

SCREENSHOTS

The screenshot shows a code editor window titled "ELEVATE LABS TASK 5". The code is in Python and is part of a script titled "# SALES DATA ANALYSIS REPORT". The code imports several libraries: pandas, matplotlib.pyplot, seaborn, openpyxl, and os. It then defines a file path and reads a CSV file. The code includes comments for each step: loading data, fixing date format, adding extra columns, and ensuring the directory exists.

```
[17] ✓ 12s # SALES DATA ANALYSIS REPORT

import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from openpyxl import Workbook
from openpyxl.drawing.image import Image
from openpyxl.styles import Font
import os

# 1. LOAD DATA (Correct File Path)

file_path = "/content/DMart_sample_data.csv"
df = pd.read_csv(file_path)

print("\nPreview of Data:\n")
print(df.head())

# Fix date format
df['Date'] = pd.to_datetime(df['Date'], dayfirst=True)

# Add extra columns
df['Month'] = df['Date'].dt.strftime("%Y-%m")
df['Total'] = df['Total'].astype(float)

# Ensure directory exists
os.makedirs('/content/', exist_ok=True)
```

The bottom of the editor shows "Variables", "Terminal", and a status bar with "✓ 11:55 AM Python 3".

The screenshot shows the continuation of the Python script. It includes a section for a "Monthly Sales Trend Chart" and a "Pie Chart (Customer Type)". The code uses pandas to group data by month and calculate the sum of total sales. It then uses matplotlib to create a line plot for the monthly sales trend and a pie chart for the customer type distribution. The code includes comments for each step and saves the resulting plots as PNG files.

```
[17] ✓ 12s # 2. Monthly Sales Trend Chart

monthly_sales = df.groupby('Month')['Total'].sum()

plt.figure(figsize=(10,5))
plt.plot(monthly_sales.index, monthly_sales.values, marker='o')
plt.title("Monthly Sales Trend", fontsize=14)
plt.xlabel("Month")
plt.ylabel("Total Sales")
plt.grid(True)
plt.xticks(rotation=45)
plt.tight_layout()
plt.savefig('/content/monthly_sales_trend.png')
plt.close()

trend_insight = (
    "• Monthly sales trend reveals patterns across months.\n"
    "• Peaks indicate high seasonal demand.\n"
    "• Helps forecast next month's sales."
)

# 3. Pie Chart (Customer Type)

plt.figure(figsize=(6,6))
df['customerType'].value_counts().plot.pie(autopct='%1.1f%%')
plt.title("Customer Type Distribution")
plt.tight_layout()
plt.savefig('/content/customer_pie.png')
plt.close()

pie_insight = (
    "• Shows customer category contribution to sales.\n"
```

The bottom of the editor shows "Variables", "Terminal", and a status bar with "✓ 11:55 AM Python 3".

```
ELEVATE LABS TASK 5 ☆ ☁
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Q Commands + Code + Text ▶ Run all
RAM Disk
[17] ✓ 12s
)
# 4. Heatmap (Category vs Month)

pivot_table = df.pivot_table(
    values='Total',
    index='ProductCategory',
    columns='Month',
    aggfunc='sum',
    fill_value=0
)

plt.figure(figsize=(12,6))
sns.heatmap(pivot_table, cmap="Blues", annot=False)
plt.title("Sales Heatmap (Category vs Month)")
plt.tight_layout()
plt.savefig("/content/sales_heatmap.png")
plt.close()

heatmap_insight = (
    "Darker shades = higher sales.\n"
    "Highlights monthly trends for each product category."
)

# 5. Sorted Bar Chart - Highest Sales Category

category_sales = df.groupby('ProductCategory')['Total'].sum().sort_values(ascending=False)

plt.figure(figsize=(8,5))
category_sales.plot(kind='bar')
plt.title("Top Product Categories by Sales")
```

```
ELEVATE LABS TASK 5 ☆ ☁
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RAM Disk
[17] ✓ 12s
plt.title("Top Product Categories by Sales")
plt.xlabel("Product Category")
plt.ylabel("Total Sales")
plt.grid(True)
plt.tight_layout()
plt.savefig("/content/category_bar_sorted.png")
plt.close()

bar_insight = (
    "Categories ranked based on total earnings.\n"
    "Helps prioritize high-revenue products."
)

# 6. CREATE EXCEL REPORT (One Sheet)

wb = Workbook()
ws = wb.active
ws.title = "Sales Report"

ws["A1"] = "Sales Data Visualization Report"
ws["A1"].font = Font(size=16, bold=True)

# Insert Trend Chart
ws["A3"] = "1. Monthly Sales Trend"
ws.add_image(Image("/content/monthly_sales_trend.png"), "A5")
ws["A25"] = trend_insight

# Insert Pie Chart
ws["A30"] = "2. Customer Type Distribution"
ws.add_image(Image("/content/customer_pie.png"), "A32")
ws["A52"] = pie_insight
```

```
ELEVATE LABS TASK 5 ☆ ☁
File Edit View Insert Runtime Tools Help
Q Commands + Code + Text ▶ Run all
RAM Disk
[17] ✓ 12s
wb = Workbook()
ws = wb.active
ws.title = "Sales Report"

ws["A1"] = "Sales Data Visualization Report"
ws["A1"].font = Font(size=16, bold=True)

# Insert Trend Chart
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ws.add_image(Image("/content/monthly_sales_trend.png"), "A5")
ws["A25"] = trend_insight

# Insert Pie Chart
ws["A30"] = "2. Customer Type Distribution"
ws.add_image(Image("/content/customer_pie.png"), "A32")
ws["A52"] = pie_insight

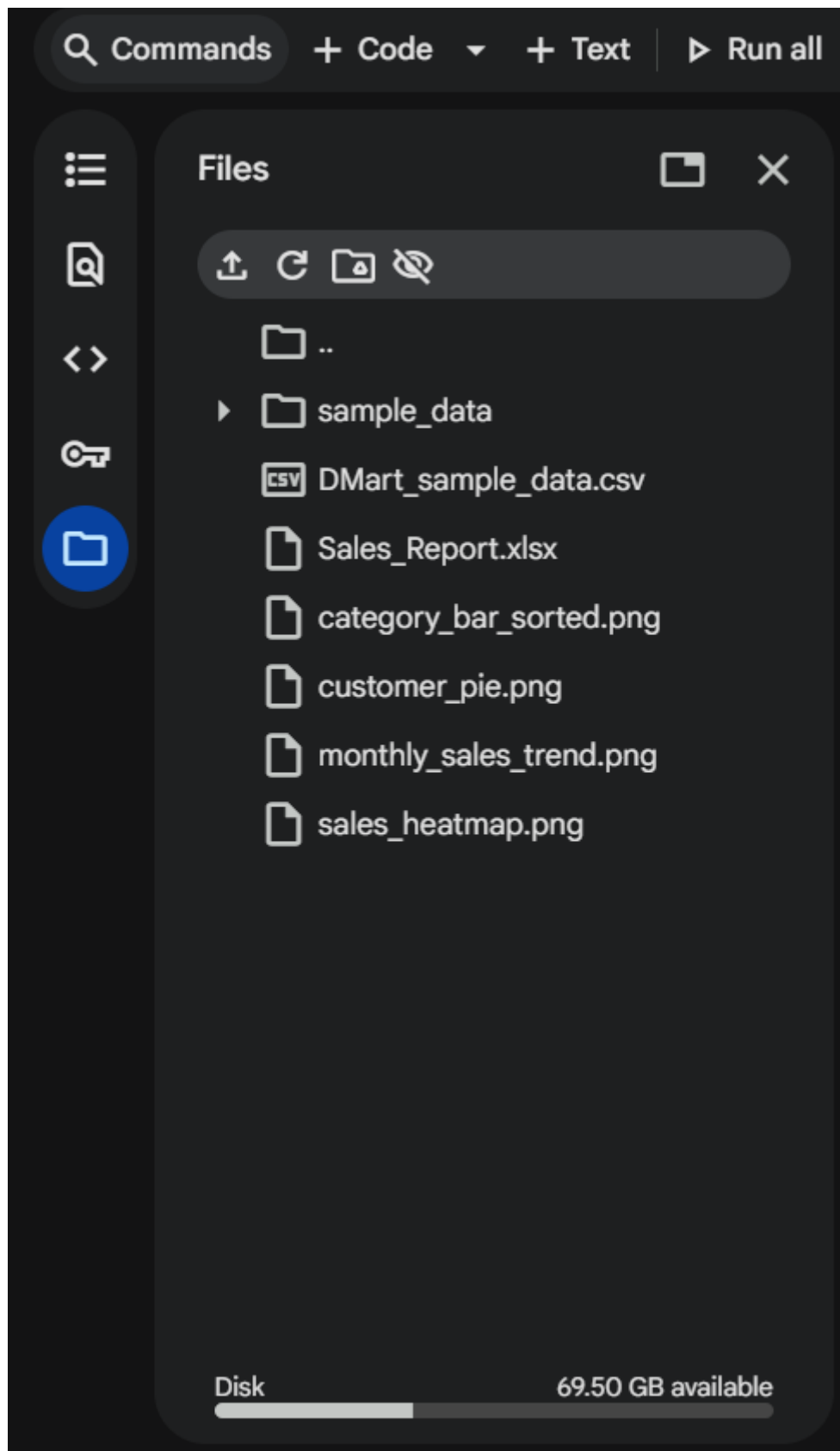
# Insert Heatmap
ws["A57"] = "3. Sales Heatmap (Category vs Month)"
ws.add_image(Image("/content/sales_heatmap.png"), "A59")
ws["A90"] = heatmap_insight

# Insert Bar Chart
ws["A95"] = "4. Top Selling Categories"
ws.add_image(Image("/content/category_bar_sorted.png"), "A97")
ws["A125"] = bar_insight

output_file = "/content/Sales_Report.xlsx"
wb.save(output_file)

output_file
```

FILES



OUTPUT: -

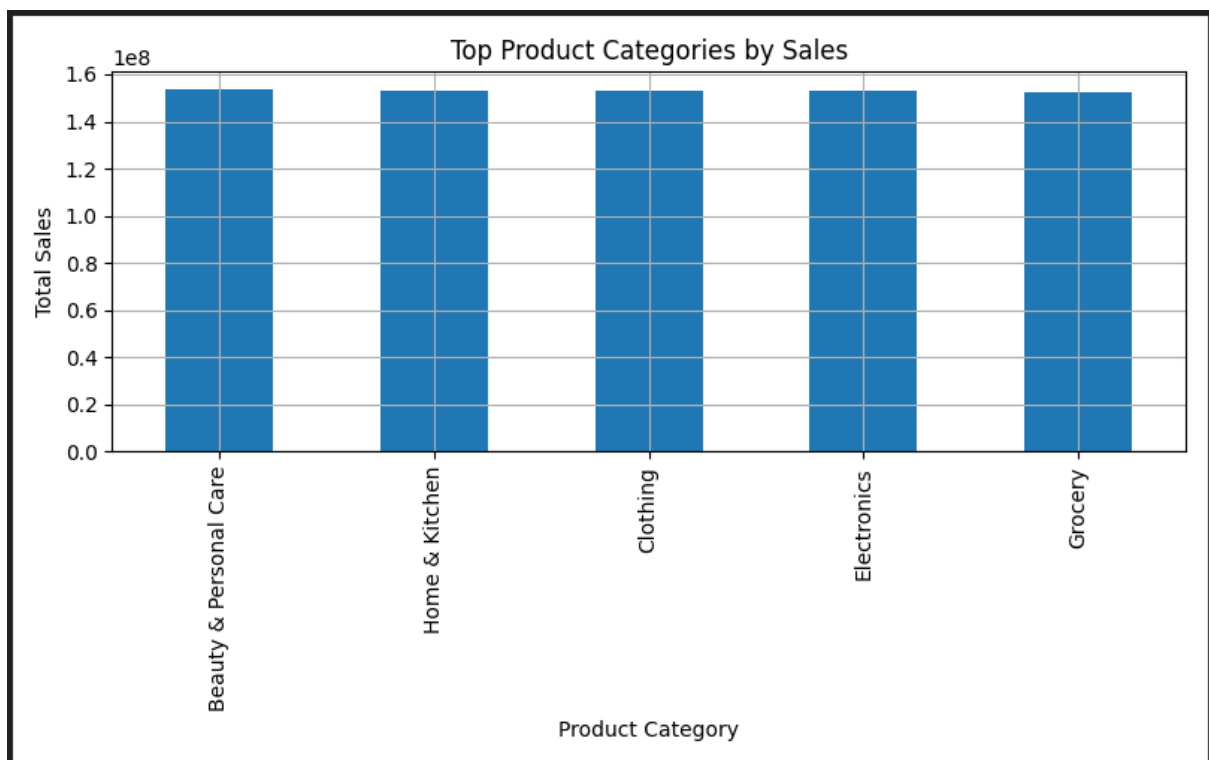
The screenshot shows a Jupyter Notebook environment with a dark theme. The left sidebar displays a file explorer with a folder named 'sample_data' containing files like 'DMart_sample_data.csv', 'Sales_Report.xlsx', 'category_bar_sorted.png', 'customer_ple.png', 'monthly_sales_trend.png', and 'sales_heatmap.png'. The main area shows a 'Preview of Data:' section with two tables. The first table has columns: Date, Time, CustomerType, ProductCategory, and UnitPrice. The second table has columns: Quantity, Total, and FullName. Below the tables, there is a 'THANK YOU' message. The bottom status bar indicates 'Variables', 'Terminal', '11:55 AM', and 'Python 3'.

	Date	Time	CustomerType	ProductCategory	UnitPrice	
0	31-12-2023	15:41	06:04:28	Member	Grocery	10.69
1	07-01-2024	22:19	01:05:18	Premium	Home & Kitchen	381.03
2	10-01-2024	02:09	17:31:43	Regular	Grocery	153.84
3	01-06-2023	10:46	01:50:16	Regular	Electronics	341.41
4	23-05-2024	22:07	10:37:06	Regular	Home & Kitchen	390.16

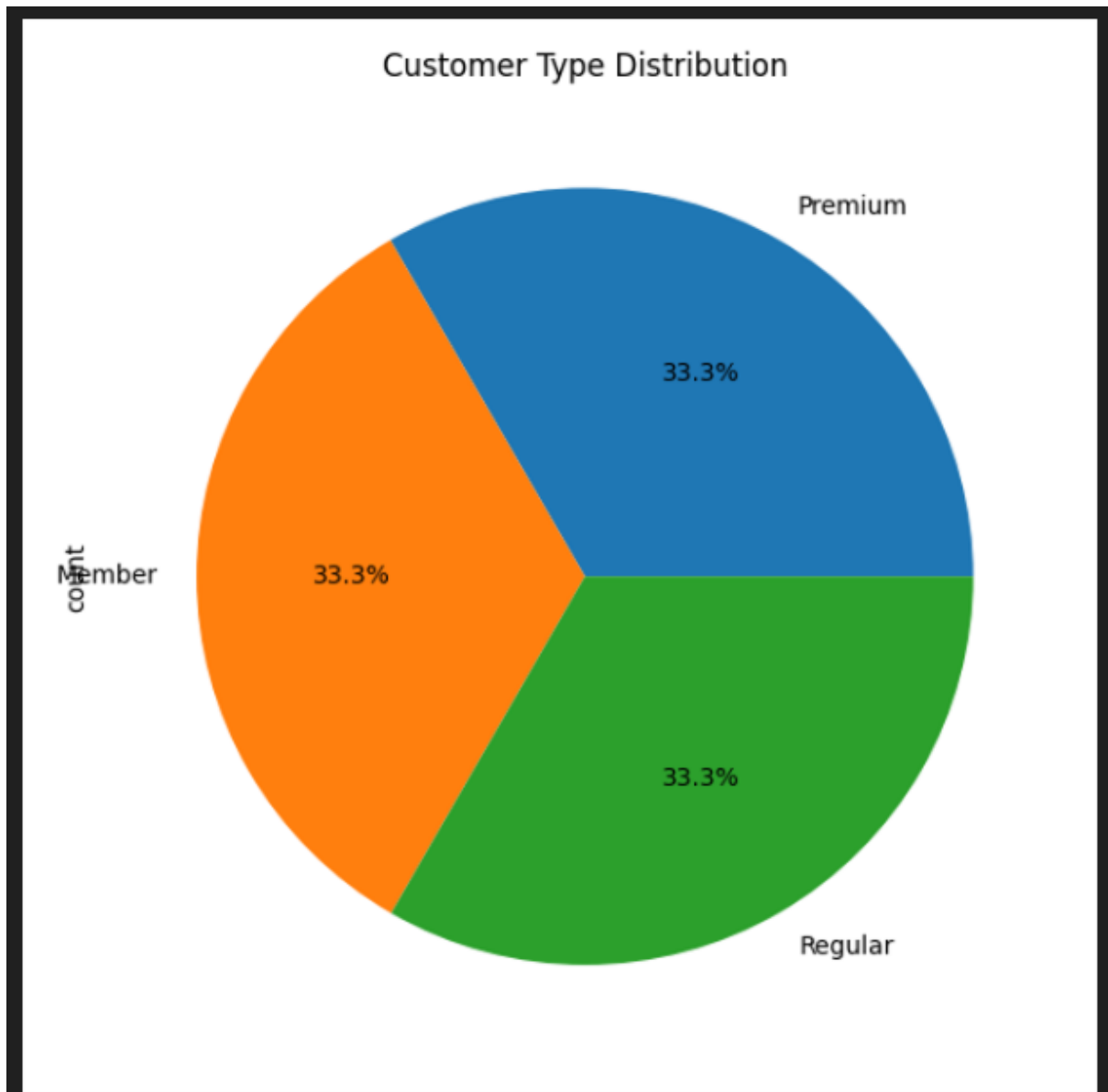
	Quantity	Total	FullName
0	4	42.76	Jai Bhatia
1	3	1143.09	Ishaan Patel
2	5	769.20	Tanvi Iyer
3	4	1365.64	Zara Xavier
4	5	1950.80	Krishna Zutshi

THANK YOU

/content/category_bar_sorted.png



[/content/customer_pie.png](#)



The chart displays the monthly sales trend over a 25-month period. The y-axis represents 'Total Sales' in units of 10^7, ranging from 1.0 to 3.5. The x-axis represents the 'Month' from January 2023 to January 2025. The sales data shows a consistent pattern of fluctuation between approximately 2.9 and 3.3 units of 10^7 from January 2023 to December 2024. A significant drop is observed in January 2025, where sales fall to approximately 0.9 units of 10^7.

Month	Total Sales (1e7)
2023-01	3.2
2023-02	2.9
2023-03	3.2
2023-04	3.1
2023-05	3.2
2023-06	3.1
2023-07	3.2
2023-08	3.2
2023-09	3.1
2023-10	3.2
2023-11	3.1
2023-12	3.2
2024-01	3.2
2024-02	3.0
2024-03	3.2
2024-04	3.1
2024-05	3.2
2024-06	3.1
2024-07	3.2
2024-08	3.2
2024-09	3.1
2024-10	3.2
2024-11	3.1
2024-12	3.2
2025-01	0.9