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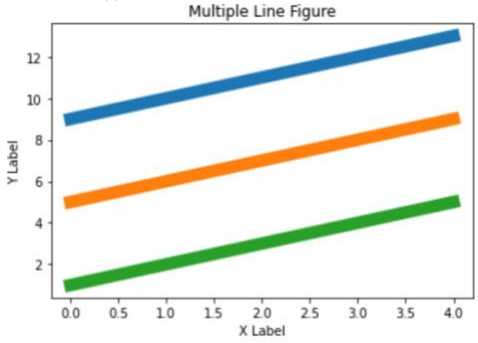
10/21/2021
STAT 1129
HOMEWORK #5

GITHUB LINK:

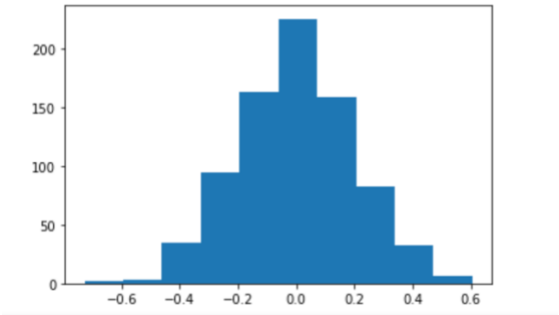
QUESTION 1

In [1]:
```
import matplotlib.pyplot as plt
import numpy as np
x1 = np.array([0,1,2,3,4])
y1 = np.array([9,10,11,12,13])
x2 = np.array([0,1,2,3,4])
y2 = np.array([5,6,7,8,9])
x3 = np.array([0,1,2,3,4])
y3 = np.array([1,2,3,4,5])

plt.plot(x1,y1,x2,y2,x3,y3, linewidth= "10")
plt.title("Multiple Line Figure")
plt.xlabel("X Label")
plt.ylabel("Y Label")
plt.show()
```



QUESTION 2

In [2]:
```
import numpy as np
x=np.random.normal(0,0.2,800)
print(x)
import matplotlib.pyplot as plt
import numpy as np
x=np.random.normal(0,0.2,800)

plt.hist(x)
plt.show()
```

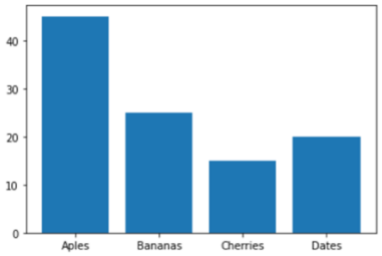


QUESTION 3

In [3]:

```
import matplotlib.pyplot as plt
import numpy as np

fruits=['Apples','Bananas','Cherries','Dates',45,25,15,20]
print(fruits)

y = np.array([45, 25, 15, 20])
mylabels = ["Apples", "Bananas", "Cherries", "Dates"]

plt.pie(y, labels = mylabels)
plt.legend(title = "Four Fruits:")
plt.show()

import matplotlib.pyplot as plt
import numpy as np

x = np.array(["Aples", "Bananas", "Cherries", "Dates"])
y = np.array([45,25,15,20])

plt.bar(x,y)
plt.show()
```

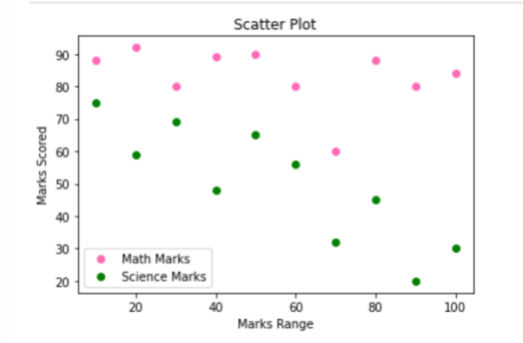
```
['Apples', 'Bananas', 'Cherries', 'Dates', 45, 25, 15, 20]
```



QUESTION 4

In [4]:

```
import matplotlib.pyplot as plt
import numpy as np

x = np.array([10, 20, 30, 40, 50, 60, 70, 80, 90, 100])
y = np.array([88, 92, 80, 89, 90, 80, 60, 88, 80, 84])
plt.scatter(x, y, color = "hotpink", label = "Math Marks")

x = np.array([10, 20, 30, 40, 50, 60, 70, 80, 90, 100])
y = np.array([75, 59, 69, 48, 65, 56, 32, 45, 20, 30])
plt.scatter(x, y, color = 'green', label = "Science Marks")

plt.title("Scatter Plot")
plt.xlabel("Marks Range")
plt.ylabel("Marks Scored")

leg=plt.legend()
plt.show()
```



QUESTION 5

In [5]:

```
import matplotlib.pyplot as plt
import numpy as np

x = np.array([5, 10, 15, 8,7,14,5,7,9,5,12,13])
y = np.array([82,93,100,86,96,108,82,81,78,80,83,99])

plt.subplot(1, 4, 1)
plt.scatter(x, y)
plt.title("Chart #1")

x1 = np.array([0, 1, 2, 3])
y1 = np.array([1, 9, 1, 8])
x2 = np.array([0, 1, 2, 3])
y2 = np.array([5, 2, 6, 11])

plt.subplot(1, 4, 2)
plt.plot(x1,y1,x2,y2)
```

```
plt.title("Chart #2")

x = np.array(["A", "B", "C", "D"])
y = np.array([3, 7, 5, 9])

plt.subplot(1, 4, 3)
plt.bar(x, y, color = "green")
plt.title("Chart #3")

y = np.array([40, 25, 15, 30])
mylabels = ["Bunnies", "Dogs", "Cats", "None"]

plt.subplot(1, 4, 4)
plt.pie(y, labels = mylabels)
plt.title("Chart #4")

plt.show()
```