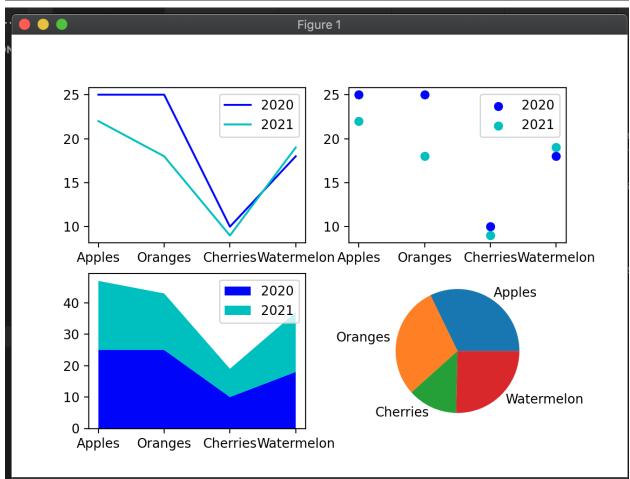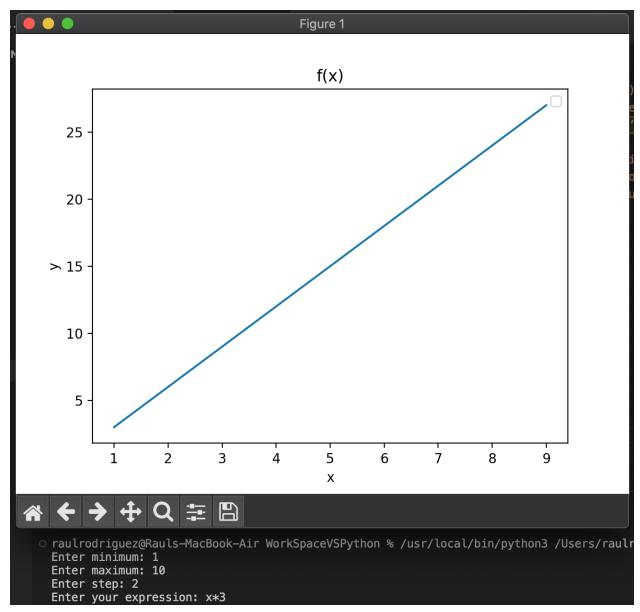Raul Rodriguez

Exercise 1

```python
from matplotlib import pyplot as plt
fruitName = ['Apples', 'Oranges', 'Cherries', 'Watermelon']
fruitQuantity_2020 = [25, 25, 10, 18]
fruitQuantity_2021 = [22, 18, 9, 19]
fruitQuantitysum = [47,43,19,37]
fig, ax=plt.subplots(nrows=2,ncols=2)
ax[0][0].plot(fruitName, fruitQuantity_2020, label="2020", color = 'b')
ax[0][0].plot(fruitName, fruitQuantity_2021, label="2021", color = 'c')
ax[0][0].legend()
ax[0][1].scatter(fruitName, fruitQuantity_2020, label="2020", color = 'b')
ax[0][1].scatter(fruitName, fruitQuantity_2021, label="2021", color = 'c')
ax[0][1].legend()
ax[1][0].stackplot(fruitName, fruitQuantity_2020, fruitQuantity_2021, labels=['2020','2021'], colors=['b','c'])
ax[1][0].legend()
ax[1][1].pie(fruitQuantitysum, labels = fruitName)
plt.show()
```


Exercise 2

```python
from matplotlib import pyplot as plt
import numpy as np
min= int(input("Enter minimum: "))
max= int(input("Enter maximum: "))
step= int(input("Enter step: "))
x = np.arange(min,max,step)
y = eval(input("Enter your expression: "))
plt.plot(x,y)
plt.xlabel("x")
plt.ylabel("y")
plt.title("f(x)")
plt.legend()
plt.show()
```

Exercise 3

```python
7    import numpy as np
8    grades = np.zeros((2,4), dtype=int)
9    arrShape= grades.shape
10   rows=arrShape[0]
11   col=arrShape[1]
12   for r in range(rows):
13       for c in range(col):
14           if r ==0:
15               grades[r][c]= int(input("Enter fall grade: "))
16           else:
17               grades[r][c]= int(input("Enter spring grade: "))
18   print(grades)
19   grades=grades.reshape(4,2)
20   print("reshaped array\n",grades)
21   col1=grades[:,0]
22   col2=grades[:,1]
23   print("1st column",col1)
24   print("2nd column",col2)
```

```
nts/WorkSpaceVSPython/HW6_3.pyraulrodriguez/Docume
● raulrodriguez@Rauls-MacBook-Air WorkSpaceVSPython % /usr/lo
 Enter fall grade: 89
 Enter fall grade: 98
 Enter fall grade: 78
 Enter fall grade: 99
 Enter spring grade: 87
 Enter spring grade: 89
 Enter spring grade: 95
 Enter spring grade: 89
 [[89 98 78 99]
  [87 89 95 89]]
 reshaped array
  [[89 98]
  [78 99]
  [87 89]
  [95 89]]
 1st column [89 78 87 95]
 2nd column [98 99 89 89]
```

Exercise 4

```python
 5    from statistics import fmean
 6    import numpy as np
 7    grades = np.zeros((2,4), dtype=int)
 8    arrShape= grades.shape
 9    rows=arrShape[0]
10    col=arrShape[1]
11    for r in range(rows):
12        for c in range(col):
13            if r ==0:
14                grades[r][c]= int(input("Enter fall grade: "))
15            else:
16                grades[r][c]= int(input("Enter spring grade: "))
17    fall=grades[0,:]
18    spring=grades[1:]
19    print(fall)
20    print(spring)
21    fMin=np.min(fall)
22    fMax=np.max(fall)
23    fMean=np.mean(fall)
24    fStd=np.std(fall)
25    sMin=np.min(spring)
26    sMax=np.max(spring)
27    sMean=np.mean(spring)
28    sStd=np.std(spring)
29    print("Fall min: ",fMin," max: ",fMax," mean: ",fMean," std: ",fStd)
30    print("Spring min: ",sMin," max: ",sMax," mean: ",sMean," std: ",sStd)
```

```
● s/raulrodriguez/Documents/WorkSpaceVSPython/HW6_4.py
 Enter fall grade: 90
 Enter fall grade: 97
 Enter fall grade: 89
 Enter fall grade: 78
 Enter spring grade: 89
 Enter spring grade: 97
 Enter spring grade: 93
 Enter spring grade: 86
 [90 97 89 78]
 [[89 97 93 86]]
 Fall min:  78  max:  97  mean:  88.5  std:  6.800735254367722
 Spring min:  86  max:  97  mean:  91.25  std:  4.14578098794425
○ raulrodriguez@Rauls-MacBook-Air WorkSpaceVSPython % ▎
```