University Institute of Engineering

Department of Computer Science & Engineering

DISRUPTIVE TECHNOLOGY-1
WORKSHEET

Project: Application of matplotlib and pandas library

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Section/Group:22BCS212-A

Semester: First

Date of Performance: 02/10/22

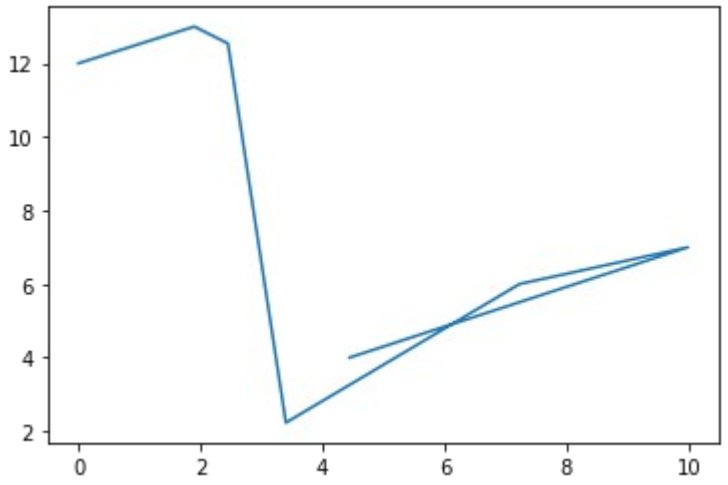
Subject Name: DISRUPTIVE TECHNOLOGY-1

Subject Code: 22ECH-102

```
import matplotlib.pyplot as plt    # pyplot is sub package
```

LINE PLOTS (No Color specify)

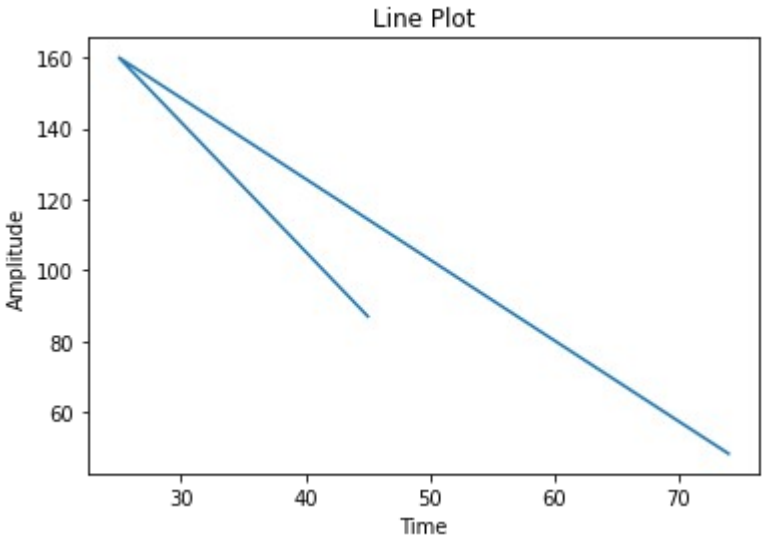
```
x = [0, 1.9, 2.45, 3.4, 7.23, 9.99, 4.445]          # x and y same dimension
y = [12,13,12.54,2.23,6,7,4 ]
plt.plot(x, y)
plt.show()
```




```
plt.savefig("lineplot1.png", dpi=300)  # set the resolution
```

```
<Figure size 432x288 with 0 Axes>
```

```
x = [45, 25, 74]
y = [87, 160, 48.25]
plt.plot(x, y)
plt.title('Line Plot')
plt.ylabel('Amplitude')
plt.xlabel('Time')
plt.show()
```



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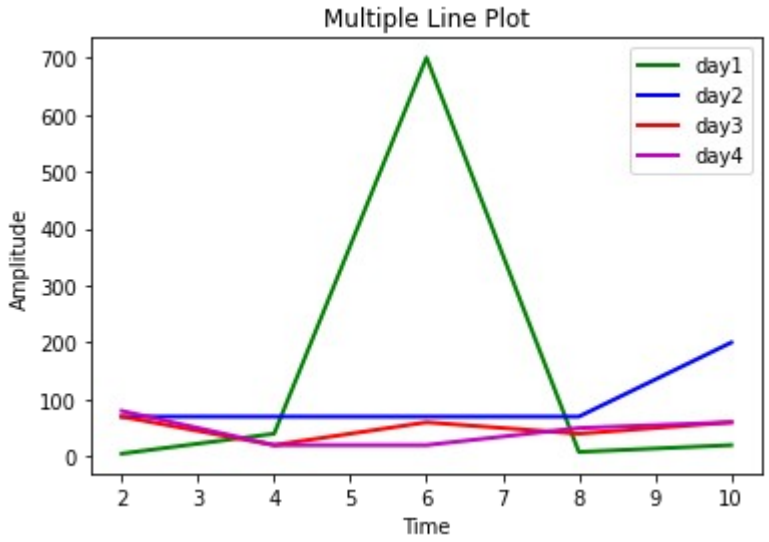
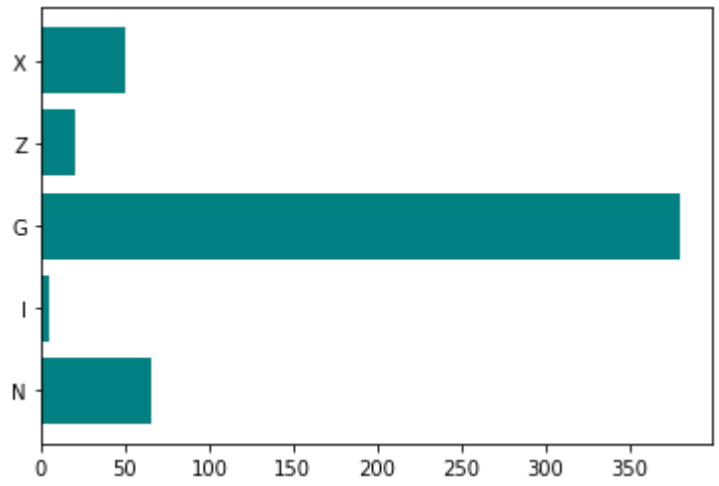
```
x  = [2, 4, 6, 8, 10]
y1 = [5, 40, 700, 8.02, 20]
y2 = [70, 70, 70, 70, 200]
y3 = [70, 20, 60, 40, 60]
y4 = [80, 20, 20, 50, 60]
plt.plot(x, y1, 'green', label='day1', linewidth=2)
plt.plot(x, y2, 'b', label='day2', linewidth=2)
plt.plot(x, y3, 'r', label='day3', linewidth=2)
plt.plot(x, y4, 'm', label='day4', linewidth=2)
plt.title('Multiple Line Plot')
plt.ylabel('Amplitude')
plt.xlabel('Time')
plt.legend()
plt.show()
```

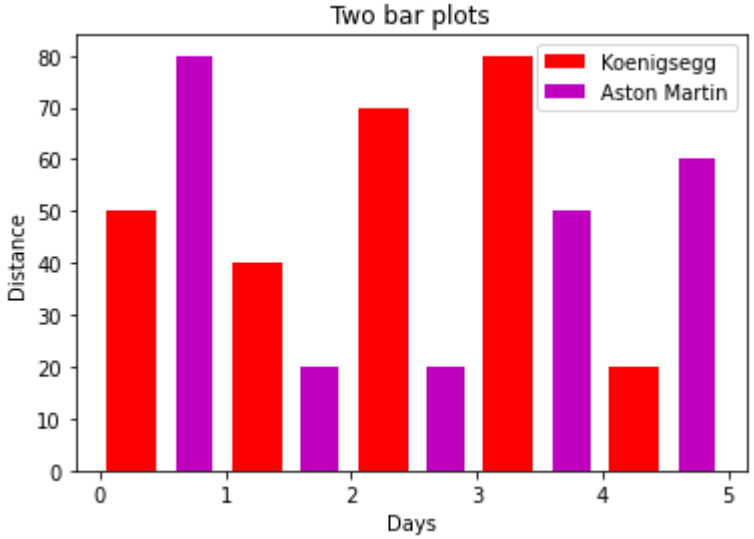


BAR PLOTS (Color specify)

```
x = [66, 5, 380, 20.5, 50.56]
y = ["N", "I", "G", "Z", "X"]
#plt.bar(y, x, color = "r", width=0.3)
plt.barh(y, x, color = "teal")
plt.show()
```

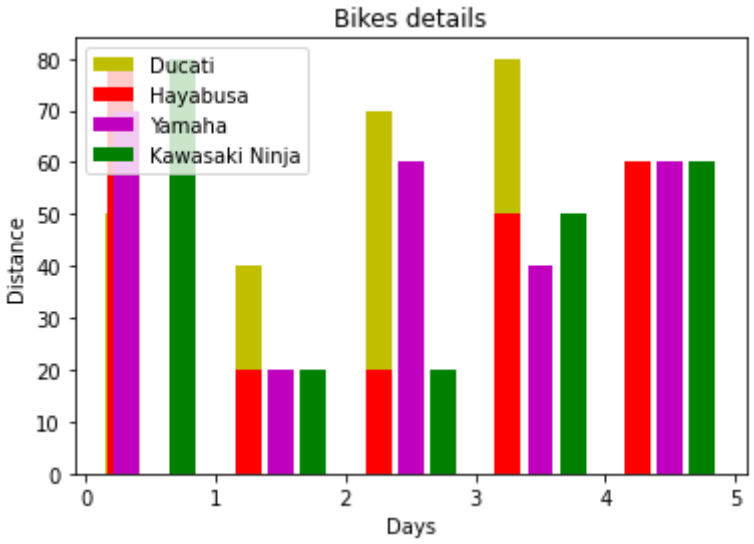


```
x1 = [0.25, 1.25, 2.25, 3.25, 4.25]
y1 = [50, 40, 70, 80, 20]
plt.bar(x1, y1, label="Koenigsegg", color='r', width=0.4)
x2 = [.75, 1.75, 2.75, 3.75, 4.75]
y2 = [80, 20, 20, 50, 60]
plt.bar(x2, y2, label="Aston Martin", color='m', width=0.3)
plt.xlabel('Days')
plt.ylabel('Distance')
plt.title('Two bar plots')
plt.legend()
plt.show()
```



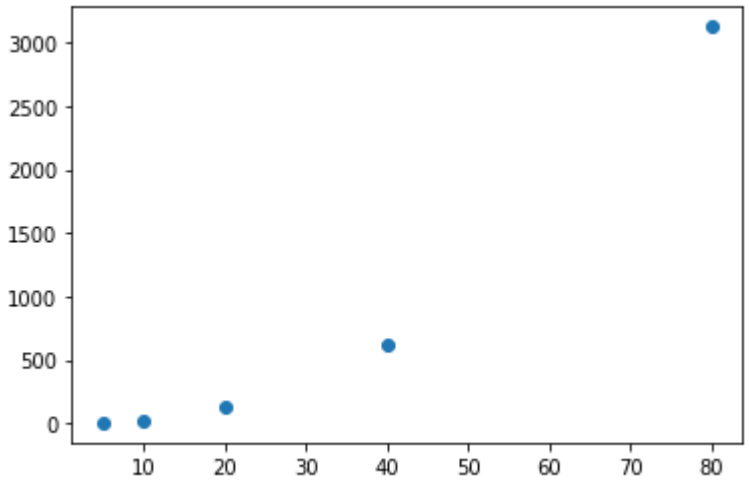

```
x1 = [0.25, 1.25, 2.25, 3.25, 4.25]
y1 = [50, 40, 70, 80, 20]
plt.bar(x1, y1, label="Ducati", color='y', width=0.2)

x2 = [0.26, 1.25, 2.25, 3.25, 4.25]
y2 = [80, 20, 20, 50, 60]
plt.bar(x2, y2, label="Hayabusa", color='r', width=0.2)

x3 = [0.31, 1.5, 2.5, 3.5, 4.5]
y3 = [70, 20, 60, 40, 60]
plt.bar(x3, y3, label="Yamaha", color='m', width=.2)

x4 = [.75, 1.75, 2.75, 3.75, 4.75]
y4 = [80, 20, 20, 50, 60]
plt.bar(x4, y4, label="Kawasaki Ninja", color='g', width=0.2)

plt.legend()
plt.xlabel('Days')
plt.ylabel('Distance')

plt.title('Bikes details')

plt.show()
```

```
plt.show()
```

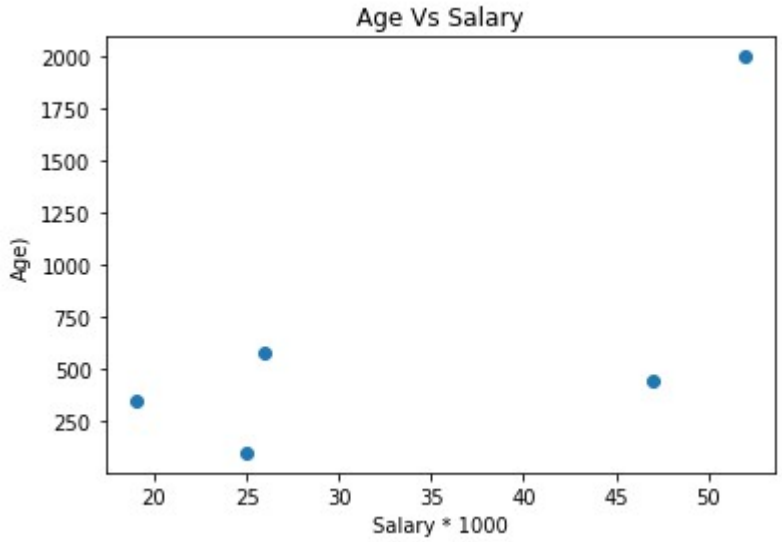


Scatter plot

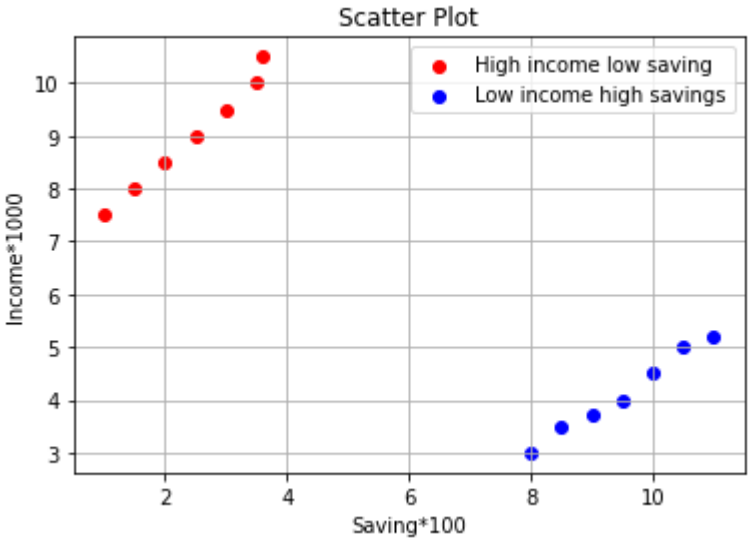
```
x = [5, 25, 125, 625, 3125]
y = [5, 10, 20, 40, 80]
plt.scatter(y, x)
plt.show()
```




```
x = [25, 19, 26, 47, 52]     # x-axis values
y = [101, 350, 580, 450, 2000]        # Y-axis values

plt.scatter(x, y)         # Function to plot scatter

plt.xlabel('Salary * 1000')
plt.ylabel('Age)')
plt.title('Age Vs Salary')

plt.show()              # function to show the plot
```



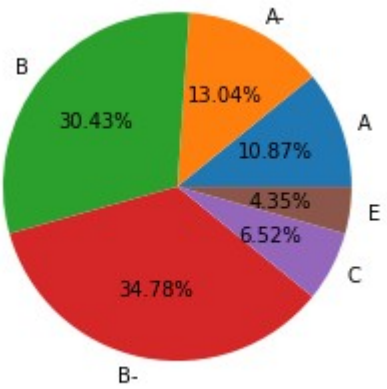

```
x1 = [1, 1.5, 2, 2.5, 3, 3.5, 3.6]
y1 = [7.5, 8, 8.5, 9, 9.5, 10, 10.5]

x2 = [8, 8.5, 9, 9.5, 10, 10.5, 11]
y2 = [3, 3.5, 3.7, 4, 4.5, 5, 5.2]

plt.scatter(x1, y1, label='High income low saving',color='r')
plt.scatter(x2, y2, label='Low income high savings', color='b')

plt.xlabel('Saving*100')
plt.ylabel('Income*1000')
plt.title('Scatter Plot')

plt.legend()

plt.grid()
plt.show()
```



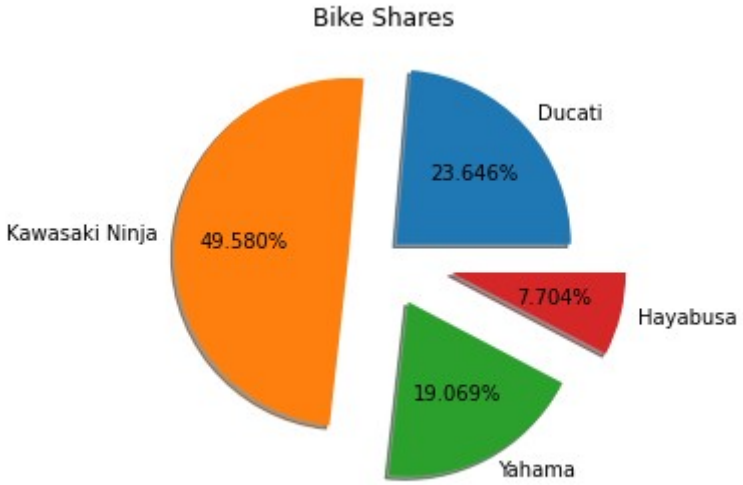
Pie Plots

```
grades = 'A', 'A-', 'B', 'B-', 'C', 'E'
gradeCount = [50, 60, 140, 160, 30, 20]
```

```
plt.pie(gradeCount, labels=grades, autopct='%1.2f%%') ##We use autopct to display the percent val

plt.show()
```




```
a = [3.1,6.5,2.5,1.01]
b= ['Ducati','Kawasaki Ninja','Yahama','Hayabusa']
plt.pie(a, labels=b, shadow= True, explode=(0.1,0.2,0.3,0.4), # explote spacing within the bikes
        autopct='%1.3f%%') # grey color shadow can be seen and 1.3 having three digits after deci

plt.title('Bike Shares')

plt.show()
```




```
import pandas as pd
import matplotlib.pyplot as plt

df = pd.read_csv('/content/nba16.csv')
df.head()
```

```
x = df['Age']       # Take any two variables or any graph (line, bar, scatter and pie)
y = df['Salary']

plt.xlabel('Age')
plt.ylabel('Salary (in millions)')
plt.title('Salary Vs Age')

plt.barh(x, y, color = "y")

plt.show()
```

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Evaluation Grid (To be filled by Faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Worksheet completion including writinglearning objectives/Outcomes. (To be submitted at the end of the day)		10
2.	Post Lab Quiz Result.		5
3.	Student Engagement in Simulation/Demonstration/Performance and Controls/Pre-Lab Questions.		5
	Signature of Faculty (with Date):	**Total Marks Obtained:**	**20**