**All the plots should have labels, title,axis limits(ticks), legend and Inferences on the plot**

(Use the Company Sales Dataset)

1. Use the company sales data and plot the Total profit of all months.

Solution:

import matplotlib.pyplot as plt

# Data from the dataset

month\_numbers = [

    1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

]

total\_profit = [

    211000, 183300, 224700, 222700, 209600, 201400,

    295500, 361400, 234000, 266700, 412800, 300200

]

# Plotting the total profit for each month

plt.plot(month\_numbers, total\_profit, marker='o', linestyle='-')

# Adding title and labels

plt.title('Total Profit for Each Month')

plt.xlabel('Month Number')

plt.ylabel('Total Profit')

# Displaying the plot

plt.grid(True)  # Add grid lines

plt.tight\_layout()  # Adjust layout to prevent clipping of labels

plt.show()

1. Read toothpaste sales data of each month and show it using a scatter plot.

Also, add a grid in the plot. gridline style should “–“.

S Solution:

import matplotlib.pyplot as plt

# Data from the dataset

month\_numbers = [

    1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

]

toothpaste\_sales = [

    5200, 5100, 4550, 5870, 4560, 4890,

    4780, 5860, 6100, 8300, 7300, 7400

]

# Plotting the toothpaste sales for each month using scatter plot

plt.scatter(month\_numbers, toothpaste\_sales)

# Adding title and labels

plt.title('Toothpaste Sales for Each Month')

plt.xlabel('Month Number')

plt.ylabel('Toothpaste Sales')

# Adding grid with style "-"

plt.grid(True, linestyle='--')

# Displaying the plot

plt.tight\_layout()

plt.show()

1. Plot the Total profit column with Boxplot(horizontal, Vertical, Notch), Histogram, barplot, Dotchart.

Solution:

import matplotlib.pyplot as plt

import seaborn as sns

import pandas as pd

# Creating a DataFrame from the provided dataset

data = {

    "month\_number": [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12],

    "total\_profit": [211000, 183300, 224700, 222700, 209600, 201400, 295500, 361400, 234000, 266700, 412800, 300200]

}

df = pd.DataFrame(data)

# Set the style for seaborn

sns.set(style="whitegrid")

# Plotting using various types of plots

# Boxplot (horizontal)

plt.figure(figsize=(8, 4))

sns.boxplot(x='total\_profit', data=df, orient='h')

plt.title('Horizontal Boxplot of Total Profit')

plt.xlabel('Total Profit')

plt.ylabel('')

# Boxplot (vertical)

plt.figure(figsize=(4, 6))

sns.boxplot(y='total\_profit', data=df)

plt.title('Vertical Boxplot of Total Profit')

plt.xlabel('')

plt.ylabel('Total Profit')

# Boxplot (notch)

plt.figure(figsize=(8, 4))

sns.boxplot(x='total\_profit', data=df, notch=True)

plt.title('Notched Boxplot of Total Profit')

plt.xlabel('Total Profit')

plt.ylabel('')

# Histogram

plt.figure(figsize=(8, 4))

sns.histplot(df['total\_profit'], kde=True)

plt.title('Histogram of Total Profit')

plt.xlabel('Total Profit')

plt.ylabel('Frequency')

# Barplot

plt.figure(figsize=(8, 4))

sns.barplot(x='month\_number', y='total\_profit', data=df)

plt.title('Barplot of Total Profit')

plt.xlabel('Month Number')

plt.ylabel('Total Profit')

# Dotchart

plt.figure(figsize=(8, 4))

sns.stripplot(x='total\_profit', y='month\_number', data=df, jitter=True)

plt.title('Dotchart of Total Profit')

plt.xlabel('Total Profit')

plt.ylabel('Month Number')

plt.tight\_layout()

plt.show()

1. Do the scatterplot on Total profit & Month\_number column.

Solution:

import matplotlib.pyplot as plt

import pandas as pd

# Creating a DataFrame from the provided dataset

data = {

    "month\_number": [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12],

    "total\_profit": [211000, 183300, 224700, 222700, 209600, 201400, 295500, 361400, 234000, 266700, 412800, 300200]

}

df = pd.DataFrame(data)

# Scatter plot of Total profit against Month number

plt.figure(figsize=(8, 6))

plt.scatter(df['month\_number'], df['total\_profit'], color='blue', marker='o')

plt.title('Scatter Plot of Total Profit vs Month Number')

plt.xlabel('Month Number')

plt.ylabel('Total Profit')

plt.grid(True)

plt.show()

1. Plot the Total profit with format” red square -” (“rs-”) and only “red circles “ (“ro”).

Solution:

import matplotlib.pyplot as plt

import pandas as pd

# Creating a DataFrame from the provided dataset

data = {

    "month\_number": [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12],

    "total\_profit": [211000, 183300, 224700, 222700, 209600, 201400, 295500, 361400, 234000, 266700, 412800, 300200]

}

df = pd.DataFrame(data)

# Plotting Total profit with "red squares" and "red circles"

plt.figure(figsize=(8, 6))

# "Red squares"

plt.plot(df['month\_number'], df['total\_profit'], 'rs-', label='Red Squares')

# "Red circles"

plt.plot(df['month\_number'], df['total\_profit'], 'ro', label='Red Circles')

# Adding title and labels

plt.title('Total Profit with Different Formats')

plt.xlabel('Month Number')

plt.ylabel('Total Profit')

plt.legend()  # Show legend

plt.grid(True)

plt.show()

1. Read sales data of bathing soap of all months and show it using a bar chart.

Solution:

import matplotlib.pyplot as plt

# Data for the bar chart

month\_numbers = df['month\_number']

bathing\_soap\_sales = df['total\_profit']

# Plotting the bar chart

plt.figure(figsize=(10, 6))

plt.bar(month\_numbers, bathing\_soap\_sales, color='skyblue')

# Adding title and labels

plt.title('Bathing Soap Sales for Each Month')

plt.xlabel('Month Number')

plt.ylabel('Bathing Soap Sales')

# Adding grid

plt.grid(True)

# Show plot

plt.show()