**Sales Performance Analysis Project**

Certainly! Here’s a structured outline and content for documenting your project in a Word document. You can copy and paste this content into a Word document and customize it as needed.

**Title: Sales Performance Analysis Project**

**1. Introduction**

**1.1 Project Overview**

The Sales Performance Analysis Project aims to analyze and visualize sales data to provide actionable insights into sales trends, customer behavior, and product performance. This project involves data cleaning, analysis, and visualization using SQL, Python, and Power BI.

**1.2 Objectives**

* Analyze sales trends over time.
* Understand customer demographics and purchasing behavior.
* Evaluate product performance across different categories.
* Create interactive visualizations and dashboards to communicate insights.

**2. Data Description**

**2.1 Datasets**

**Customers DataFrame**

|  |  |  |
| --- | --- | --- |
| CustomerID | Gender | Age |
| CUST001 | Male | 34 |
| CUST002 | Female | 26 |
| |  | | --- | | CUST |   003 | Male | 50 |
| CUST004 | Male | 37 |
| CUST005 | Male | 30 |

**Products DataFrame**

|  |  |  |  |
| --- | --- | --- | --- |
| ProductID | Product Name | Category | Price per Unit |
| 1 | Product1 | Beauty | 50 |
| 2 | Product2 | Clothing | 500 |
| 3 | Product3 | Electronics | 30 |
| 4 | Product4 | Beauty | 30 |
| 5 | Product5 | Clothing | 25 |

**Sales DataFrame**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SaleID | Date | CustomerID | ProductID | Quantity | Total Amount |
| 1 | 2023-11-24 | CUST001 | 1 | 3 | 150 |
| 2 | 2023-02-27 | CUST002 | 2 | 2 | 1000 |
| 3 | 2023-01-13 | CUST003 | 3 | 1 | 30 |
| 4 | 2023-05-21 | CUST004 | 2 | 1 | 500 |
| 5 | 2023-05-06 | CUST005 | 1 | 2 | 100 |

**3. Data Analysis**

**3.1 SQL Analysis**

**Total Sales by Category**

SELECT Category, SUM([Total Amount]) AS TotalSales

FROM Sales

JOIN Products ON Sales.ProductID = Products.ProductID

GROUP BY Category;

**Sales Trends Over Time**

SELECT Date, SUM([Total Amount]) AS TotalSales

FROM Sales

GROUP BY Date

ORDER BY Date;

**Customer Purchase Patterns**

SELECT Gender, Age, SUM([Total Amount]) AS TotalSpending

FROM Sales

JOIN Customers ON Sales.CustomerID = Customers.CustomerID

GROUP BY Gender, Age;

**3.2 Python Analysis**

**Key Metrics Calculation**

import pandas as pd

# Load data into DataFrames

sales\_data = pd.read\_csv('sales\_data.csv')

customers\_data = pd.read\_csv('customers\_data.csv')

# Total Sales

total\_sales = sales\_data['Total Amount'].sum()

# Average Order Value

average\_order\_value = sales\_data['Total Amount'].mean()

# Sales by Region

sales\_by\_region = sales\_data.merge(customers\_data, on='CustomerID').groupby('Location')['Total Amount'].sum()

**Data Cleaning and Preparation**

# Merging datasets

merged\_data = pd.merge(sales\_data, products\_data, left\_on='ProductID', right\_on='ProductID')

merged\_data = pd.merge(merged\_data, customers\_data, left\_on='CustomerID', right\_on='CustomerID')

**4. Data Visualization**

**4.1 Power BI Dashboard Creation**

* **Regional Sales Performance:** Use a map visualization to display sales performance by region (if regional data is available).

**Steps to Add Visualizations:**

1. **Drag and Drop Fields:**
   * Drag fields from the Fields pane onto the report canvas to create different types of visualizations.
   * For example, drag Date and Total Amount to create a line chart for sales over time.
2. **Add Filters and Slicers:**
   * Use the “Slicer” visual to add interactive filters for fields like Date or Product Category.
   * Apply filters to individual visuals or the entire page using the Filters pane.
3. **Design the Layout:**
   * Arrange visualizations on the canvas to create a cohesive and informative dashboard.
   * Use the Format pane to adjust the size, position, and appearance of visuals.
4. **Publish and Share:**
   * Click “Publish” on the Home tab to upload your report to Power BI Service.
   * Share the report via a link or embed it in applications.

**4.2 Visualizations**

* **Sales Over Time:** Line chart showing sales trends across different months or years.
* **Sales by Product Category:** Bar chart illustrating total sales for each product category.
* **Sales Distribution by Gender:** Pie chart showing the proportion of sales attributed to each gender.
* **Sales by Customer Age:** Bar chart displaying total sales segmented by customer age groups.

**5. Reporting**

**Key Findings:**

* **Total Sales by Category:** The analysis revealed that the Clothing category has the highest total sales, followed by Beauty and Electronics.
* **Sales Trends:** Sales trends indicate seasonal peaks during certain months, with significant increases around specific dates.
* **Customer Behavior:** The majority of high-value transactions come from customers aged between 30 and 50. Gender-based spending patterns show that male customers contribute more to overall sales.

**Recommendations:**

* **Optimize Inventory:** Focus on increasing stock for top-selling product categories and plan marketing campaigns around peak sales periods.
* **Targeted Promotions:** Develop targeted promotions for age groups that contribute the most to sales.
* **Customer Segmentation:** Use demographic insights to tailor product offerings and improve customer engagement.