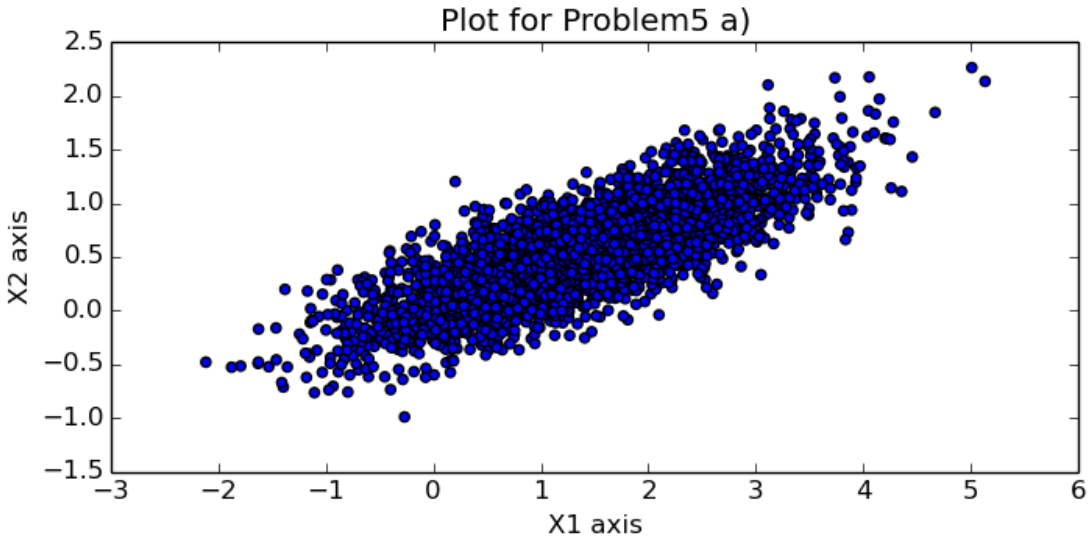
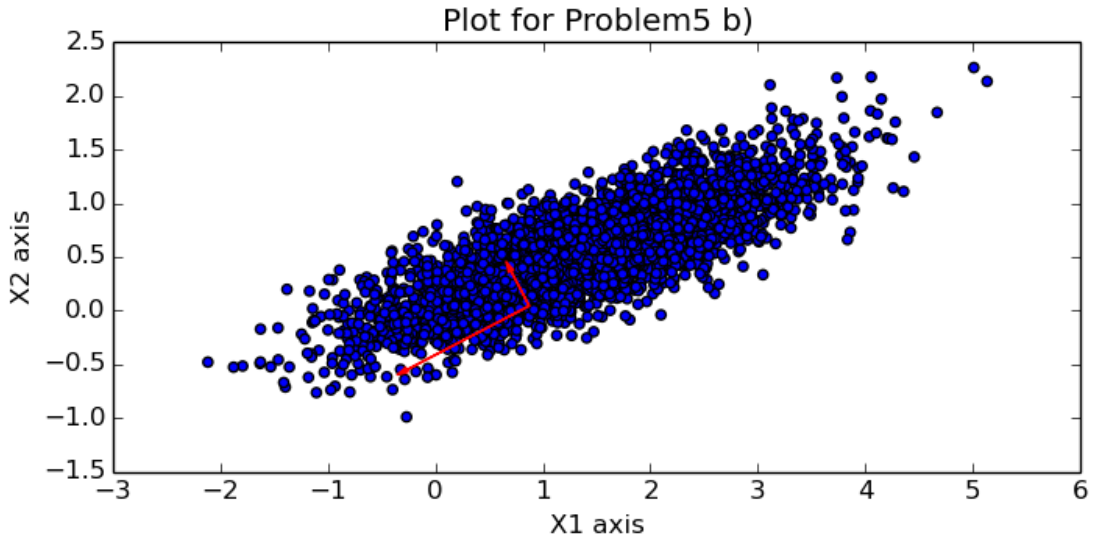
Problem 5: Principal component analysis

a) Check problem5_a.py



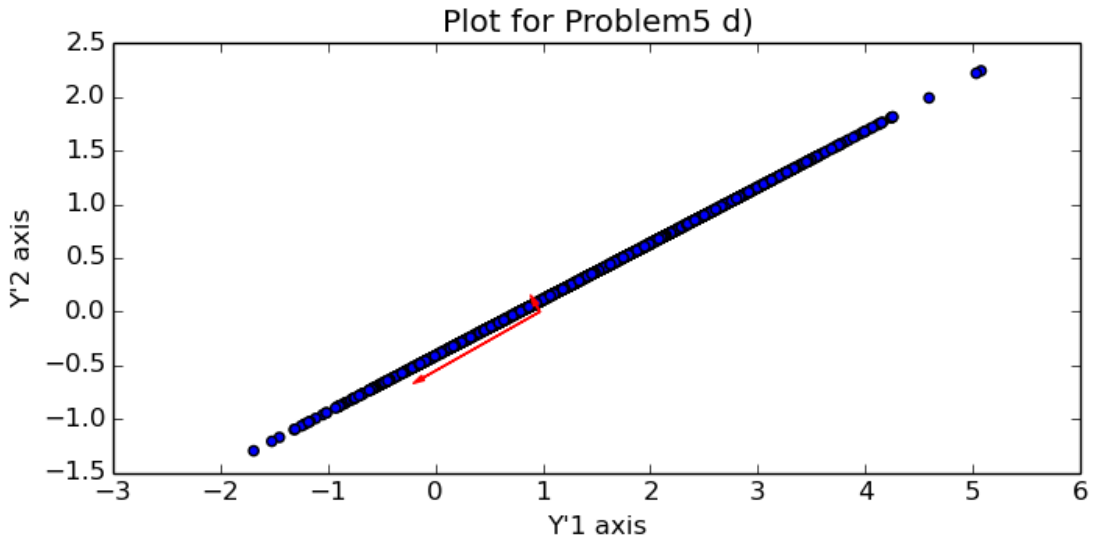
b) Check problem5_b.py



c) Check problem5_c.py

relative error: 4.31142e-16

d) Check problem5_d.py



By this step, the data that contribute to the principal component is displayed and the influence of component from the noise is removed.

It could be very helpful to clean data and also compress the representation of data. Less memory will be needed to store the same amount of “useful” data.