

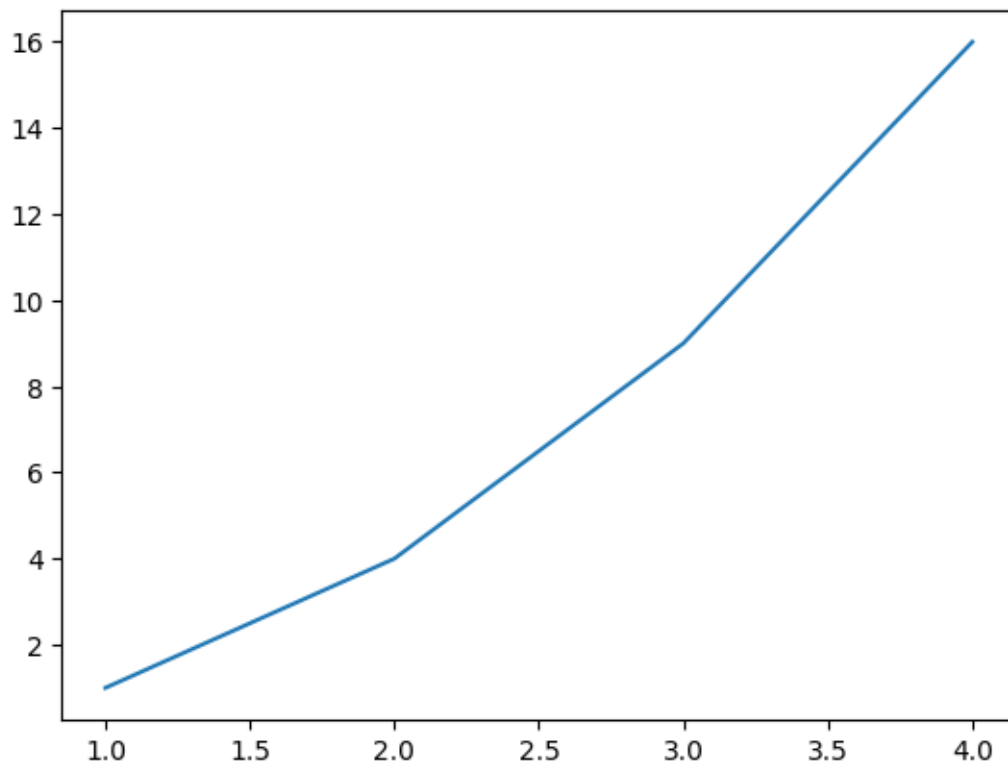
# w3-learn

July 12, 2024

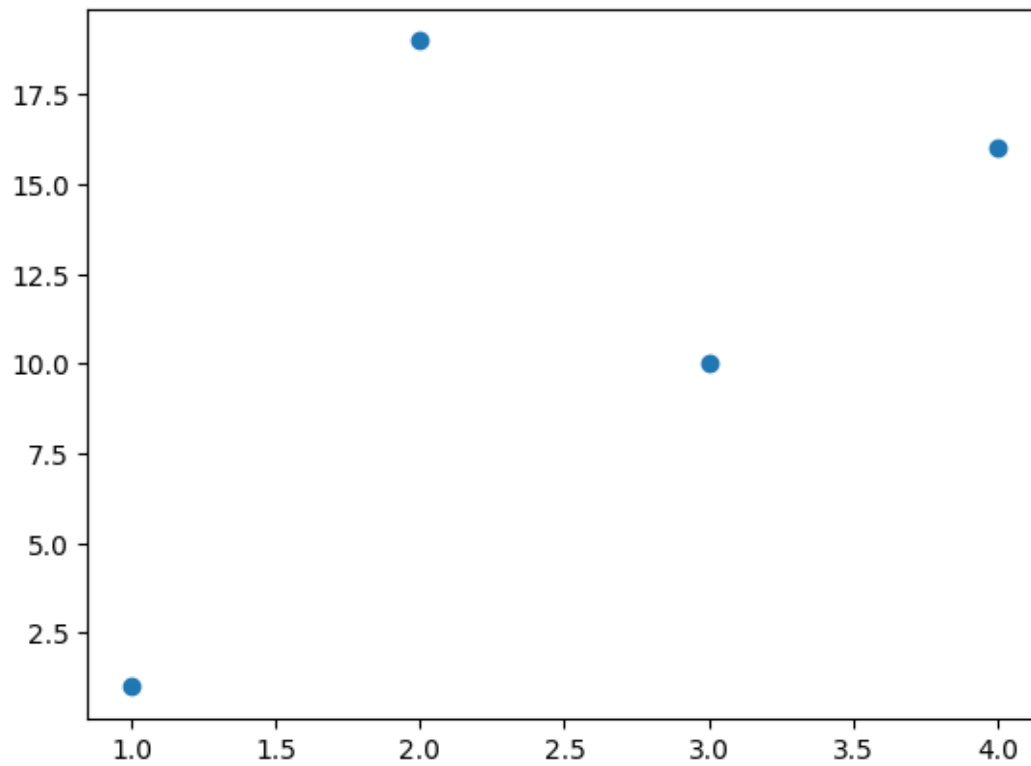
```
[ ]: # Version Check
import matplotlib
print(matplotlib.__version__)
```

3.7.1

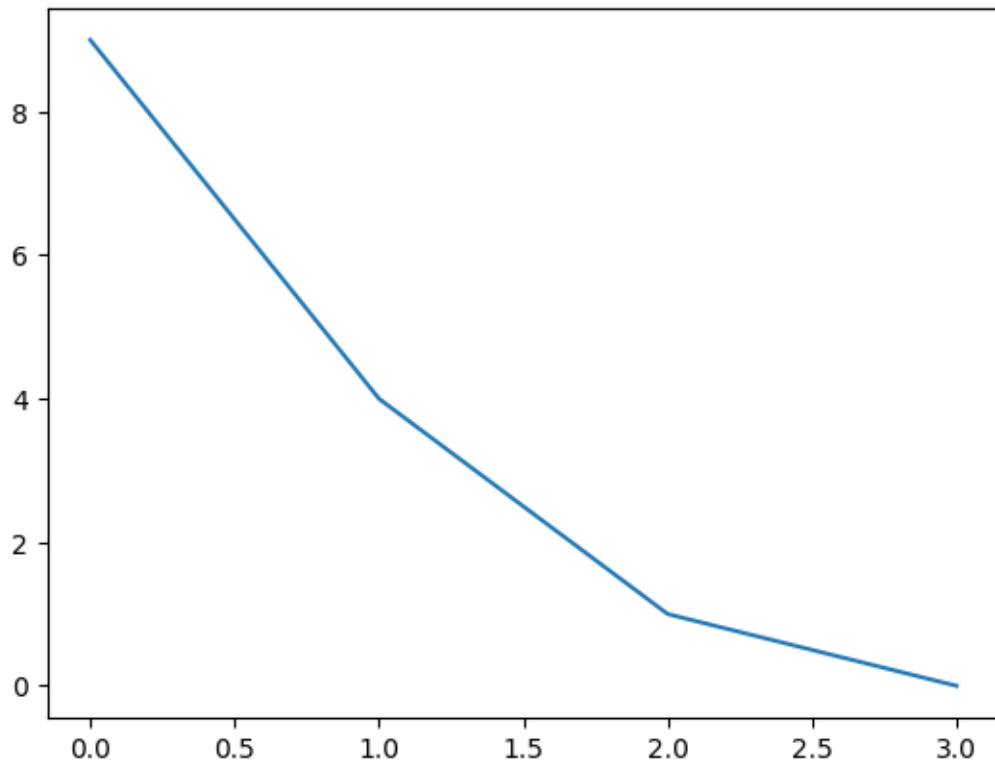
```
[ ]: # Simple Plot
import matplotlib.pyplot as plt
x_points = [1,2,3,4]
y_points = [1,4,9,16]
plt.plot(x_points,y_points)
plt.show()
```



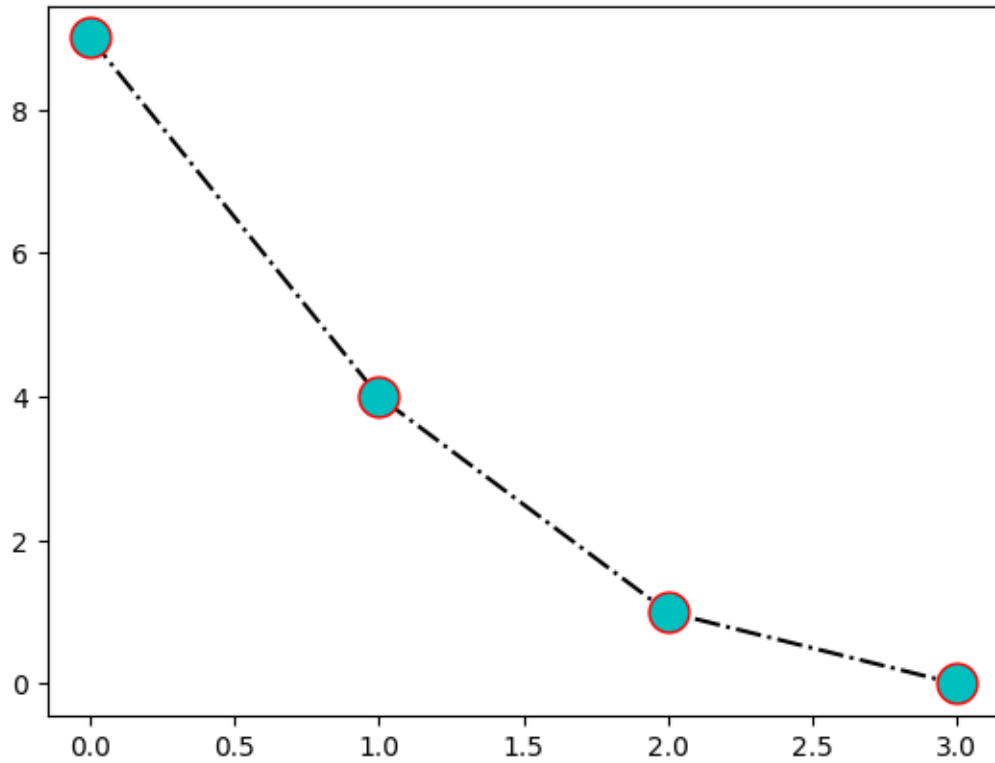
```
[ ]: # Plot With Marker
import matplotlib.pyplot as plt
x_points = [1,2,3,4]
y_points = [1,19,10,16]
plt.plot(x_points,y_points,'o')
# plt.plot(x_points,y_points)
plt.show()
```



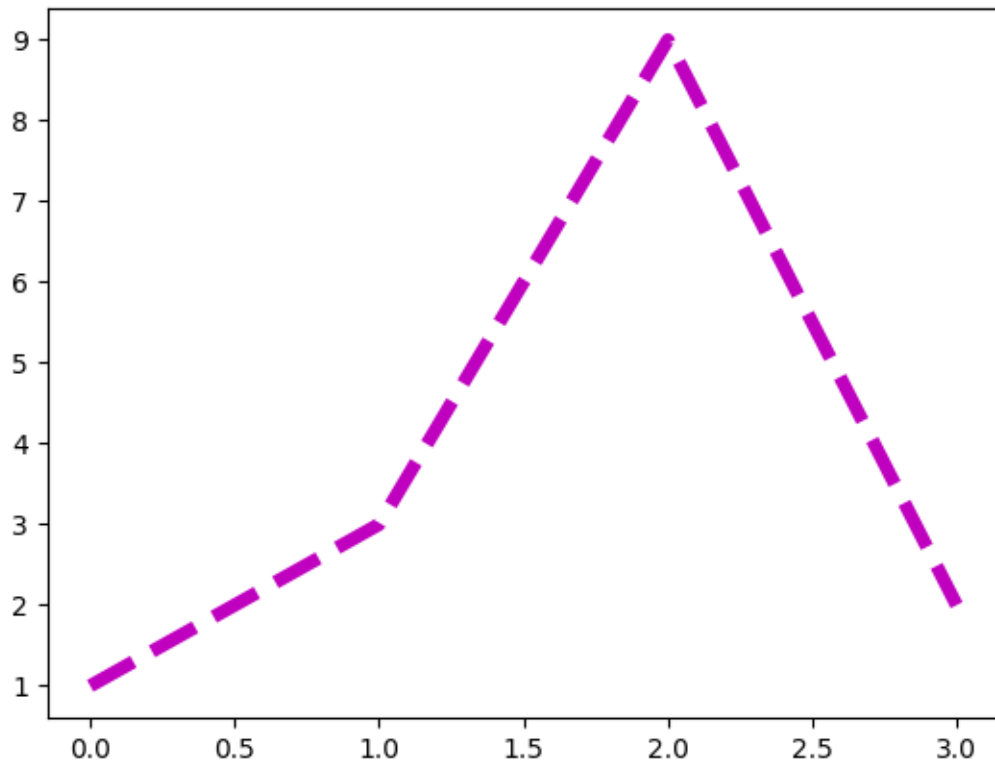
```
[ ]: # Plot With Only Y Axis
import matplotlib.pyplot as plt
y_axis = [9,4,1,0]
plt.plot(y_axis)
plt.show()
```



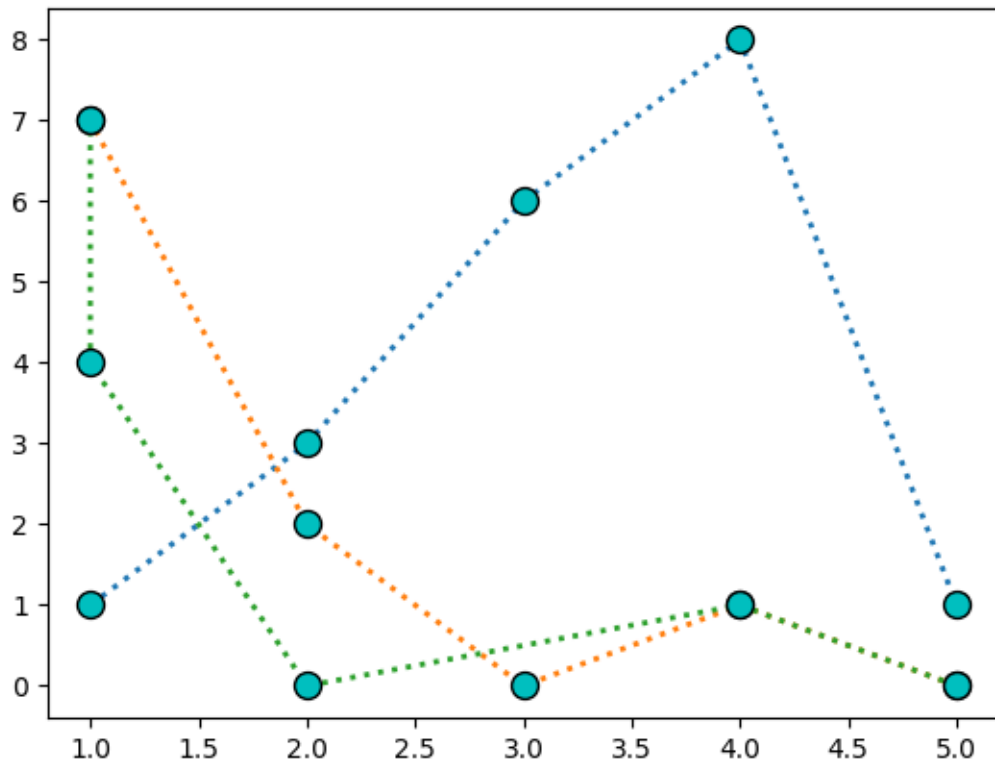
```
[ ]: # Plot With Formatted String
import matplotlib.pyplot as plt
y_axis = [9,4,1,0]
plt.plot(y_axis,"o-.k",ms = 15,mec = "r", mfc = "c")
plt.show()
```



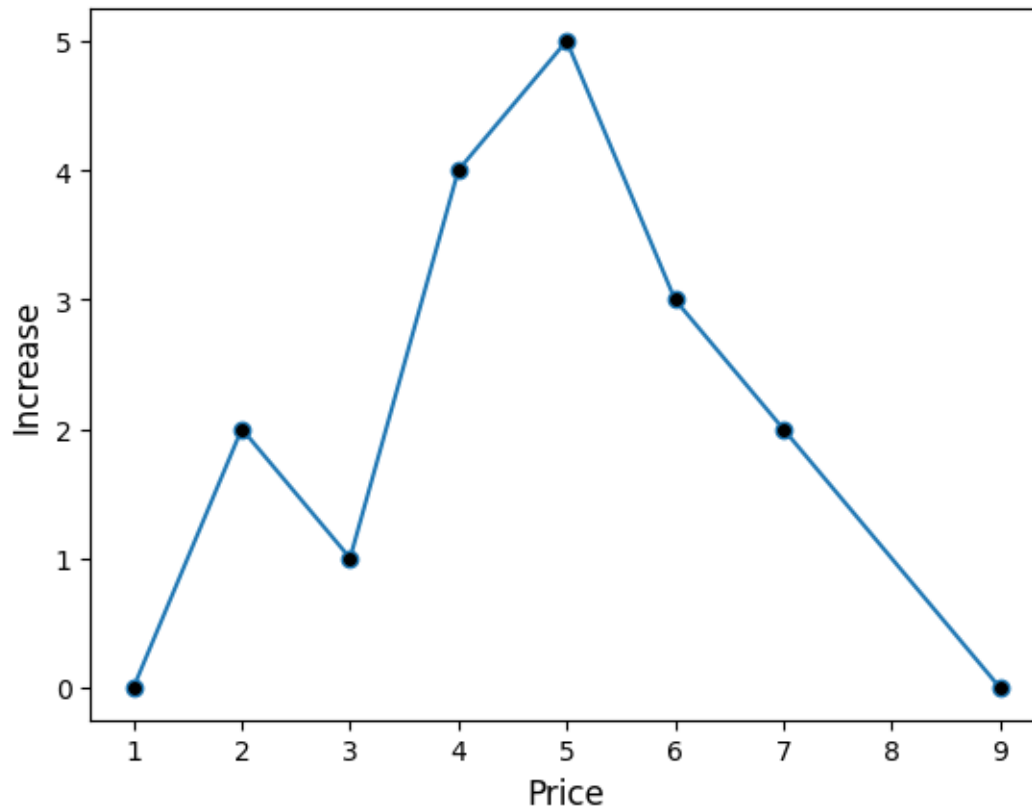
```
[ ]: # Line Style
from matplotlib import pyplot as plt
y_axis = [1,3,9,2]
# plt.plot(y_axis, linestyle = "dotted")
# plt.plot(y_axis, linestyle = ":")
# plt.plot(y_axis, ls = "dashed")
# plt.plot(y_axis, ls = "-.", color = "m")
# plt.plot(y_axis, ls = "--", color = "m", linewidth = 5)
plt.plot(y_axis, ls = "--", color = "m", lw = 5)
plt.show()
```



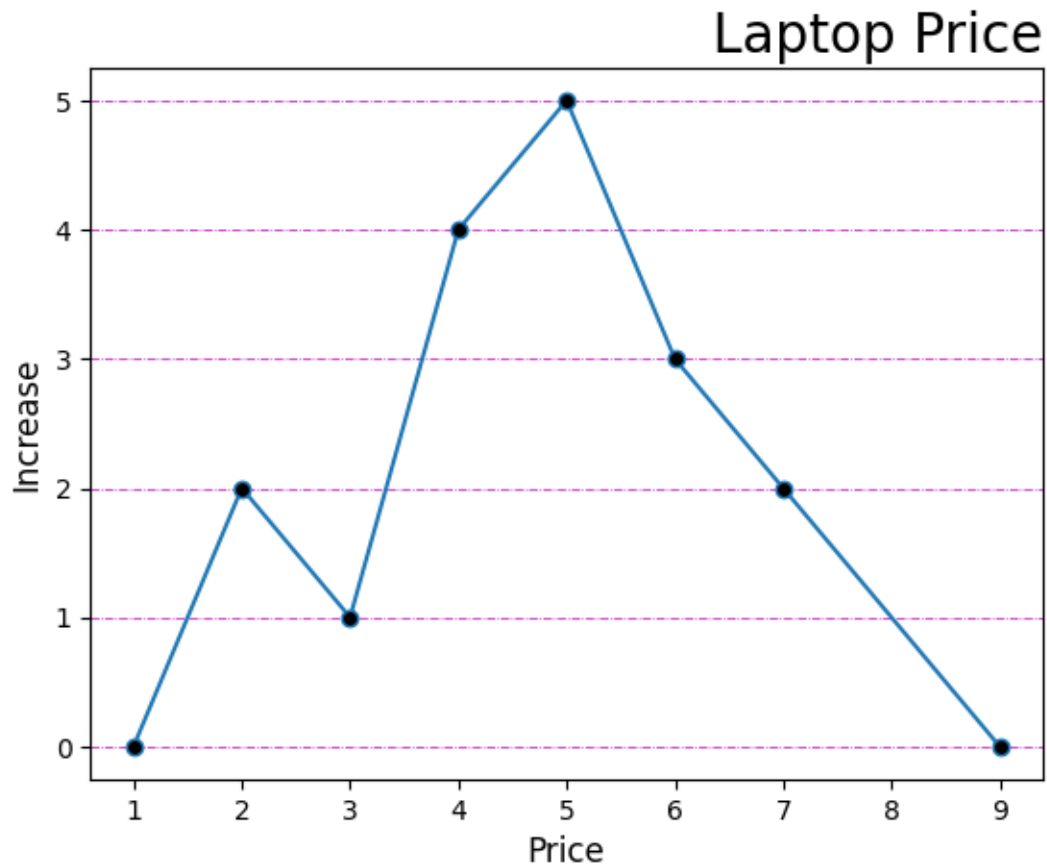
```
[ ]: from matplotlib import pyplot as plt
x1=[1,2,3,4,5]
y1=[1,3,6,8,1]
y2=[0,1,0,2,7]
x2=[5,4,3,2,1]
y3=[0,1,0,4,7]
x3=[5,4,2,1,1]
plt.plot(x1,y1,x2,y2,x3,y3,lw=2,ls=":",marker = "o", markersize = 10,
        mec="k",mfc="c")
plt.show()
```



```
[ ]: # Labels
from matplotlib import pyplot as plt
x1 = [1,2,3,4,5,6,7,9]
y1 = [0,2,1,4,5,3,2,0]
plt.plot(x1,y1,marker="o",mfc="k")
plt.xlabel("Price",fontsize=12)
plt.ylabel("Increase",fontsize=12)
# plt.title("Laptop Price",fontsize=20)
# plt.title("Laptop Price",fontsize=20,loc="right")
plt.show()
```



```
[ ]: # Labels With Grid Lines
from matplotlib import pyplot as plt
x1 =[1,2,3,4,5,6,7,9]
y1 = [0,2,1,4,5,3,2,0]
plt.plot(x1,y1,marker="o",mfc="k")
plt.xlabel("Price",fontsize=12)
plt.ylabel("Increase",fontsize=12)
# plt.title("Laptop Price",fontsize=20)
# plt.title("Laptop Price",fontsize=20,loc="right")
# plt.grid()
# plt.grid(axis="x")
plt.grid(axis="y",linewidth=0.5,color="m",ls="-.")
plt.show()
```



```
[ ]: from matplotlib import pyplot as plt

x1 = [1,2,3,4,5]
y1 = [0,2,5,2,1]
x2 = [1,2,3,4,5]
y2 = [0,2,5,2,1]

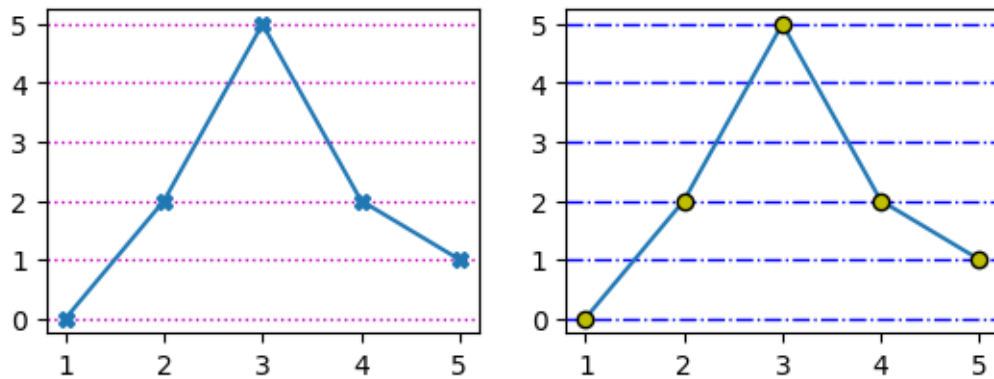
plt.subplot(2,2,1)
plt.plot(x1, y1, marker="X")
plt.grid(axis="y", lw=1, color="m", ls=":")
# plt.title("Sports")

plt.subplot(2,2,2)
plt.plot(x2, y2, marker="o", mec="k", mfc="y")
plt.grid(axis="y", color="b", ls="-.", lw=1)
# plt.title("Swimming")

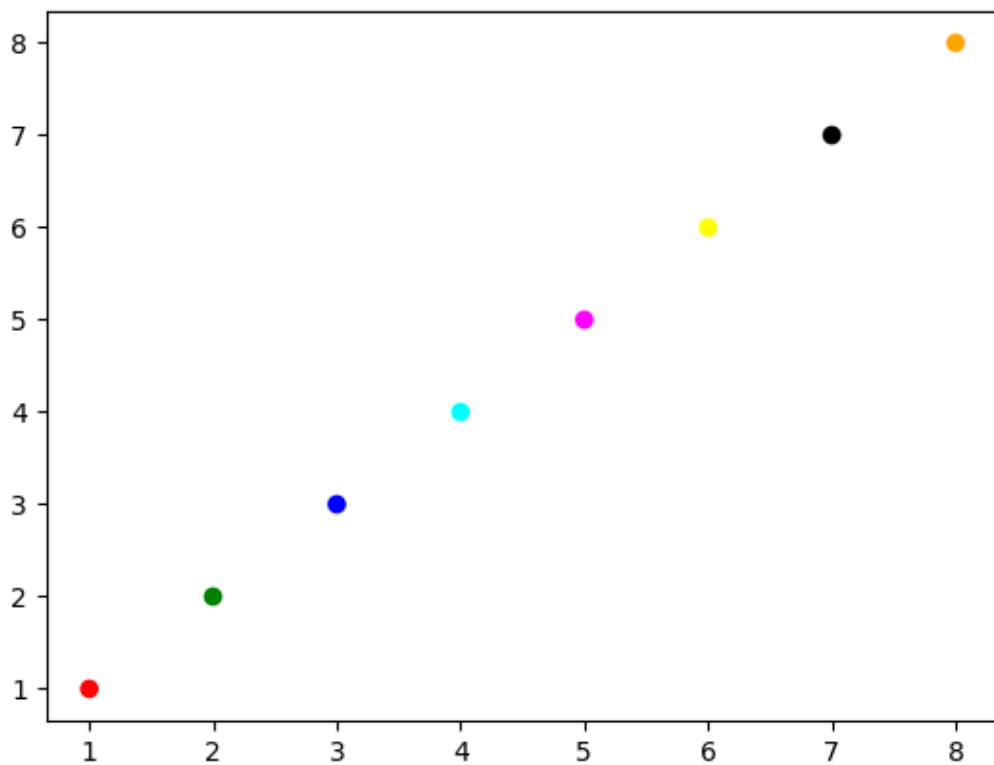
plt.suptitle("Data Sets")
plt.show()
```



## Data Sets



```
[ ]: # Scatter With Coloring Every Point Individually
from matplotlib import pyplot as plt
x = [1,2,3,4,5,6,7,8]
y = [1,2,3,4,5,6,7,8]
co = ["red","green","blue","cyan","magenta","yellow","black","orange"]
plt.scatter(x,y, c = co)
plt.show()
```

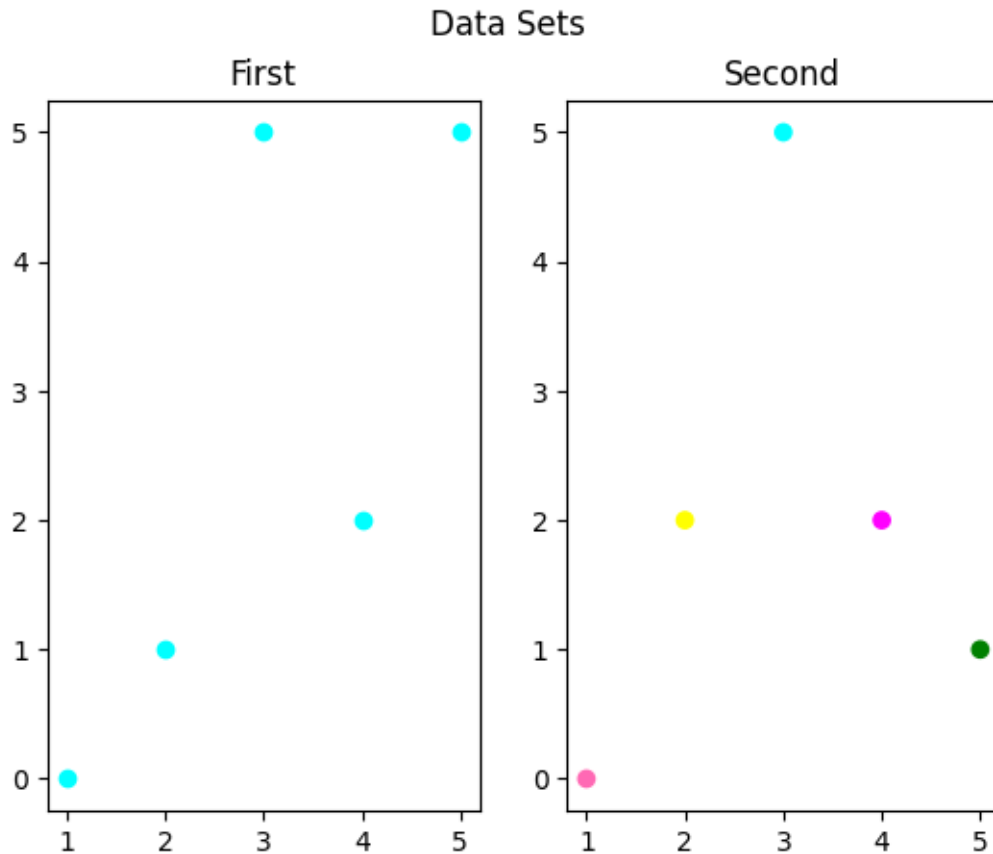


```
[ ]: # Scatter
from matplotlib import pyplot as plt
x1 = [1,2,3,4,5]
y1 = [0,1,5,2,5]
x2 = [1,2,3,4,5]
y2 = [0,2,5,2,1]
color = ["hotpink", "yellow", "cyan", "magenta", "green"]

# First One
plt.subplot(1,2,1)
plt.scatter(x1,y1,c="cyan")
plt.title("First")

# Second One
plt.subplot(1,2,2)
plt.scatter(x2,y2,c=color)
plt.title("Second")

# Final
plt.suptitle("Data Sets")
plt.show()
```



```
[ ]: # Scatter
from matplotlib import pyplot as plt
from random import uniform as U

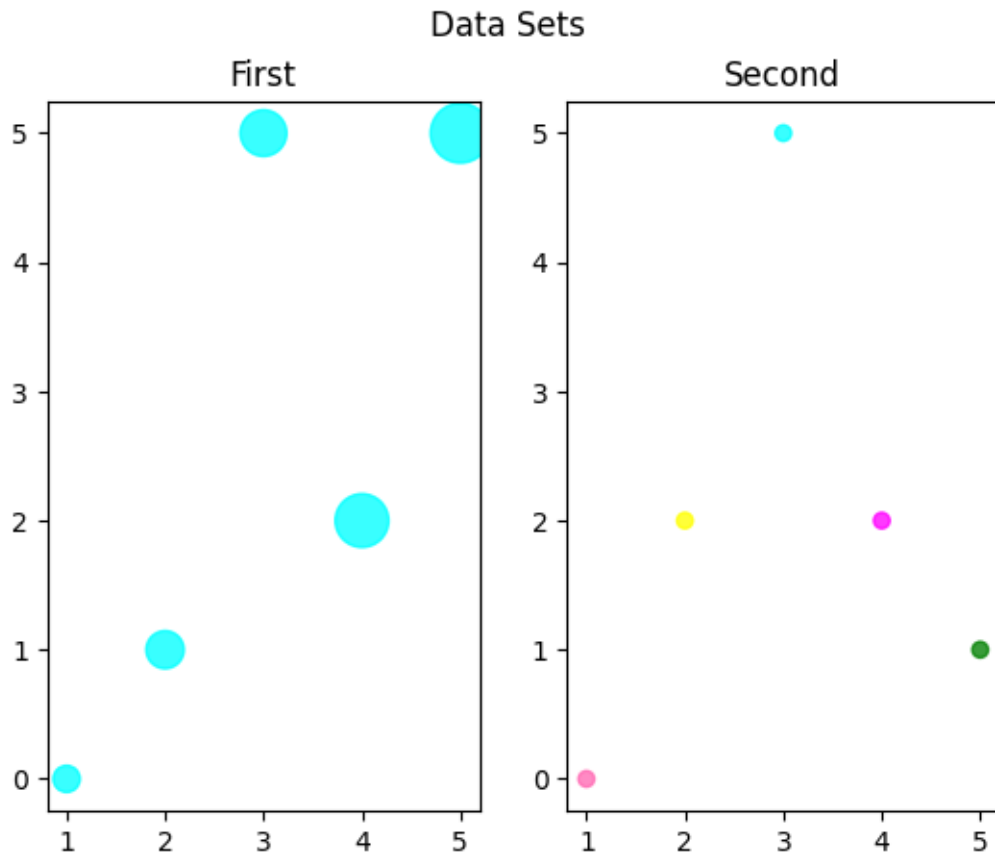
x1 = [1,2,3,4,5]
y1 = [0,1,5,2,5]
x2 = [1,2,3,4,5]
y2 = [0,2,5,2,1]
color = ["hotpink", "yellow", "cyan", "magenta", "green"]
sizes = [100,200,300,400,500]
a = U(0,1)

# First One
plt.subplot(1,2,1)
plt.scatter(x1,y1,c="cyan",s = sizes,alpha = a)
plt.title("First")

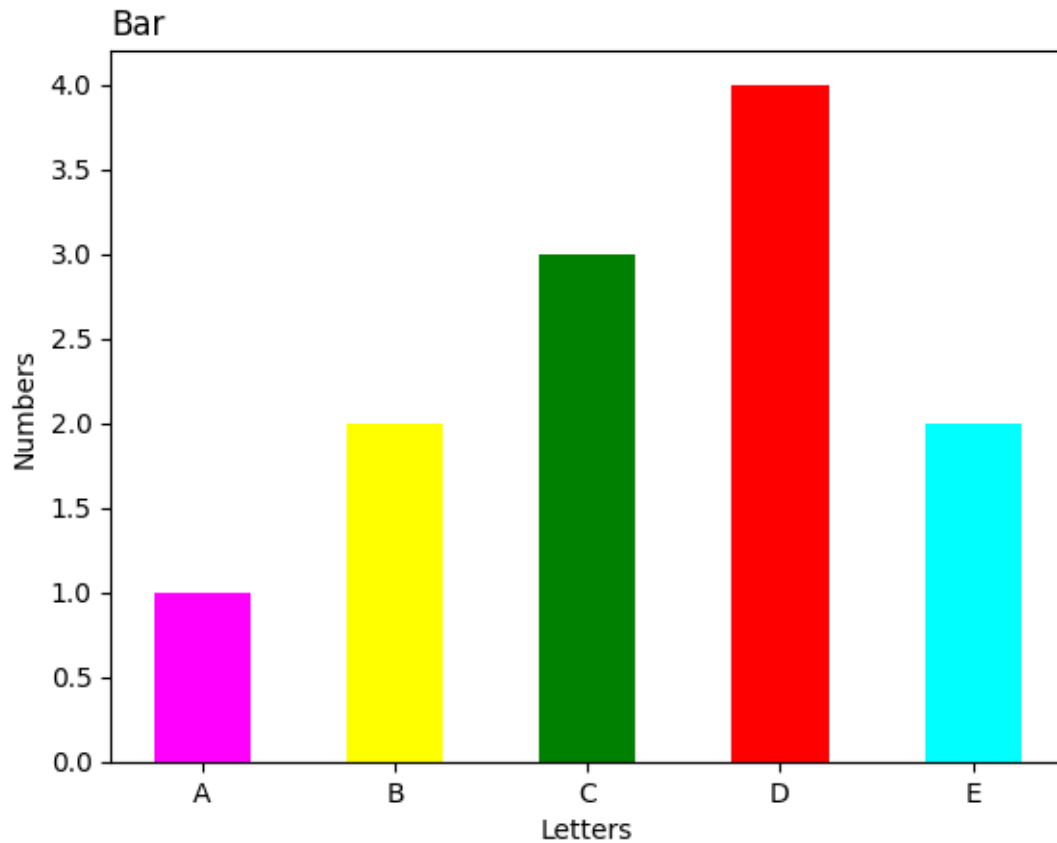
# Second One
plt.subplot(1,2,2)
```

```
plt.scatter(x2,y2,c=color,alpha = a)
plt.title("Second")
```

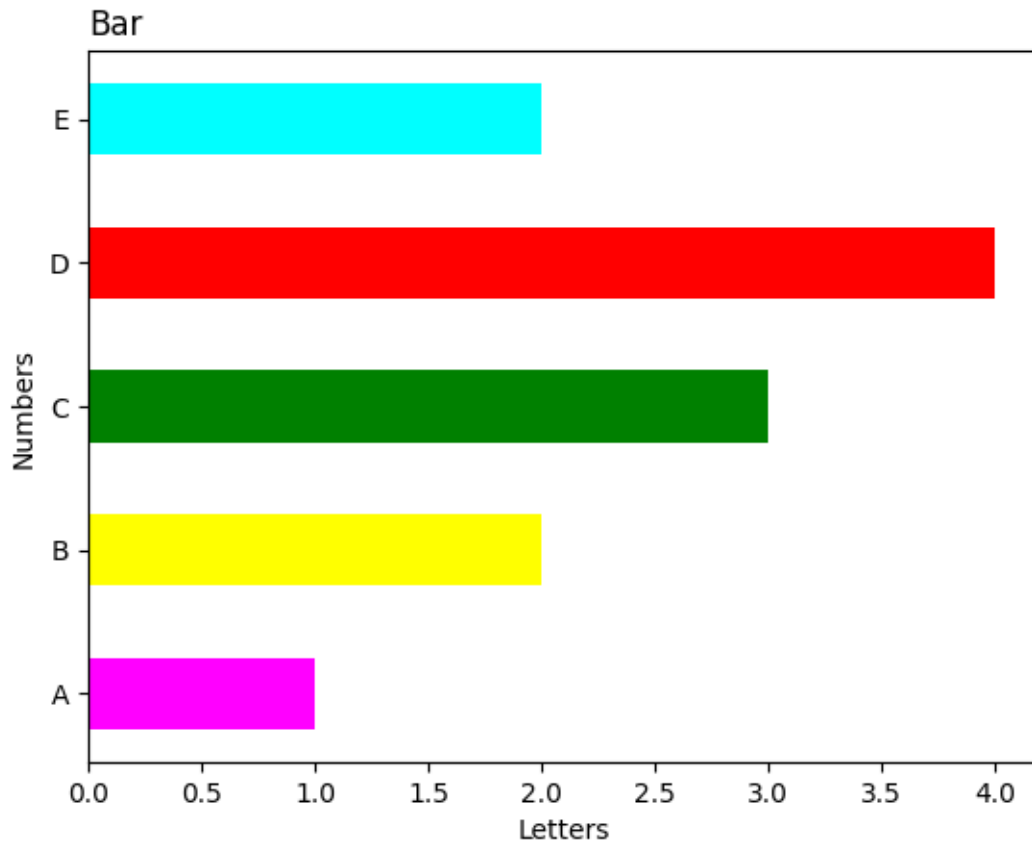
```
# Final
plt.suptitle("Data Sets")
plt.show()
```



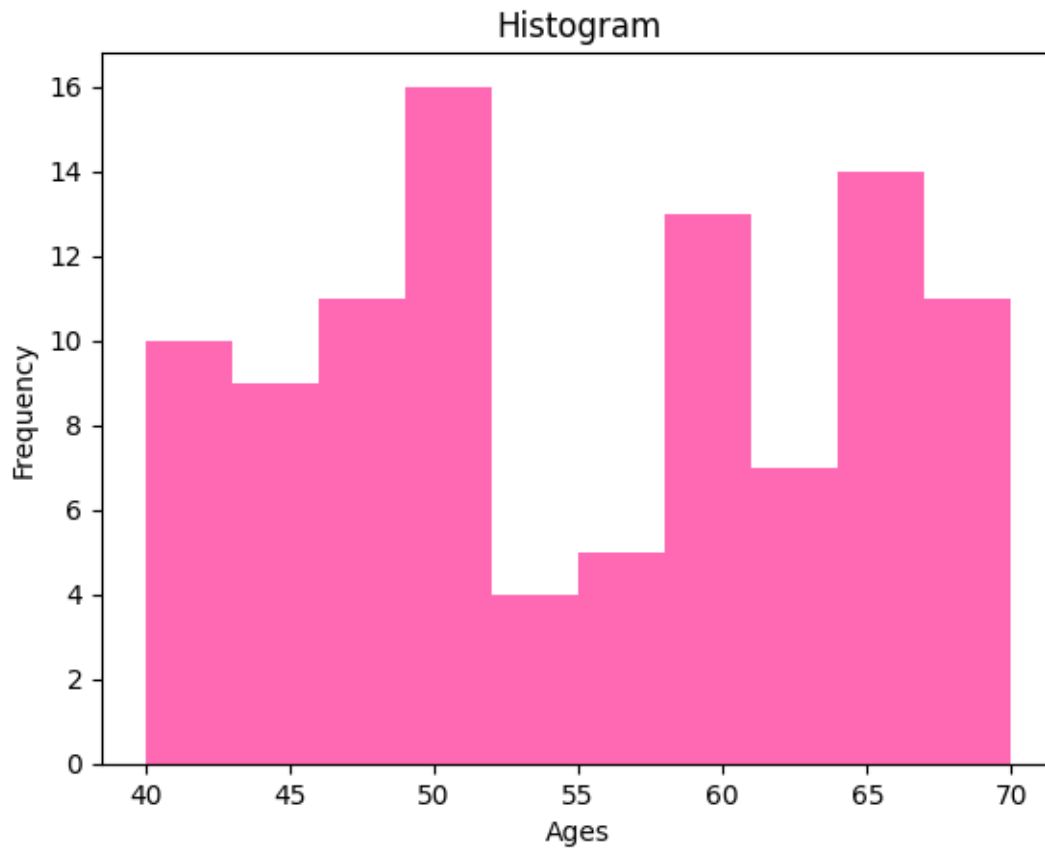
```
[ ]: # Bars
from matplotlib import pyplot as plt
x = ["A","B","C","D","E"]
y = [1,2,3,4,2]
col = ["magenta","yellow","green","red","cyan"]
plt.bar(x,y,color = col,width = 0.5)
plt.title("Bar",loc="left")
plt.xlabel("Letters")
plt.ylabel("Numbers")
plt.show()
```



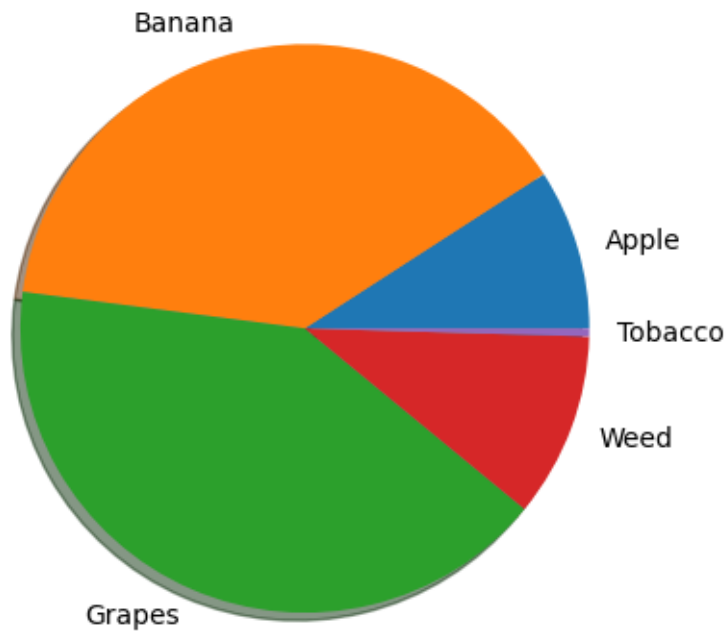
```
[ ]: # Horizontal Bars
from matplotlib import pyplot as plt
x = ["A","B","C","D","E"]
y = [1,2,3,4,2]
col = ["magenta","yellow","green","red","cyan"]
plt.barh(x,y,color = col,height=0.5)
plt.title("Bar",loc="left")
plt.xlabel("Letters")
plt.ylabel("Numbers")
plt.show()
```



```
[ ]: # Histogram
from matplotlib import pyplot as plt
ages = [59, 51, 40, 48, 66, 61, 45, 41, 59, 51, 58, 50, 56, 60, 63, 66, 40, 47, ↵
↵53, 49,
63, 51, 45, 70, 42, 48, 60, 64, 68, 63, 70, 69, 47, 42, 64, 61, 64, 49, 54, 59,
59, 58, 68, 55, 51, 49, 60, 49, 51, 46, 60, 64, 49, 67, 50, 65, 65, 41, 67, 45,
64, 52, 46, 44, 45, 51, 56, 52, 70, 66, 56, 40, 70, 47, 44, 61, 41, 58, 56, 41,
65, 41, 68, 65, 47, 48, 49, 62, 70, 44, 43, 47, 47, 64, 44, 65, 49, 49, 59, 58]
plt.hist(ages,color = "hotpink")
plt.title("Histogram")
plt.xlabel("Ages")
plt.ylabel("Frequency")
plt.show()
```



```
[ ]: # Basic Pie
from matplotlib import pyplot as plt
y = [20,85,90,23,1]
mylabels = ["Apple","Banana","Grapes","Weed","Tobacco"]
# plt.pie(y,labels = mylabels,startangle = 90)
plt.pie(y,labels = mylabels)
plt.show()
```



```
[ ]: # Pie
from matplotlib import pyplot as plt
y = [20,85,90,23,10]
mylabels = ["Apple","Banana","Grapes","Weed","Tobacco"]
myexplode = [0,0.2,0.4,0,0]
mycolors = ["black","blue","cyan","magenta","green"]
plt.pie(y,labels = mylabels,explode=myexplode,shadow = True,colors = mycolors)
plt.legend(title="Fruits")
plt.show()
```



