p7

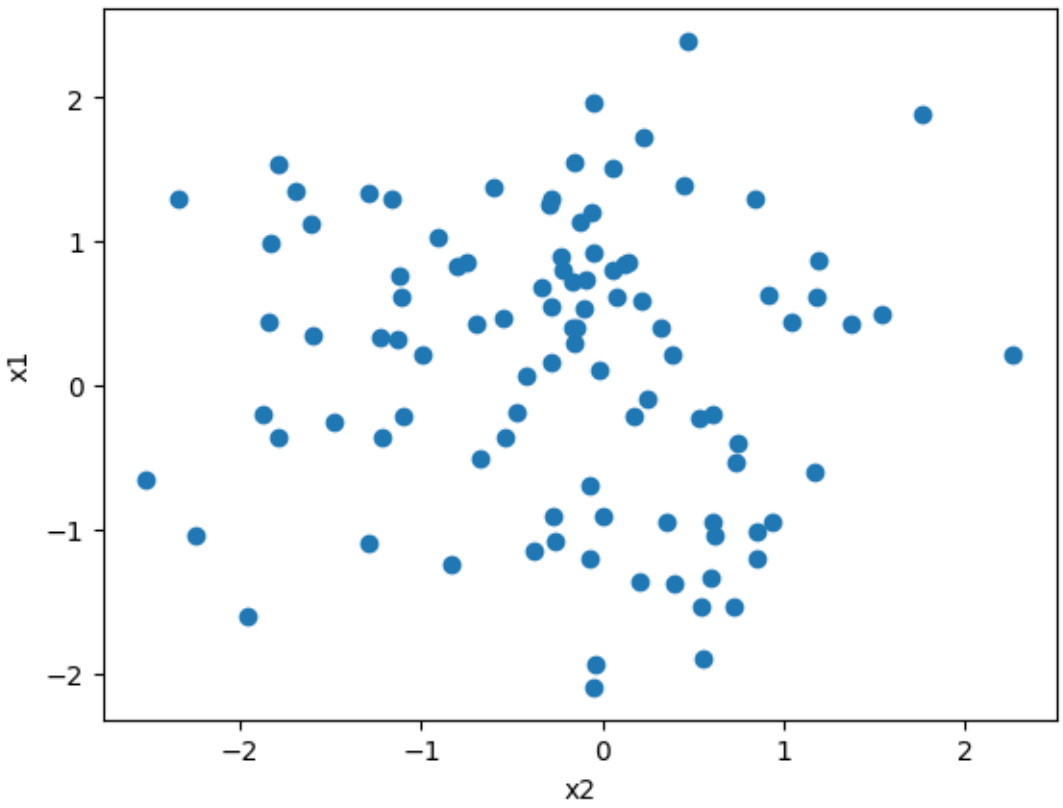
September 2, 2024

1)

[29]:
```
import numpy as np
import matplotlib.pyplot as plt

mean = [0,0]
cov = [[1,0], [0,1]]
x,y = np.random.multivariate_normal(mean, cov, 100).T
plt.scatter(x,y)
plt.ylabel('x1')
plt.xlabel('x2')
```

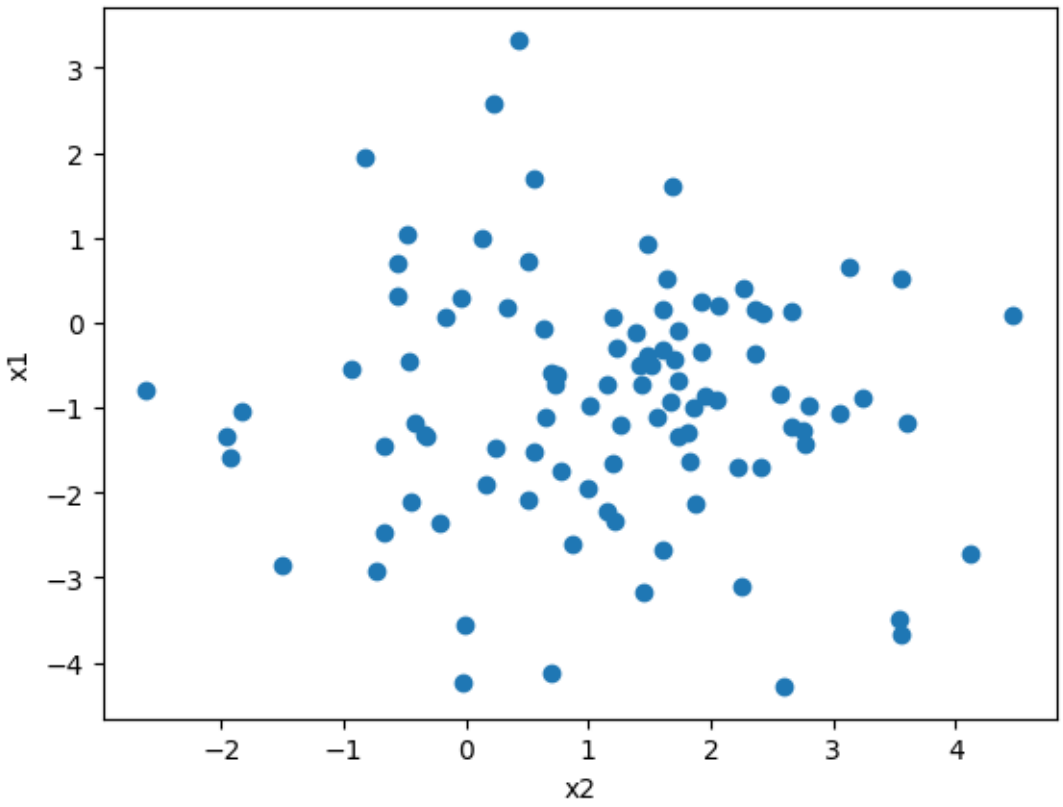
[29]:
```
Text(0.5, 0, 'x2')
```



2)

[30]:
```
cov = [[2,0],[0,2]]
mean = [1,-1]
x,y = np.random.multivariate_normal(mean, cov, 100).T
plt.scatter(x,y)
plt.ylabel('x1')
plt.xlabel('x2')
```

[30]:
```
Text(0.5, 0, 'x2')
```



3.

[31]:
```
m30 = 0.3 * np.random.multivariate_normal([1,0], [[1,0.2],[0.2,1]], 100).T
m70 = 0.7 * np.random.multivariate_normal([-1,0], [[1,-0.2],[-0.2,1]], 100).T
x,y = m30 + m70
plt.scatter(x,y)
plt.ylabel('x1')
plt.xlabel('x2')
```

[31]: Text(0.5, 0, 'x2')