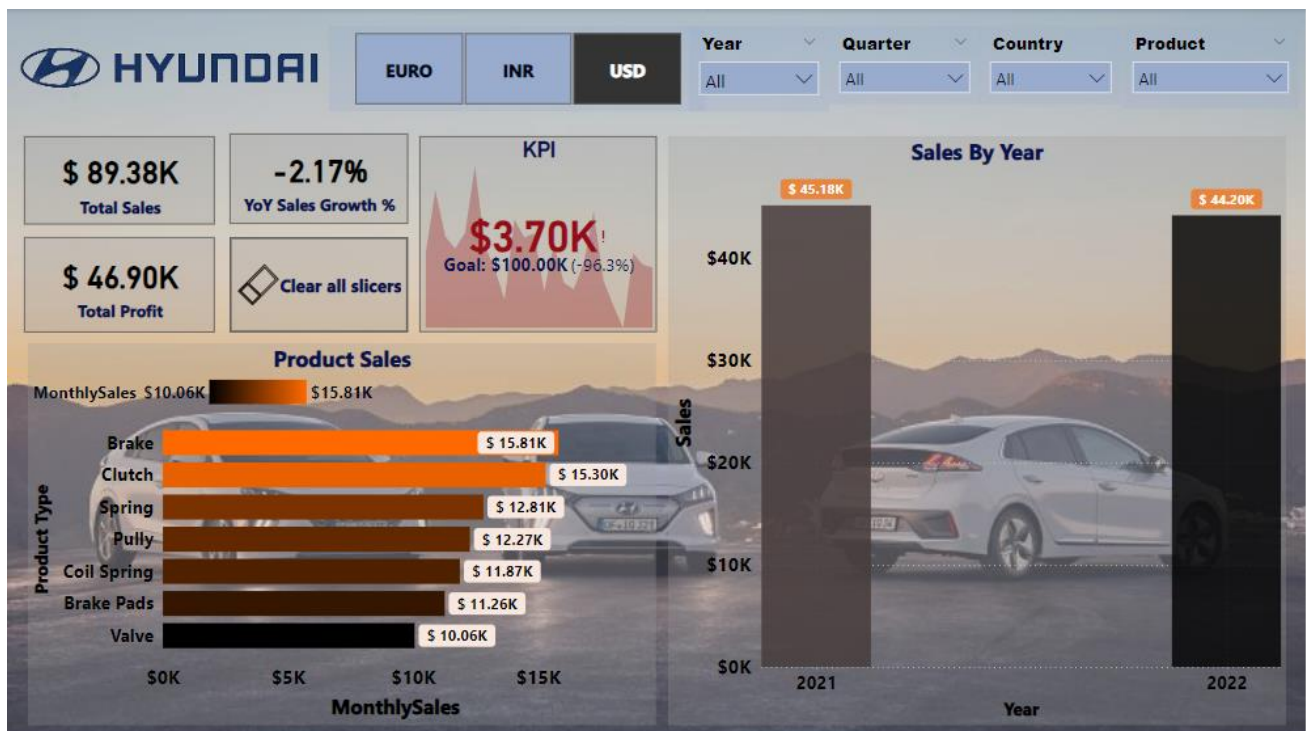
**Fig 12.1.1 : Hyundai Website Page**

[Hyundai Motor Company Official Website](#) | [Hyundai Worldwide](#)

## Page 1 : Overview



## Page 2 : Sales Analysis



- **Visuals**

In this page I created Monthly Product Sales visual which represent each product sales and Sales by Year Visual which represent each Year sales.

- **Slicers**

I included Different slicer for user interaction such as currency slicer, Year, Quarter, Country and product slicer to get sales of particular product or country in that specific year or month.

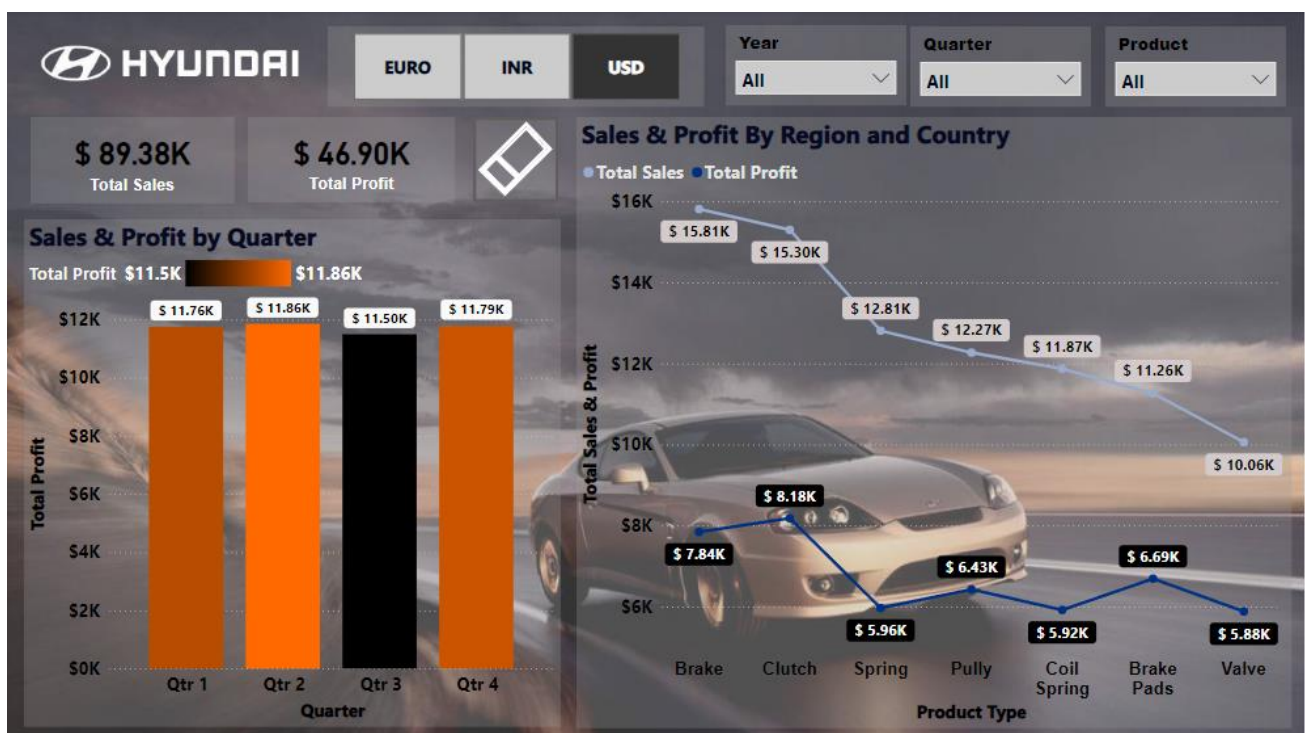
- **KPI Card**

I included two KPI cards for Year to Year growth and a KPI card for the sales target to track performance against a \$100K goal.

- **Card**

I included cards to give total of both year 2021 & 2022 sales and profit.

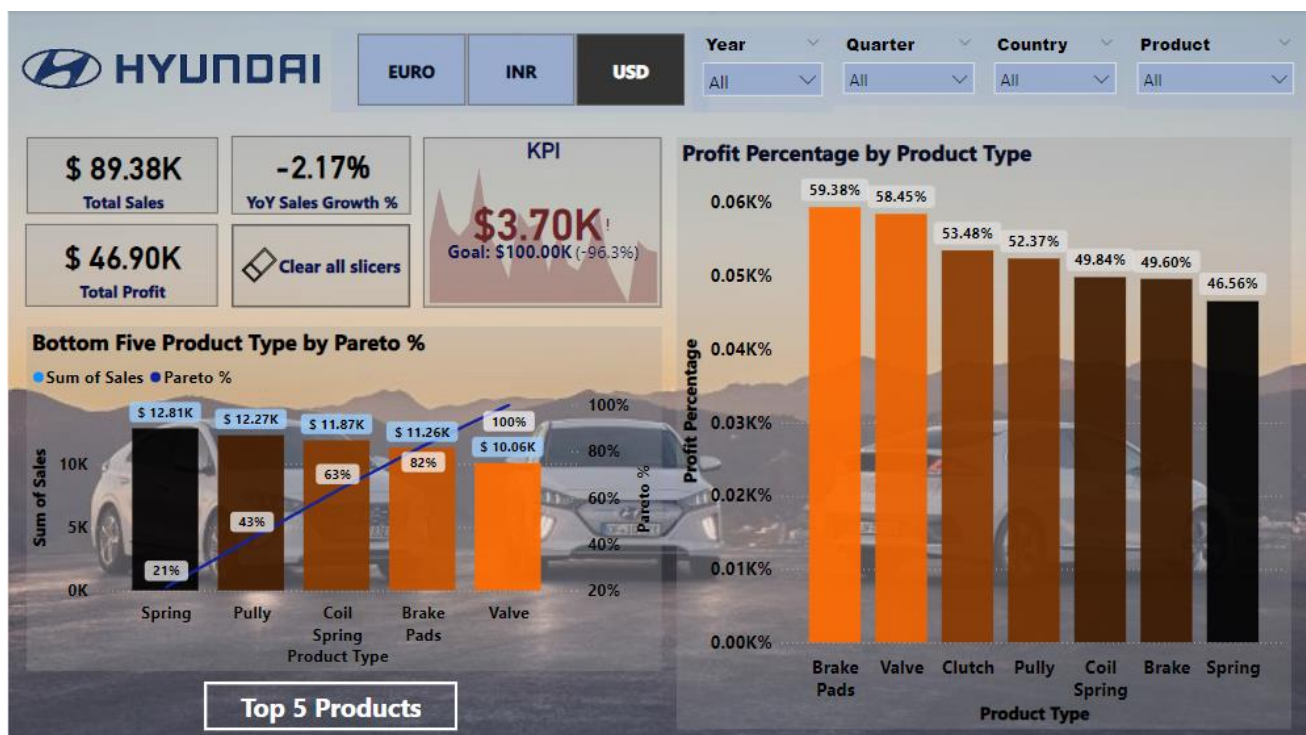
## Page 3: Profit Analysis



In this Page I create a line chart to show comparison between sales and profit of each product and a Column chart to represent quarter vice profit



## Page 4: Product Analysis



- **Column Chart**

I created a column chart to show profit percentage by product type.

- **Pareto chart**

I created a pareto chart to show product contribution towards sales.

- **Button**

Added a button in visual to switch from top 5 products visual to bottom 5 product pareto visual in report

## Page 5: Region Analysis



- **clustered column chart**

I create a clustered column chart to represent regional profit and sales and another visual to show monthly and quarter wise sales and profit

- **Button**

Added a button in visual to switch from Month to Quarter or Quarter to Month in visual.

## 12.2. Interactivity:

### Slicers:

**Currency Slicer:** To allow users to switch between USD, EURO, and INR.

**Other Slicer:** To allow users to analyse particular product in particular country in particular time period.

**Purpose:** To enhance user experience by allowing dynamic interaction with the data.

## 13. Key Insights and Analysis:

### 13.1. Year-over-Year (YoY) Analysis:

- **2021 vs. 2022 Sales:** Sales slightly decreased from \$45.18K in 2021 to \$44.20K in 2022 (-2.17% YoY).
- **Profit Increase:** Despite the sales decline, profit increased from \$22.99K in 2021 to \$23.91K in 2022.

### 13.2. Regional and Product Type Analysis:

- **Top-Performing Product:** Brake pads had the highest sales.
- **Highest Profit Margin:** Clutches showed the highest profit percentage.

### 13.3. KPI Indicators:

- **Sales Performance:** The KPI card shows a significant shortfall against the \$100K goal, highlighting a need for strategic action.

### 13.4. Profit Percentage:

- To create a visual for showing profit percentage of each product I create a measure profit percentage.

Profit Percentage = DIVIDE (SUM('Append Data'[Profit]), SUM('Append Data'[Sales]), 0)



## 14 . Conclusion and Recommendations:

### 14.1. Conclusion:

This Power BI project successfully analysed the sales and profit data of various automotive components across multiple regions and years. The dynamic currency conversion feature enhances the global usability of the dashboard, making it a valuable tool for decision-makers.

### 14.2. Recommendations:

- **Increase Sales Focus:** Although profit increased in 2022, the decline in sales suggests a need to focus on boosting sales volume, possibly through marketing efforts or product diversification.
- **Targeted Marketing:** Focus on regions or product types with declining sales but high profit margins to optimize growth.
- **Explore New Markets:** Consider expanding into regions with untapped potential to increase overall sales.