



project 5,6,7

```
In [3]: import pandas as pd
```

```
In [5]: df=pd.read_csv(r"c:\Users\yadit\Downloads\adarsh data sheet .csv")
print(df.head())
print(df.info())
```

	Employee_ID	Employee_Name	Department	Experience_Years	Monthly_Sales	\
0	1001	adarsh	HR	15	41834	
1	1002	pratyush singh	Marketing	13	38047	
2	1003	Amit	IT	1	46105	
3	1004	Priya	Marketing	9	95766	
4	1005	Karan	Marketing	7	35707	

	Customer_Satisfaction
0	20
1	15
2	7
3	10
4	9

<class 'pandas.core.frame.DataFrame'>

RangeIndex: 100 entries, 0 to 99

Data columns (total 6 columns):

#	Column	Non-Null Count	Dtype
0	Employee_ID	100 non-null	int64
1	Employee_Name	100 non-null	object
2	Department	100 non-null	object
3	Experience_Years	100 non-null	int64
4	Monthly_Sales	100 non-null	int64
5	Customer_Satisfaction	100 non-null	int64

dtypes: int64(4), object(2)

memory usage: 4.8+ KB

None

Question 1.Load the dataset and display the first 10 rows

```
In [6]: df.head(5)
```

```
Out[6]:
```

	Employee_ID	Employee_Name	Department	Experience_Years	Monthly_Sales
0	1001	adarsh	HR	15	41834
1	1002	pratyush singh	Marketing	13	38047
2	1003	Amit	IT	1	46105
3	1004	Priya	Marketing	9	95766
4	1005	Karan	Marketing	7	35707

Question 2. Display summary statistics of the numerical column

```
In [7]: print(df.describe())
```

	Employee_ID	Experience_Years	Monthly_Sales	Customer_Satisfaction
count	100.000000	100.000000	100.000000	100.000000
mean	1050.500000	8.450000	72030.750000	5.060000
std	29.011492	4.349329	30111.719996	3.299281
min	1001.000000	1.000000	20854.000000	1.000000
25%	1025.750000	5.000000	44832.000000	3.000000
50%	1050.500000	8.500000	72697.500000	5.000000
75%	1075.250000	12.000000	101270.000000	7.250000
max	1100.000000	15.000000	118506.000000	20.000000

```
In [ ]: Question 3. Check how many rows and columns the dataset has
```

```
In [8]: print(df.shape)
```

```
(100, 6)
```

Question 4. Select only the Employee_ID , Experience_Years , Monthly_Sales , Customer_Satisfaction and balance columns .

```
In [9]: result = [['Employee_ID', 'Experience_Years', 'Monthly_Sales', 'Customer_Satisfaction']]
print(result)
```

```
[['Employee_ID', 'Experience_Years', 'Monthly_Sales', 'Customer_Satisfaction']]
```

Question 5. Filter rows where monthly_sales greater than 20.

```
In [ ]: result = df[df['Monthly_Sales'] > 20]
print(result)
```

	Employee_ID	Employee_Name	Department	Experience_Years	Monthly_Sales	\
0	1001	adarsh	HR	15	41834	
1	1002	pratyush singh	Marketing	13	38047	
2	1003	Amit	IT	1	46105	
3	1004	Priya	Marketing	9	95766	
4	1005	Karan	Marketing	7	35707	
..	
95	1096	Megha	Finance	12	93656	
96	1097	Pritam	Finance	12	59384	
97	1098	Ramesh	Marketing	4	67254	
98	1099	Shivani	Sales	14	41918	
99	1100	Niraj	Marketing	14	105981	

	Customer_Satisfaction
0	20
1	15
2	7
3	10
4	9
..	...
95	6
96	7
97	2
98	10
99	2

[100 rows x 6 columns]

Question 6. Find employees whose department is HR .

```
In [19]: result = df[df['Department'] == 'HR']
print(result)
```

	Employee_ID	Employee_Name	Department	Experience_Years	Monthly_Sales	\
5	1006	Divya	HR	9	41976	
14	1015	Anjali	HR	1	29474	
18	1019	Suman	HR	1	114856	
23	1024	Manoj	HR	10	86199	
31	1032	Monika	HR	1	71005	
46	1047	Shweta	HR	15	110084	
51	1052	Rohan	HR	10	107092	
52	1053	Ira	HR	7	70859	
54	1055	Krishna	HR	14	107455	
56	1057	Sunny	HR	11	90467	
66	1067	Niharika	HR	7	54698	
68	1069	Aarav	HR	4	42671	
72	1073	Sandeep	HR	5	106202	
76	1077	Prakash	HR	15	69811	
77	1078	Mitali	HR	11	22811	
79	1080	Jay	HR	4	92082	
80	1081	Vandana	HR	13	54754	
90	1091	Sujit	HR	9	108614	
92	1093	Shalini	HR	6	57504	

	Customer_Satisfaction
5	4
14	3
18	8
23	4
31	9
46	8
51	1
52	3
54	7
56	6
66	3
68	3
72	6
76	8
77	1
79	3
80	1
90	10
92	8

Question 7.Count the frequency of each employee_name column value.

```
In [25]: counts = df['Employee_Name'].value_counts()
print(counts)
```

```
Employee_Name
adarsh          1
pratyush singh  1
Amit            1
Priya           1
Karan           1
..
Megha           1
Pritam          1
Ramesh          1
Shivani         1
Niraj           1
Name: count, Length: 100, dtype: int64
```

project 6,7 fills

6. Create a line chart and a bar chart using Matplotlib library

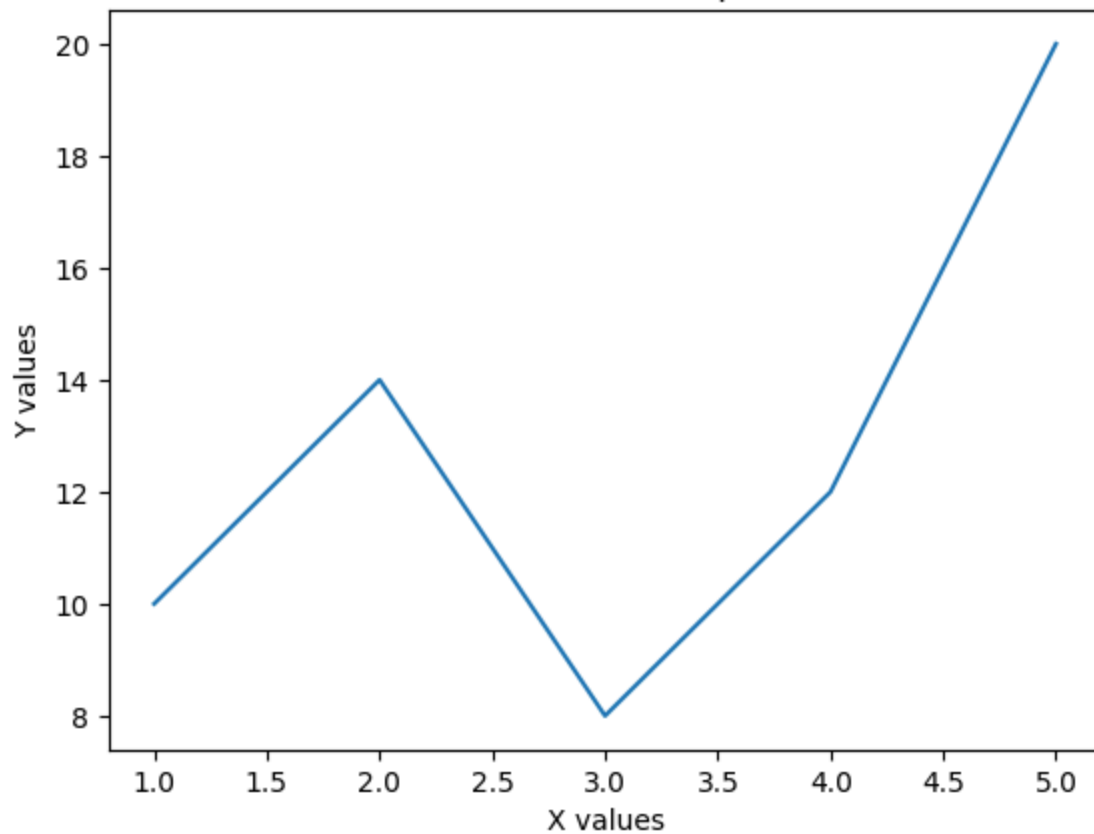
```
In [1]: import matplotlib.pyplot as plt
```

```
# Common data
x = [1, 2, 3, 4, 5]
y = [10, 14, 8, 12, 20]

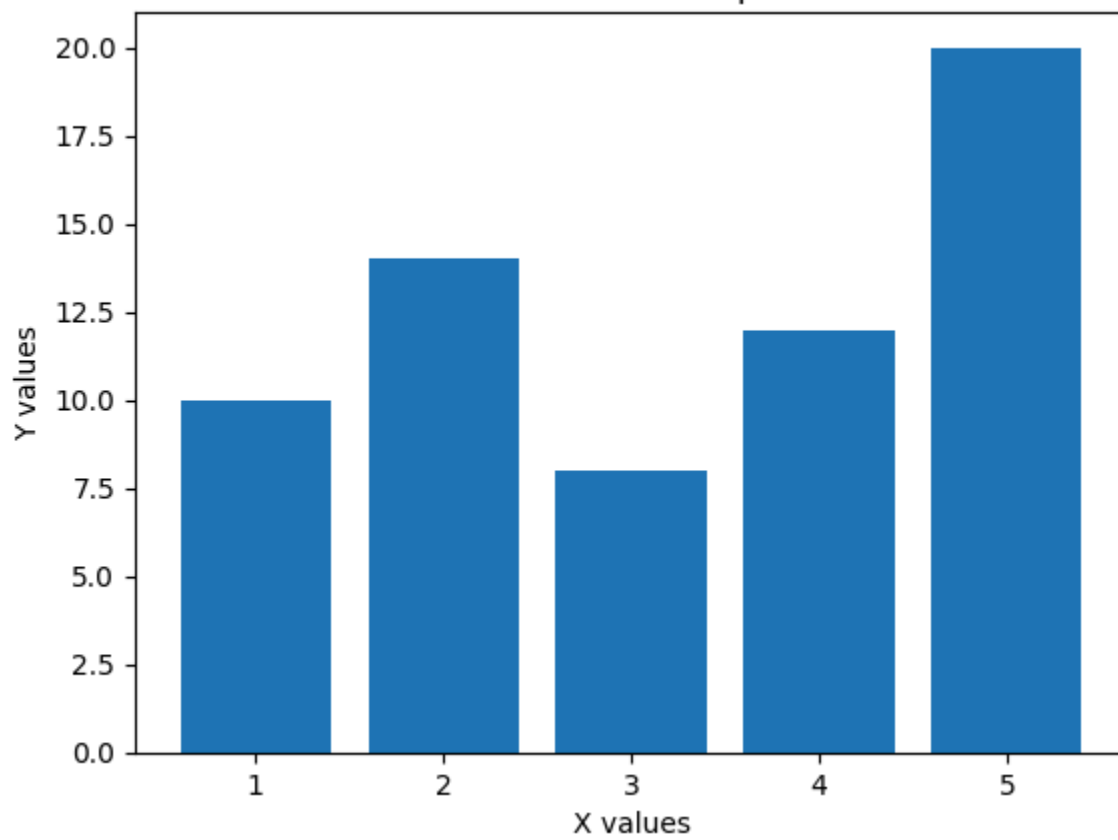
# ---- Line Chart ----
plt.figure()
plt.plot(x, y)
plt.title("Line Chart Example")
plt.xlabel("X values")
plt.ylabel("Y values")
plt.show()

# ---- Bar Chart ----
plt.figure()
plt.bar(x, y)
plt.title("Bar Chart Example")
plt.xlabel("X values")
plt.ylabel("Y values")
plt.show()
```

Line Chart Example



Bar Chart Example



7. Create a histogram , scatter plot, pie chart using Matplotlib

```
In [2]: # Import necessary libraries
import matplotlib.pyplot as plt
import numpy as np

# -----
# 1 ♦ Histogram
# -----
# Generate some random data
data = np.random.randn(1000) # 1000 random numbers (Normal Distribution)

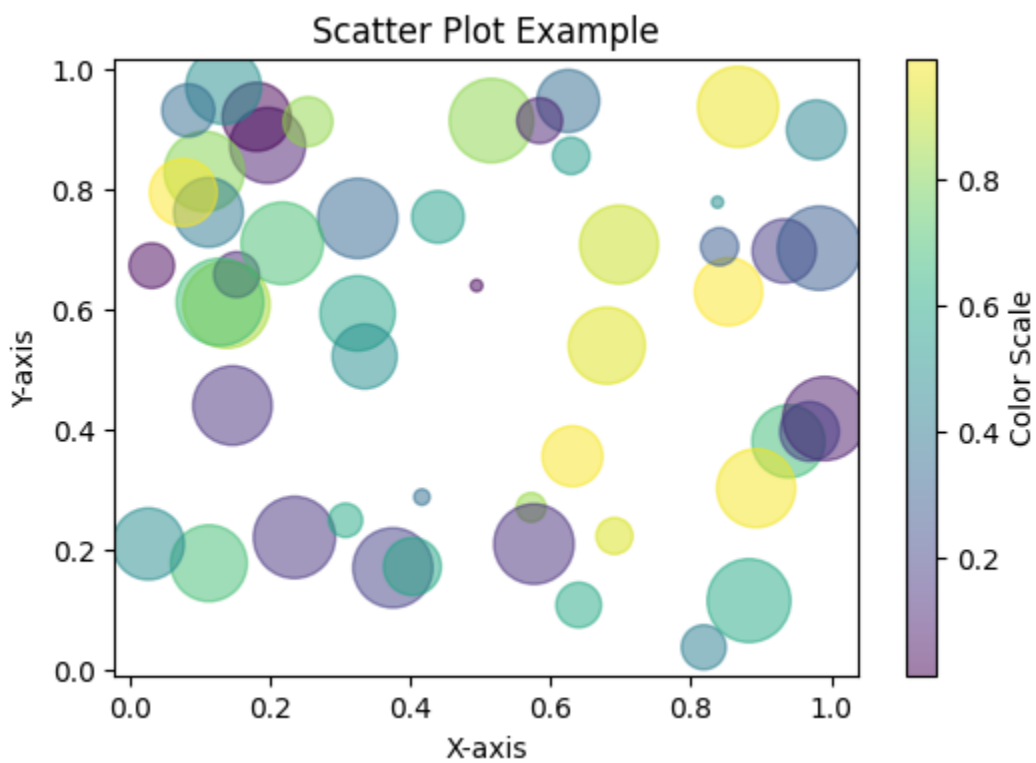
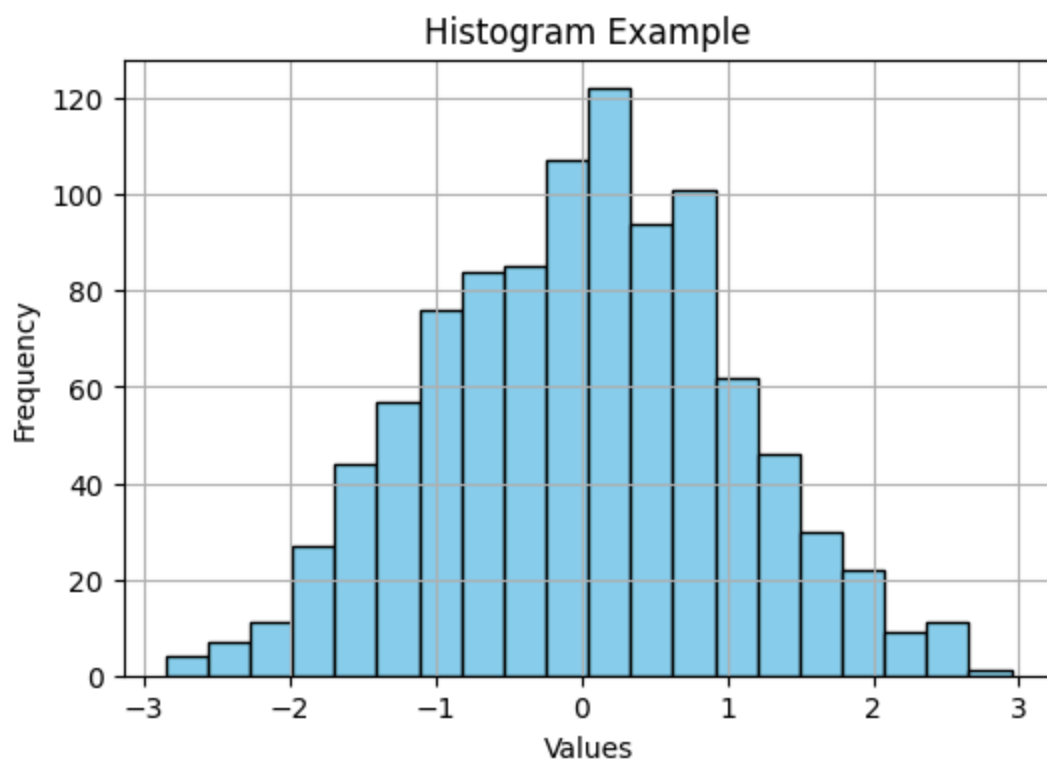
plt.figure(figsize=(6,4))
plt.hist(data, bins=20, color='skyblue', edgecolor='black')
plt.title('Histogram Example')
plt.xlabel('Values')
plt.ylabel('Frequency')
plt.grid(True)
plt.show()

# -----
# 2 ♦ Scatter Plot
# -----
# Generate random data for scatter plot
x = np.random.rand(50)
y = np.random.rand(50)
colors = np.random.rand(50)
sizes = 1000 * np.random.rand(50)

plt.figure(figsize=(6,4))
plt.scatter(x, y, c=colors, s=sizes, alpha=0.5, cmap='viridis')
plt.title('Scatter Plot Example')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.colorbar(label='Color Scale')
plt.show()

# -----
# 3 ♦ Pie Chart
# -----
# Data for pie chart
labels = ['Apples', 'Bananas', 'Cherries', 'Dates']
sizes = [30, 25, 25, 20]
colors = ['red', 'yellow', 'pink', 'brown']
explode = (0.1, 0, 0, 0) # explode first slice

plt.figure(figsize=(6,6))
plt.pie(sizes, labels=labels, colors=colors, explode=explode,
        autopct='%1.1f%%', shadow=True, startangle=140)
plt.title('Pie Chart Example')
plt.show()
```



Pie Chart Example

