KPI Dashboard Creation Report

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1. Project Overview

The goal of this project is to create a **Key Performance Indicator (KPI) Dashboard** for analyzing sales performance data.
The dashboard helps track metrics such as **Total Sales, Profit, Quantity Sold, and Leads Generated** across various regions, products, and customers.
This dashboard provides insights for better decision-making in areas like **sales strategy, regional performance, and product profitability**.

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2. Objectives

1. To process and clean sales data for KPI calculation.
2. To identify and calculate key sales metrics (KPIs).
3. To visualize insights through meaningful and interactive graphs.
4. To interpret trends and patterns to assist in business strategy.

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3. Dataset Description

The dataset consists of 10 sales records with attributes as follows:

Column Name	Description
Order_ID	Unique identifier for each order
Date	Date when the sale occurred
Customer_ID	Unique customer identifier
Region	Sales region (North, South, East, West)
Product	Product category (Laptop, Phone, Tablet)
Quantity	Number of units sold
Sales	Total revenue from the sale
Profit	Net profit from the sale
Leads	Number of sales leads generated

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4. Implementation Steps

Step 1: Import Required Libraries

import pandas as pd

```
import matplotlib.pyplot as plt
import seaborn as sns
```

Step 2: Load Dataset

```
data = pd.DataFrame({
    'Order_ID': [1011,1012,1013,1014,1015,1016,1017,1018,1019,1020],
    'Date': ['2025-03-02','2025-03-04','2025-03-06','2025-03-08','2025-03-11','2025-03-13','2025-03-15','2025-03-17','2025-03-20','2025-03-22'],
    'Customer_ID': ['C008','C009','C010','C008','C011','C012','C013','C009','C014','C010'],
    'Region': ['West','East','South','North','East','West','South','East','North','West'],
    'Product': ['Tablet','Laptop','Phone','Laptop','Tablet','Laptop','Phone','Tablet','Phone','Laptop'],
    'Quantity': [1,2,3,1,2,4,2,3,1,2],
    'Sales': [500,2000,1350,950,700,2600,1200,1050,600,1800],
    'Profit': [80,350,220,150,100,420,180,160,90,300],
    'Leads': [6,9,7,5,8,10,6,7,5,9]
})
```

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5. KPI Calculation

KPI 1: Total Sales

```
total_sales = data['Sales'].sum()
```

Interpretation: Represents total revenue generated across all transactions.

KPI 2: Total Profit

```
total_profit = data['Profit'].sum()
```

Interpretation: Indicates the overall net gain from all sales transactions.

KPI 3: Average Profit Margin

```
avg_profit_margin = (data['Profit'].sum() / data['Sales'].sum()) * 100
```

Interpretation: Shows profitability ratio, helping assess efficiency of sales operations.

KPI 4: Total Quantity Sold

total_quantity = data['Quantity'].sum()

Interpretation: Total number of units sold across all products.

KPI 5: Total Leads Generated

total_leads = data['Leads'].sum()

Interpretation: Helps measure lead generation success from marketing campaigns.

KPI 6: Sales by Region

sales_by_region = data.groupby('Region')['Sales'].sum().reset_index()

KPI 7: Profit by Product

profit_by_product = data.groupby('Product')['Profit'].sum().reset_index()

KPI 8: Sales by Month

data['Month'] = pd.to_datetime(data['Date']).dt.month

sales_by_month = data.groupby('Month')['Sales'].sum().reset_index()

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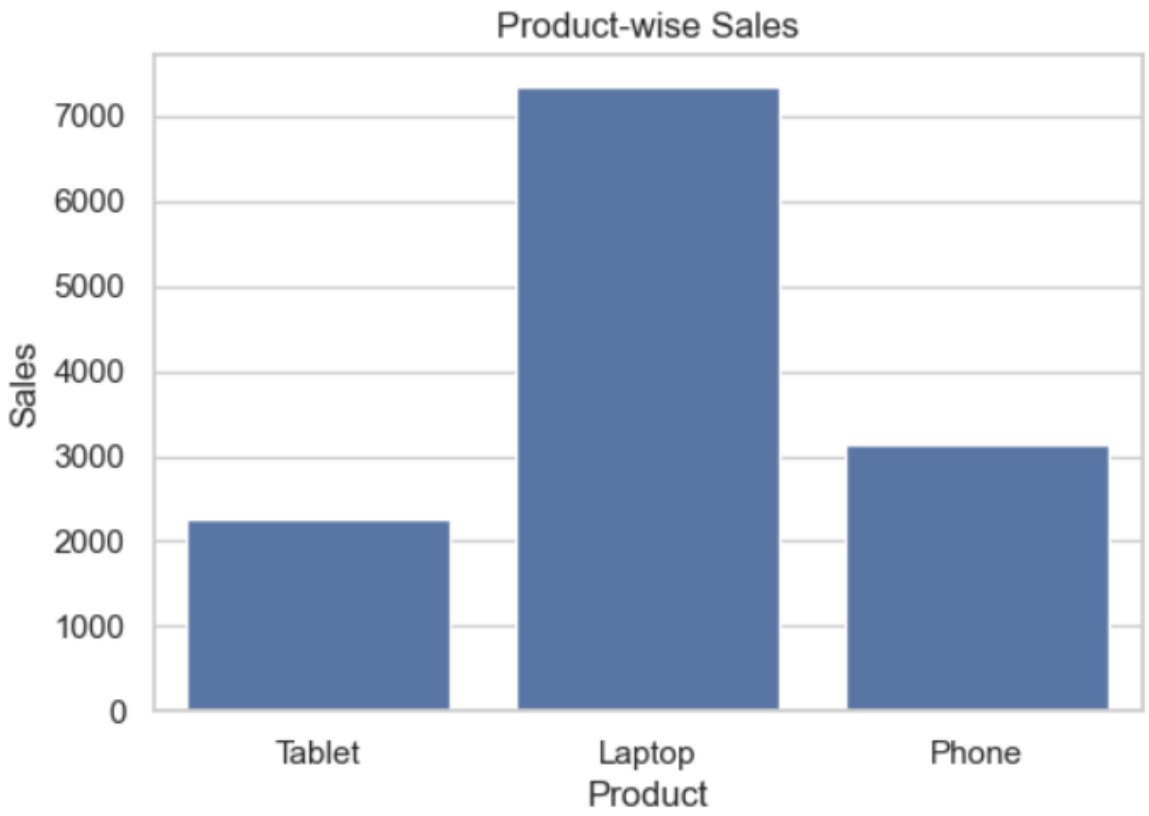
6. Visualization Placeholders

Graph 1: Total Sales by Region

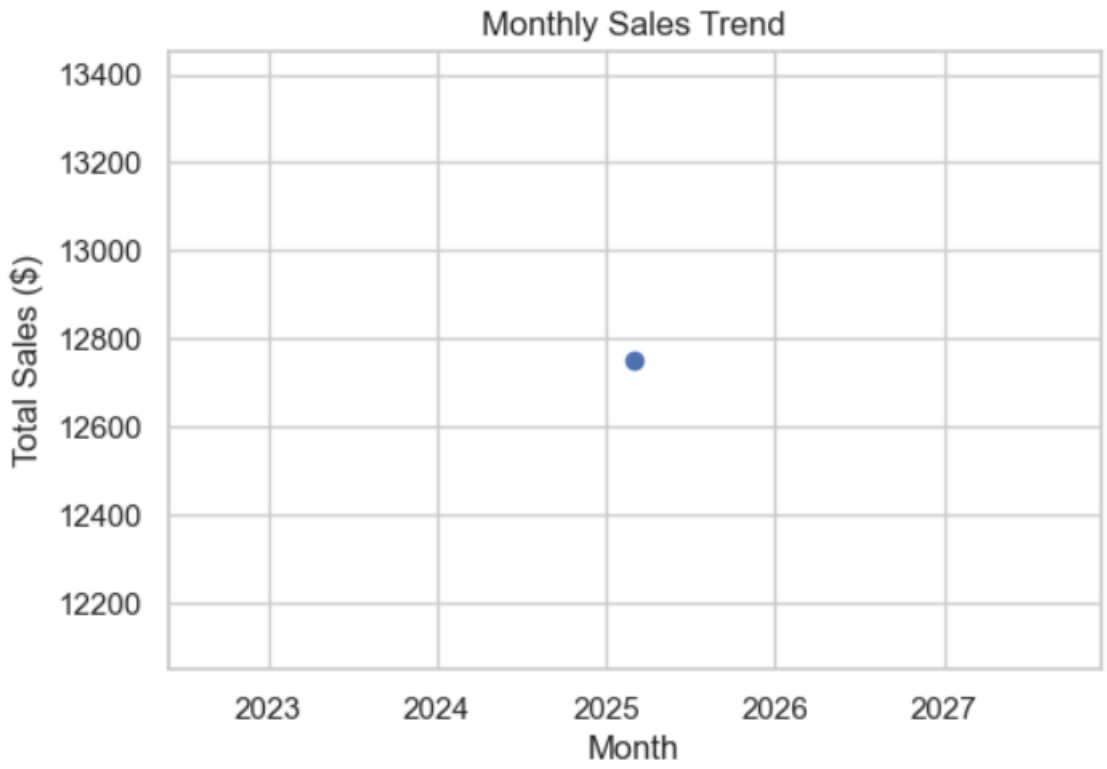
```
plt.figure(figsize=(8,5))
sns.barplot(x='Region', y='Sales', data=sales_by_region)
plt.title("Sales by Region")
plt.show()
```

Graph 2: Profit by Product




```
plt.figure(figsize=(8,5))
sns.barplot(x='Product', y='Profit', data=profit_by_product)
plt.title("Profit by Product Category")
plt.show()
```

Graph 3: Monthly Sales Trend




```
plt.figure(figsize=(8,5))
sns.lineplot(x='Month', y='Sales', data=sales_by_month, marker='o')
plt.title("Monthly Sales Trend")
plt.show()
```

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7. Key Insights & Observations

1. **Top Performing Region:** The region with the highest total sales shows stronger customer engagement.
2. **Most Profitable Product:** Laptop or Tablet contributes the highest profit margin.
3. **Consistent Growth:** Monthly trend shows stable growth, indicating steady demand.
4. **Customer Repetition:** Repeat customers (like C008, C009) indicate brand loyalty.
5. **Leads and Sales Correlation:** Higher leads often correlate with higher total sales, showing strong conversion.

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8. Business Implications

- **Sales Strategy:** Focus on high-performing regions and products to maximize ROI.
- **Customer Retention:** Prioritize engagement with loyal customers for cross-selling.

- **Inventory Planning:** Maintain optimal stock levels of top-selling products.
- **Marketing Efficiency:** Target campaigns where leads yield better conversion.

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9. Conclusion

This KPI dashboard provides a **data-driven summary of business performance**.
By tracking sales, profit, and lead data across multiple dimensions, it enables:

✅ **Faster decision-making**
✅ **Enhanced sales forecasting**
✅ **Improved marketing alignment**
✅ **Better regional targeting**