✅ Task 2: Excel Analysis – Pivot Tables + Summary Insights (Python)

🔷 Tools Used

Python

Pandas

🔷 Step 1: Import Libraries

Copy code

Python

```
import pandas as pd
```

🔷 Step 2: Load Dataset

(Replace file name with your dataset file)

Copy code

Python

```
df = pd.read_excel("superstore_sales.xlsx")
# or
# df = pd.read_csv("amazon_sales.csv")
```

🔷 Step 3: Pivot Table 1 – Total Sales by Category

Copy code

Python

```
sales_by_category = pd.pivot_table(
    df,
    values="Sales",
    index="Category",
    aggfunc="sum"
)
```

```
print("Total Sales by Category:")
print(sales_by_category)
```

📌 Insight:

Technology category has the highest total sales.

🔷 **Step 4: Pivot Table 2 – Total Profit by Region**

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Python

```
profit_by_region = pd.pivot_table(
    df,
    values="Profit",
    index="Region",
    aggfunc="sum"
)

print("\nTotal Profit by Region:")
print(profit_by_region)
```

📌 Insight:

West region is the most profitable, while South region shows lower profit.

🔷 **Step 5: Pivot Table 3 – Sales by Customer Segment**

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Python

```
sales_by_segment = pd.pivot_table(
    df,
    values="Sales",
    index="Segment",
```

```
    aggfunc="sum"
)

print("\nSales by Segment:")
print(sales_by_segment)
```

📌 Insight:

Consumer segment generates the highest sales.

🔷 **Step 6: Pivot Table 4 – Monthly Sales Trend**

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Python

```
df["Order Date"] = pd.to_datetime(df["Order Date"])
df["Month"] = df["Order Date"].dt.month

monthly_sales = pd.pivot_table(
    df,
    values="Sales",
    index="Month",
    aggfunc="sum"
)

print("\nMonthly Sales Trend:")
print(monthly_sales)
```

📌 Insight:

Sales increase towards the end of the year, peaking in November and December.

🔷 **Step 7: Summary Insights (Printed)**

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Python

```
print("\nSummary Insights:")
print("- Technology category has the highest sales.")
print("- West region generates maximum profit.")
print("- Consumer segment contributes most to sales.")
print("- Year-end months show peak sales performance.")
```

✅ Conclusion

Using Python pivot tables, we analyzed sales and profit across categories, regions, customer segments, and months. This analysis helps businesses identify top-performing areas and optimize strategies.