

## MATPLOTLIB VISUALIZATION USING GRADIO

```
In [1]: import pandas as pd
```

```
In [2]: data = {
    "Month": ["Jan", "Feb", "Mar", "Apr", "May", "Jun"],
    "Sales": [10000, 12000, 15000, 13000, 17000, 16000],
    "Profit": [2000, 3000, 4000, 2500, 3500, 3000]
}
data
```

```
Out[2]: {'Month': ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun'],
 'Sales': [10000, 12000, 15000, 13000, 17000, 16000],
 'Profit': [2000, 3000, 4000, 2500, 3500, 3000]}
```

```
In [3]: type(data)
```

```
Out[3]: dict
```

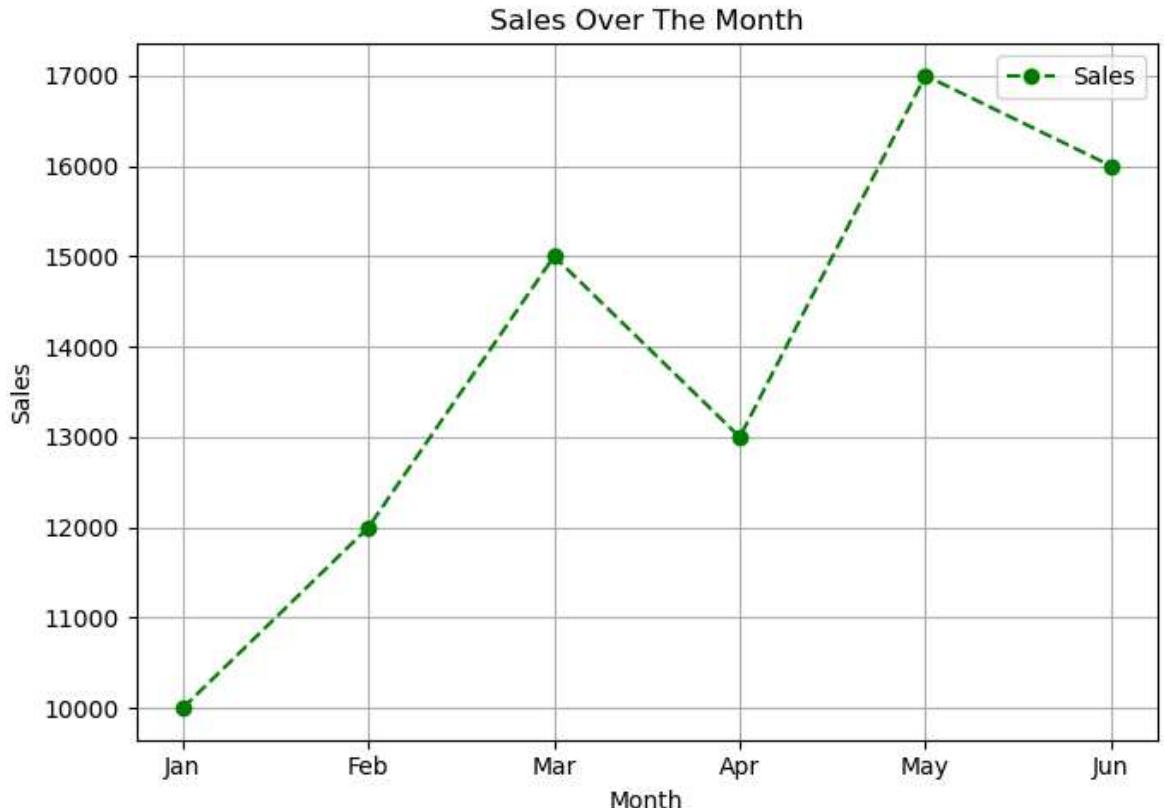
```
In [4]: df = pd.DataFrame(data)      # changing dict info to (rows and columns) dataframe
df
```

	Month	Sales	Profit
<b>0</b>	Jan	10000	2000
<b>1</b>	Feb	12000	3000
<b>2</b>	Mar	15000	4000
<b>3</b>	Apr	13000	2500
<b>4</b>	May	17000	3500
<b>5</b>	Jun	16000	3000

```
In [5]: import matplotlib.pyplot as plt
```

## 1. Line plot on Month and Sales

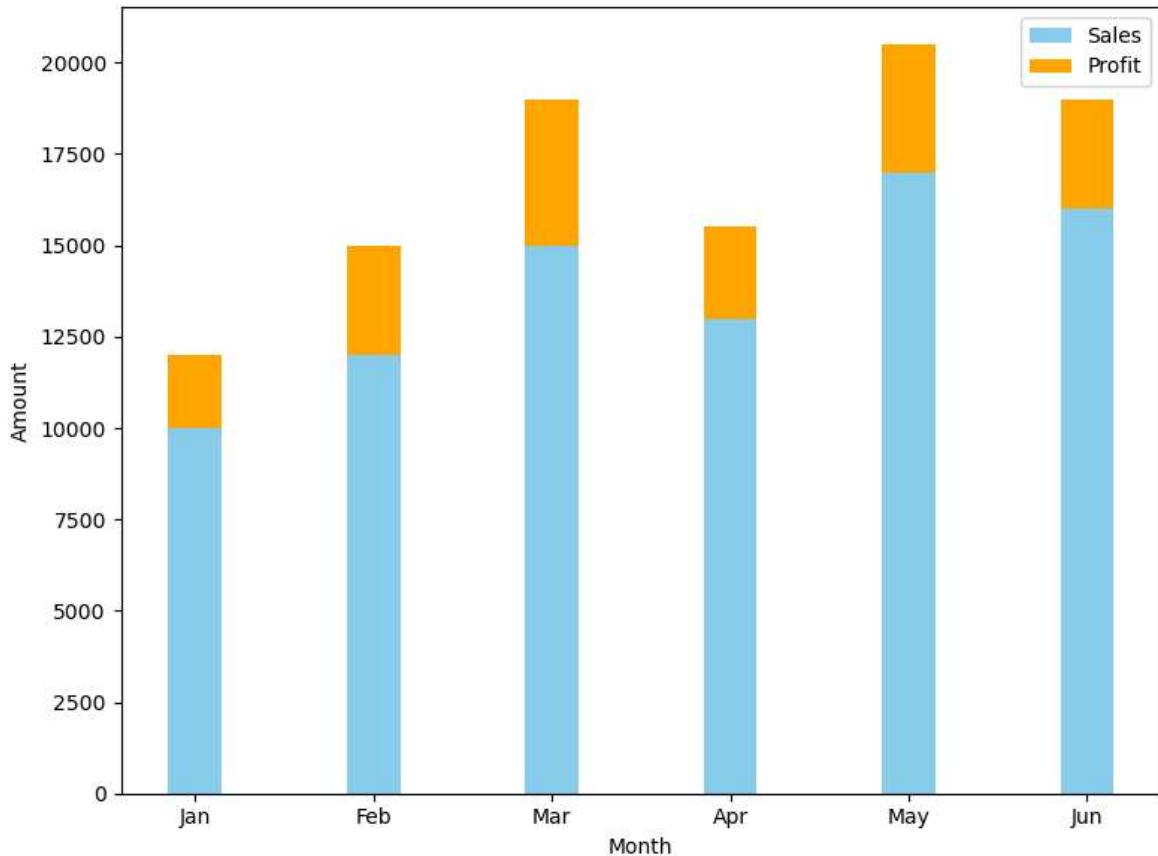
```
In [6]: plt.figure(figsize = (7,5))
plt.plot(df['Month'] , df['Sales'] , color = 'green' , marker = 'o' , ls = '--',
plt.grid()      # gives boxes
plt.legend()     # inside the graph gives the name on which we draw a graph
plt.xlabel('Month')   # prints the name of x-axis
plt.ylabel('Sales')
plt.title('Sales Over The Month')
plt.tight_layout()
```



## 2. Bar plot on sales and Profit over the Month

```
In [7]: plt.figure(figsize=(8,6))
width= 0.3
plt.bar(df['Month'] , df['Sales'] , width=width ,label = 'Sales', color = 'skyblue'
plt.bar(df['Month'],df['Profit'], width=width, label = 'Profit', color= 'orange',
plt.xlabel('Month')
plt.ylabel('Amount')
plt.tight_layout()
plt.legend()
```

```
Out[7]: <matplotlib.legend.Legend at 0x24972d33e00>
```



In [8]: df

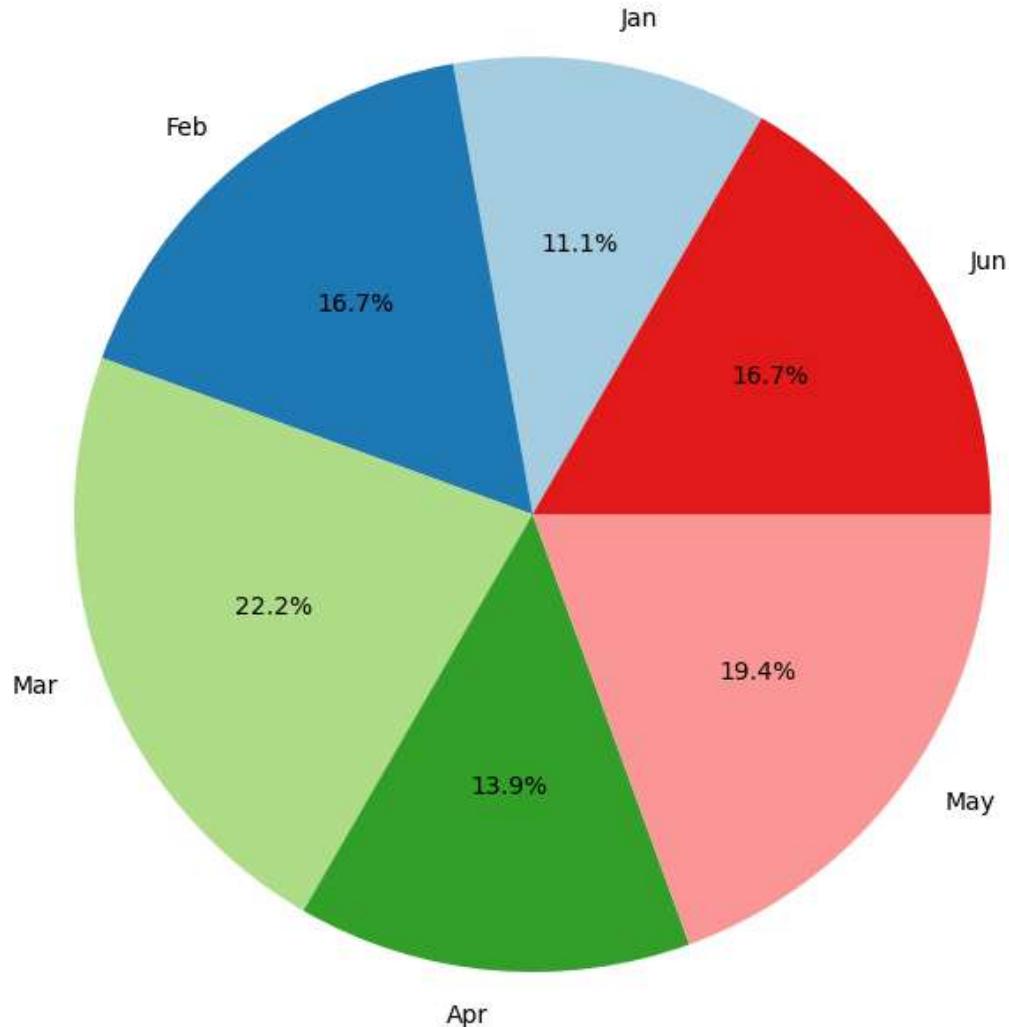
Out[8]:

	Month	Sales	Profit
0	Jan	10000	2000
1	Feb	12000	3000
2	Mar	15000	4000
3	Apr	13000	2500
4	May	17000	3500
5	Jun	16000	3000

### 3. Pie chart on Profit over Month

```
In [9]: plt.figure(figsize=(7,7))
plt.pie(df['Profit'], labels= df['Month'], startangle=60, autopct='%1.1f%%', color
plt.title('Profit Distribution by Month')
plt.tight_layout()
# startangle is used to turn pie chart in clockwise direction from start point
# autopct is a string used to give the % of column
```

Profit Distribution by Month



In [10]: df

Out[10]: 

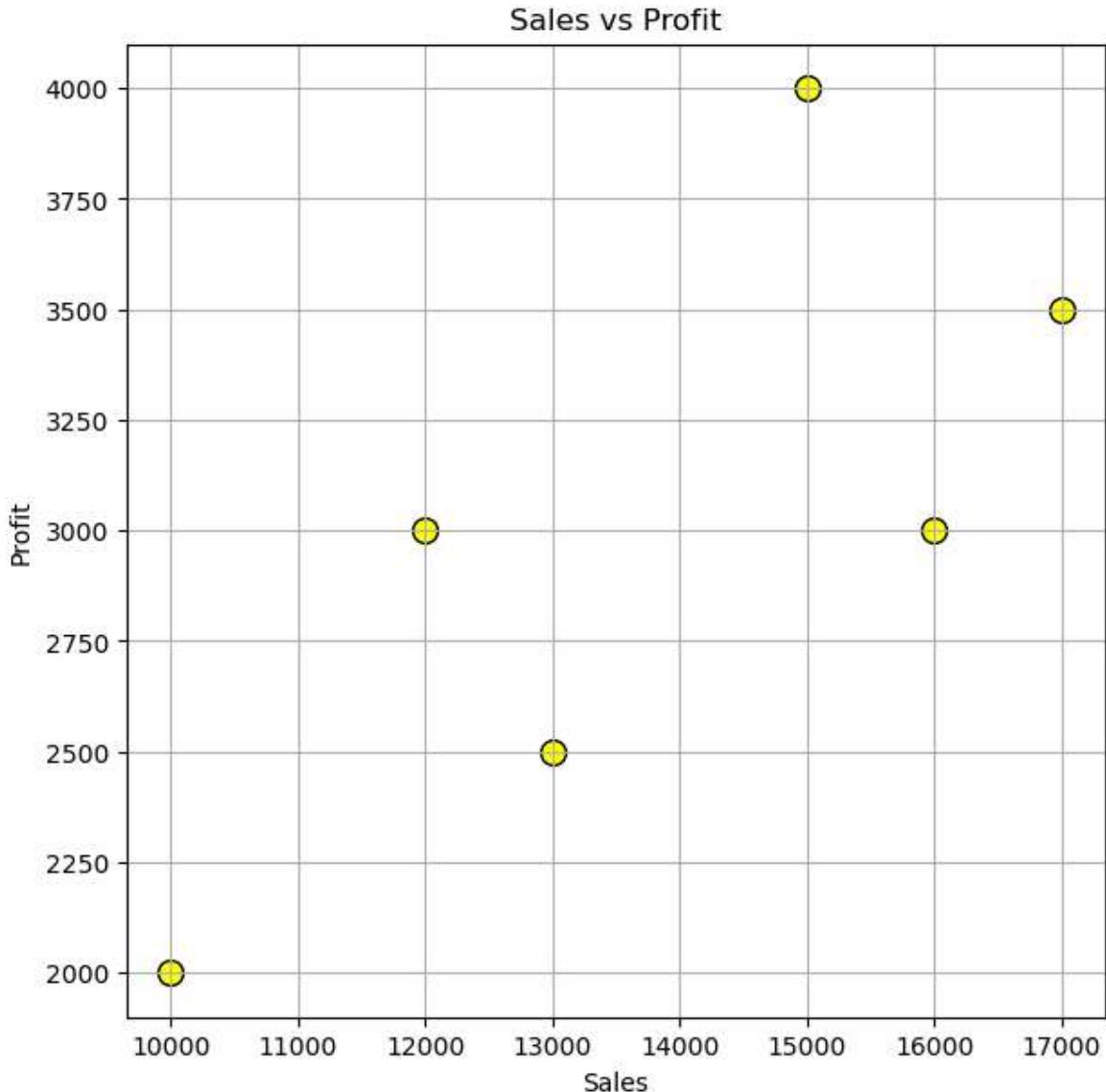
	Month	Sales	Profit
0	Jan	10000	2000
1	Feb	12000	3000
2	Mar	15000	4000
3	Apr	13000	2500
4	May	17000	3500
5	Jun	16000	3000

## 4.Scatter plot on Sales and Profit

In [11]: 

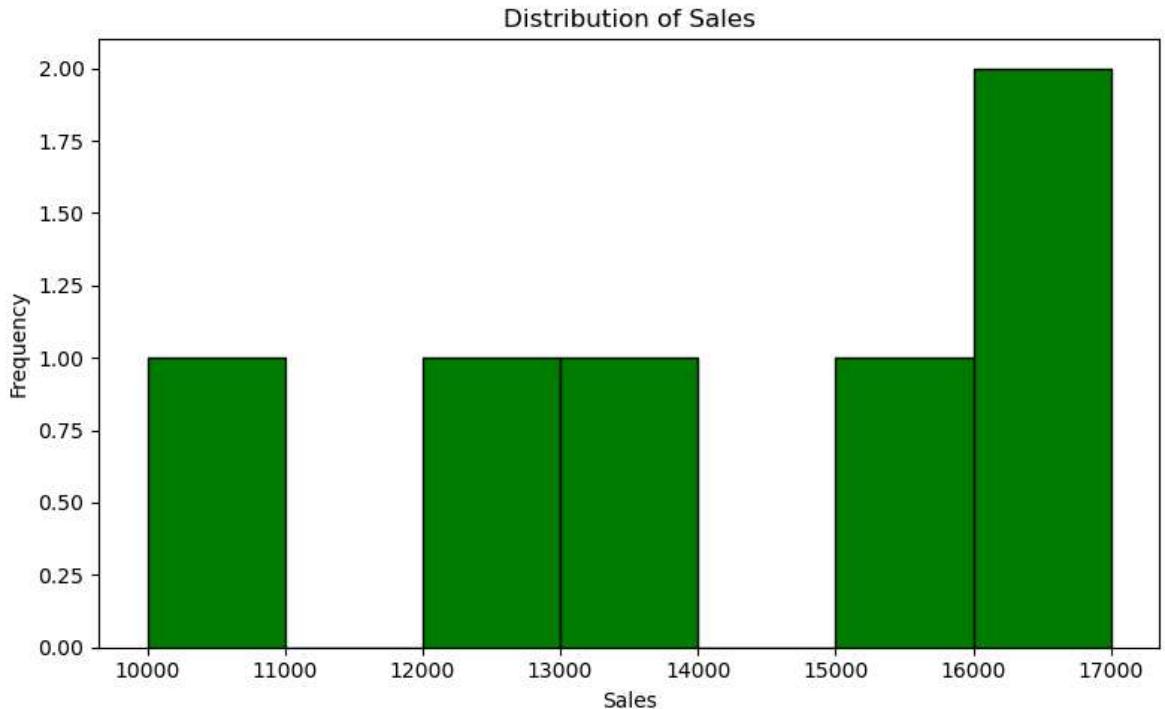
```
plt.figure(figsize=(7,7))
plt.scatter(df['Sales'],df['Profit'], color = 'yellow', s= 100, edgecolors= 'black'
plt.title('Sales vs Profit')
```

```
plt.xlabel('Sales')
plt.ylabel('Profit')
plt.grid()
```



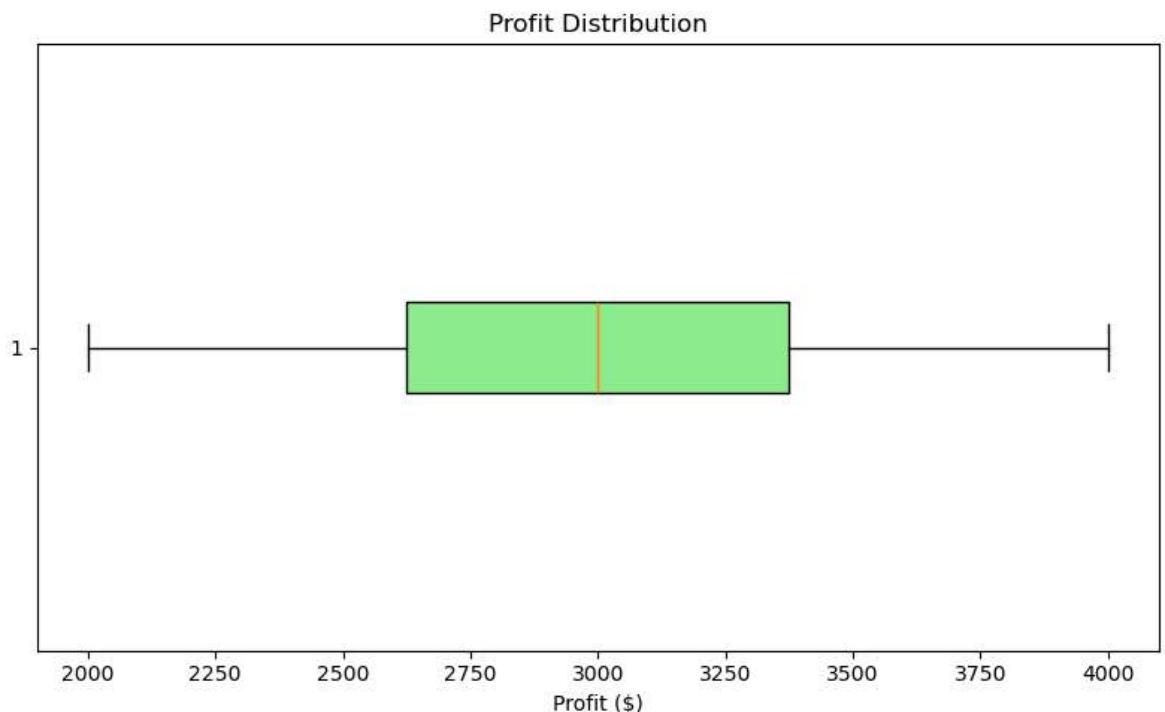
## 5. Histogram on Distribution of Sales

```
In [12]: plt.figure(figsize=(8,5))
plt.hist(df['Sales'], color = 'green', edgecolor= 'black', bins= 7)
plt.title('Distribution of Sales')
plt.xlabel('Sales')
plt.ylabel('Frequency')
plt.tight_layout()
```



## 6.Box plot

```
In [13]: plt.figure(figsize=(8,5))
plt.boxplot(df['Profit'], vert=False, patch_artist=True, boxprops=dict(facecolor='lightgreen'))
plt.title('Profit Distribution')
plt.xlabel('Profit ($)')
plt.tight_layout()
```



## ploting using Gradio

```
In [14]: !pip install gradio
```

```
Requirement already satisfied: gradio in c:\users\komme\anaconda3\lib\site-packages (5.38.0)
Requirement already satisfied: aiofiles<25.0,>=22.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (24.1.0)
Requirement already satisfied: anyio<5.0,>=3.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (4.2.0)
Requirement already satisfied: brotli>=1.1.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (1.1.0)
Requirement already satisfied: fastapi<1.0,>=0.115.2 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.116.1)
Requirement already satisfied: ffmpeg in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.6.0)
Requirement already satisfied: gradio-client==1.11.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (1.11.0)
Requirement already satisfied: groovy~0.1 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.1.2)
Requirement already satisfied: httpx<1.0,>=0.24.1 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.27.0)
Requirement already satisfied: huggingface-hub>=0.28.1 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.33.4)
Requirement already satisfied: jinja2<4.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (3.1.4)
Requirement already satisfied: markupsafe<4.0,>=2.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (2.1.3)
Requirement already satisfied: numpy<3.0,>=1.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (1.26.4)
Requirement already satisfied: orjson~3.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (3.11.0)
Requirement already satisfied: packaging in c:\users\komme\anaconda3\lib\site-packages (from gradio) (24.1)
Requirement already satisfied: pandas<3.0,>=1.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (2.2.2)
Requirement already satisfied: pillow<12.0,>=8.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (10.4.0)
Requirement already satisfied: pydantic<2.12,>=2.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (2.8.2)
Requirement already satisfied: pydub in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.25.1)
Requirement already satisfied: python-multipart>=0.0.18 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.0.20)
Requirement already satisfied: pyyaml<7.0,>=5.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (6.0.1)
Requirement already satisfied: ruff>=0.9.3 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.12.4)
Requirement already satisfied: safehttpx<0.2.0,>=0.1.6 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.1.6)
Requirement already satisfied: semantic-version~2.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (2.10.0)
Requirement already satisfied: starlette<1.0,>=0.40.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.47.1)
Requirement already satisfied: tomlkit<0.14.0,>=0.12.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.13.3)
Requirement already satisfied: typer<1.0,>=0.12 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.16.0)
Requirement already satisfied: typing-extensions~4.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (4.11.0)
Requirement already satisfied: uvicorn>=0.14.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio) (0.35.0)
Requirement already satisfied: fsspec in c:\users\komme\anaconda3\lib\site-packages (from gradio-client==1.11.0->gradio) (2024.6.1)
```

```
Requirement already satisfied: websockets<16.0,>=10.0 in c:\users\komme\anaconda3\lib\site-packages (from gradio-client==1.11.0->gradio) (10.4)
Requirement already satisfied: idna>=2.8 in c:\users\komme\anaconda3\lib\site-packages (from anyio<5.0,>=3.0->gradio) (3.7)
Requirement already satisfied: sniffio>=1.1 in c:\users\komme\anaconda3\lib\site-packages (from anyio<5.0,>=3.0->gradio) (1.3.0)
Requirement already satisfied: certifi in c:\users\komme\anaconda3\lib\site-packages (from httpx<1.0,>=0.24.1->gradio) (2025.4.26)
Requirement already satisfied: httpcore==1.* in c:\users\komme\anaconda3\lib\site-packages (from httpx<1.0,>=0.24.1->gradio) (1.0.2)
Requirement already satisfied: h11<0.15,>=0.13 in c:\users\komme\anaconda3\lib\site-packages (from httpcore==1.*->httpx<1.0,>=0.24.1->gradio) (0.14.0)
Requirement already satisfied: filelock in c:\users\komme\anaconda3\lib\site-packages (from huggingface-hub>=0.28.1->gradio) (3.13.1)
Requirement already satisfied: requests in c:\users\komme\anaconda3\lib\site-packages (from huggingface-hub>=0.28.1->gradio) (2.32.3)
Requirement already satisfied: tqdm>=4.42.1 in c:\users\komme\anaconda3\lib\site-packages (from huggingface-hub>=0.28.1->gradio) (4.66.5)
Requirement already satisfied: python-dateutil>=2.8.2 in c:\users\komme\anaconda3\lib\site-packages (from pandas<3.0,>=1.0->gradio) (2.9.0.post0)
Requirement already satisfied: pytz>=2020.1 in c:\users\komme\anaconda3\lib\site-packages (from pandas<3.0,>=1.0->gradio) (2024.1)
Requirement already satisfied: tzdata>=2022.7 in c:\users\komme\anaconda3\lib\site-packages (from pandas<3.0,>=1.0->gradio) (2023.3)
Requirement already satisfied: annotated-types>=0.4.0 in c:\users\komme\anaconda3\lib\site-packages (from pydantic<2.12,>=2.0->gradio) (0.6.0)
Requirement already satisfied: pydantic-core==2.20.1 in c:\users\komme\anaconda3\lib\site-packages (from pydantic<2.12,>=2.0->gradio) (2.20.1)
Requirement already satisfied: click>=8.0.0 in c:\users\komme\anaconda3\lib\site-packages (from typer<1.0,>=0.12->gradio) (8.1.7)
Requirement already satisfied: shellingham>=1.3.0 in c:\users\komme\anaconda3\lib\site-packages (from typer<1.0,>=0.12->gradio) (1.5.0)
Requirement already satisfied: rich>=10.11.0 in c:\users\komme\anaconda3\lib\site-packages (from typer<1.0,>=0.12->gradio) (13.7.1)
Requirement already satisfied: colorama in c:\users\komme\anaconda3\lib\site-packages (from click>=8.0.0->typer<1.0,>=0.12->gradio) (0.4.6)
Requirement already satisfied: six>=1.5 in c:\users\komme\anaconda3\lib\site-packages (from python-dateutil>=2.8.2->pandas<3.0,>=1.0->gradio) (1.16.0)
Requirement already satisfied: markdown-it-py>=2.2.0 in c:\users\komme\anaconda3\lib\site-packages (from rich>=10.11.0->typer<1.0,>=0.12->gradio) (2.2.0)
Requirement already satisfied: pygments<3.0.0,>=2.13.0 in c:\users\komme\anaconda3\lib\site-packages (from rich>=10.11.0->typer<1.0,>=0.12->gradio) (2.15.1)
Requirement already satisfied: charset-normalizer<4,>=2 in c:\users\komme\anaconda3\lib\site-packages (from requests->huggingface-hub>=0.28.1->gradio) (3.3.2)
Requirement already satisfied: urllib3<3,>=1.21.1 in c:\users\komme\anaconda3\lib\site-packages (from requests->huggingface-hub>=0.28.1->gradio) (1.26.20)
Requirement already satisfied: mdurl~0.1 in c:\users\komme\anaconda3\lib\site-packages (from markdown-it-py>=2.2.0->rich>=10.11.0->typer<1.0,>=0.12->gradio) (0.1.0)
```

```
In [ ]: import gradio as gr
import pandas as pd
import matplotlib.pyplot as plt
```

```
In [ ]: data = {
    "Month": ["Jan", "Feb", "Mar", "Apr", "May", "Jun"],
    "Sales": [10000, 12000, 15000, 13000, 17000, 16000],
    "Profit": [2000, 3000, 4000, 2500, 3500, 3000]
}
df =pd.DataFrame(data)
```

```

def generate_plot(plot_type):
    fig = plt.figure(figsize=(8,5))
    if plot_type== "Line":
        plt.plot(df['Month'] , df['Sales'] , color = 'green' , marker = 'o' , ls
        plt.grid()
        plt.legend()
        plt.xlabel('Month')
        plt.ylabel('Sales')
        plt.title('Sales Over The Month')
    elif plot_type== "Bar":
        plt.figure(figsize=(8,6))
        width= 0.3
        plt.bar(df['Month'] , df['Sales'] , width=width ,label = 'Sales', color
        plt.bar(df['Month'],df['Profit'], width=width,label = 'Profit', color=
        plt.xlabel('Month')
        plt.ylabel('Amount')
        plt.legend()
    elif plot_type=="Pie":
        fig.set_size_inches(7,7)
        plt.pie(df['Profit'],labels= df['Month'],startangle=60, autopct='%1.1f%%'
        plt.title('Profit Distribution by Month')
    elif plot_type=="Scatter":
        plt.scatter(df['Sales'],df['Profit'], color = 'yellow',s= 100,edgecolors
        plt.title('Sales vs Profit')
        plt.xlabel('Sales')
        plt.ylabel('Profit')
        plt.grid()
    elif plot_type== "Histogram":
        plt.hist(df['Sales'],color = 'green',edgecolor= 'black',bins= 7)
        plt.title('Distribution of Sales')
        plt.xlabel('Sales')
        plt.ylabel('Frequency')
    elif plot_type==" Box":
        plt.boxplot(df['Profit'], vert=False, patch_artist=True, boxprops=dict(f
        plt.title('Profit Distribution')
        plt.xlabel('Profit ($)')
        plt.tight_layout()
        return fig
# Gradio
demo = gr.Interface(
    fn= generate_plot,
    inputs =gr.Radio(["Line","Bar","Pie","Scatter","Histogram",""
    label="choose plot type"),
    outputs = gr.Plot(label = "Visualization"),
    title="Sales & Profit Visual Explorer",
    description="Choose a chart type to visualize the data"
)
demo.launch()

```

In [ ]:

In [ ]: