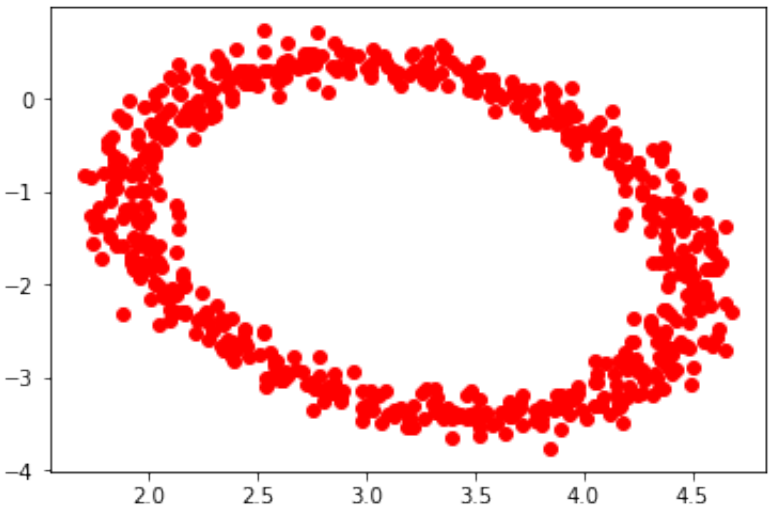
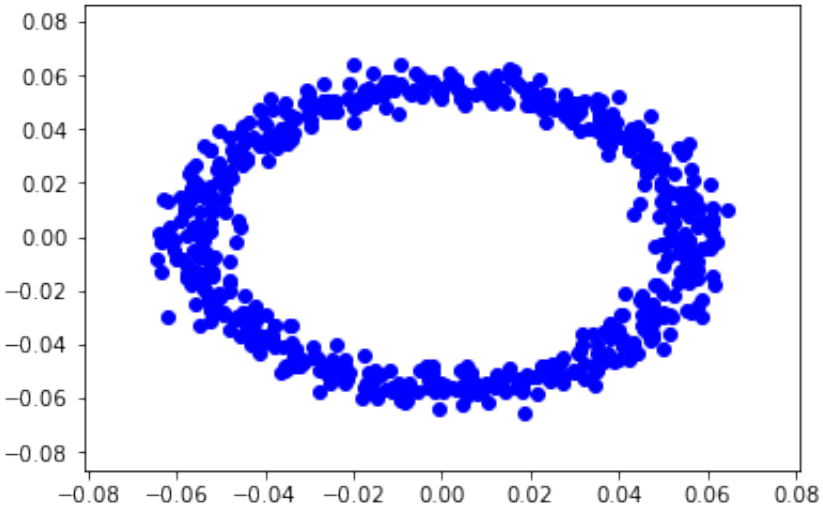
In [6]:
```
#Assignment_1
#Srinidhi Goud Myadaboyina
import numpy as np
import torch
import matplotlib.pyplot as plt
import matplotlib.cm as cm

data = torch.load('assign0_data.py')
data_np=data.numpy()
data_np_a=np.asarray(data_np)
x=data_np_a[:,0].reshape(629,1)
y=data_np_a[:,1].reshape(629,1)
plt.scatter(x, y, color="r")
plt.show()

data_np_a
data_m=np.mean(data_np_a,axis=0)
data_mean=data_m.reshape(1,2)
data_tr=data_np_a-data_mean
U, s, Vt = np.linalg.svd(data_tr, full_matrices=False)
data_white = np.dot(U, Vt)
x=data_white[:,0]
y=data_white[:,1]
plt.scatter(x, y, color="b")
plt.show()

#We have elminated second order dependencies by translating the data p
oints to origin.
#However, since we have only eliminated 2nd order dependencies, the da
ta points are not completely uncorrelated.
#Visually we can see that there are higher order dependencies that are
yet to be elimnated.
#The whitened data cannot be represented by any basis using PCA.
#The best option to transform the points using some basis functions li
ke 'rbf'
```


0
−1
−2
−3
−4
2.0
2.5
3.0
3.5
4.0
4.5


0.08
0.06
0.04
0.02
0.00
−0.02
−0.04
−0.06
−0.08
−0.08
−0.06
−0.04
−0.02
0.00
0.02
0.04
0.06
0.08

In [ ]: