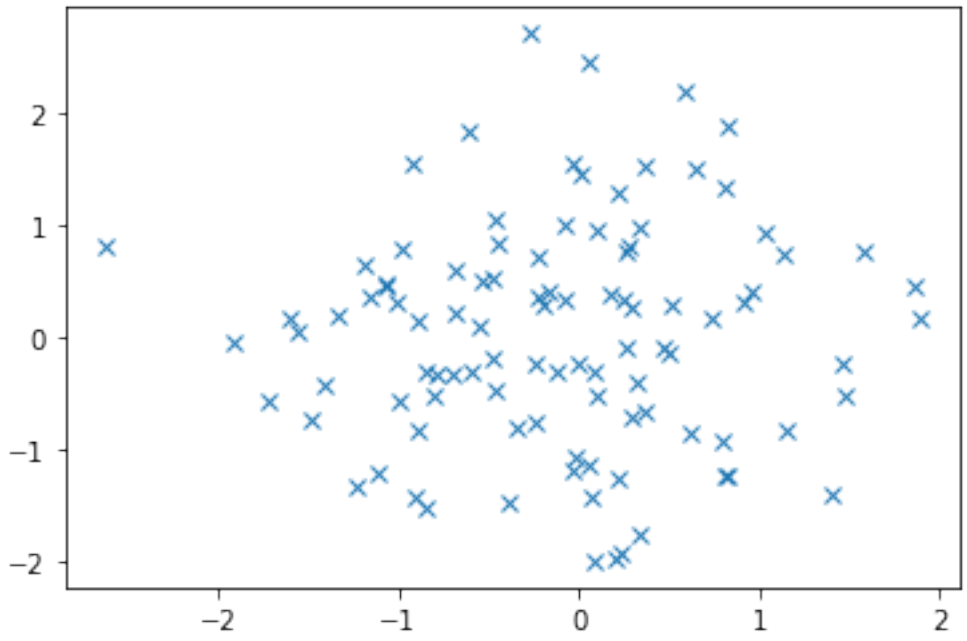
Programming skills

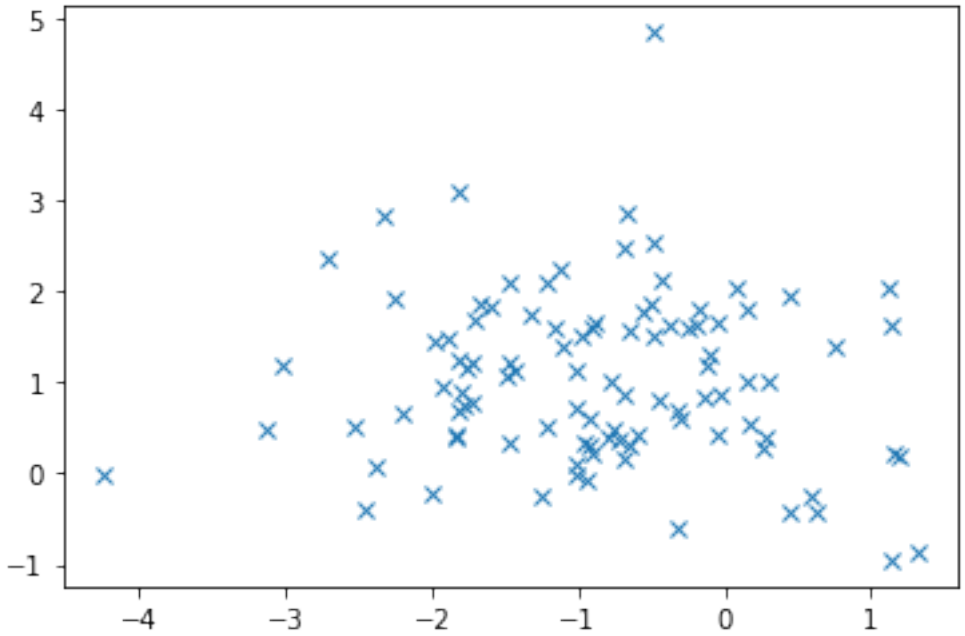
September 10, 2021

[14]:
```
import numpy as np
import matplotlib.pyplot as plt
#for Gaussian using np.random.multivariate_normal().T
#syntax np.random.multivariate_normal(mean,covariance,size).T
#setting seed value for random
np.random.seed(42)
# Answering question1
mean=[0,0]
#given covariance matrix is identity
c=[[1,0],[0,1]]
x,y=np.random.multivariate_normal(mean,c,100).T
plt.plot(x,y,'x')
plt.show()
```

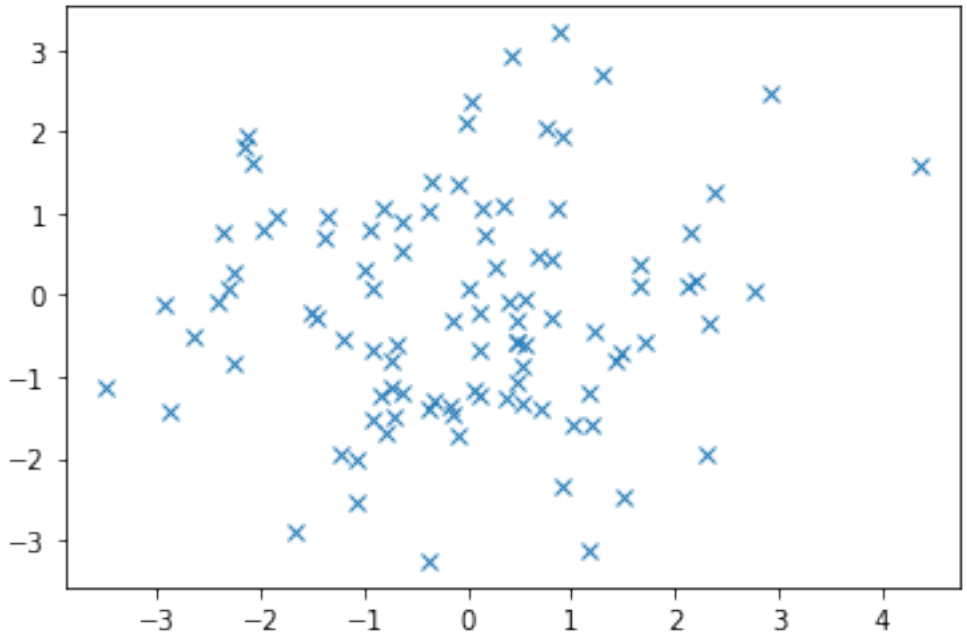


[15]:
```
#answering second qn
#changing mean to [-1,1]
```

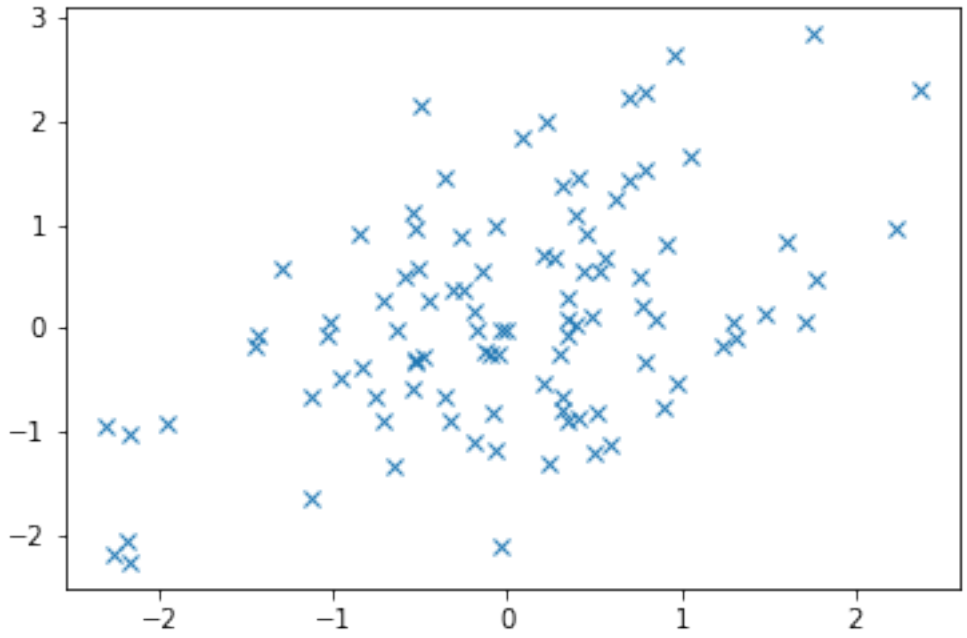
```
mean=[-1,1]
x,y=np.random.multivariate_normal(mean,c,100).T
plt.plot(x,y,'x')
plt.show()
```



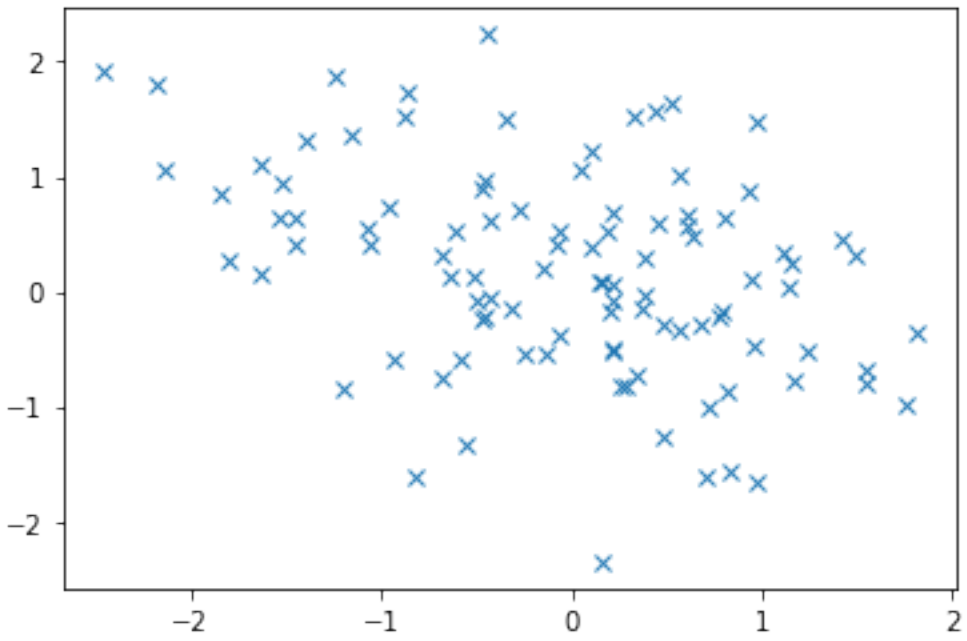
[16]:
```
#answering third qn
#changing mean back to [0,0]
mean=[0,0]
#now we need to double the covariance
c=[[2,0],[0,2]]
x,y=np.random.multivariate_normal(mean,c,100).T
plt.plot(x,y,'x')
plt.show()
```



[17]:
```
#answering fourth qn
#modifying the the covariance matrix
c=[[1,0.5],[0.5,1]]
x,y=np.random.multivariate_normal(mean,c,100).T
plt.plot(x,y,'x')
plt.show()
```



[18]:
```
#answering fifth qn
#modifying the the covariance matrix
c=[[1,-0.5],[-0.5,1]]
x,y=np.random.multivariate_normal(mean,c,100).T
plt.plot(x,y,'x')
plt.show()
```



[ ]: