UNIVERSITÄT BERN INFORMATIK	KURS	TYP	BLATT	AUSGABE	
	ME	UA	1	HS 10	

Einführung in die Mustererkennung

Übungsserie 6

1 Aufgabe

Principal Component Analysis (PCA) (Hauptachsentransformation)

Let $\mathbf{X} = (\mathbf{x_1}, \ldots, \mathbf{x_{100}})$ be a set of feature vectors. Each feature vector $\mathbf{x}_i = (x_1, \ldots, x_{17})$ contains 17 features (see file `pcaData.txt`). The range of each feature is not normalized.

a) Transform the 17-dimensional feature space into a 3-dimensional feature space using the transformation steps given in Chapter 8.4

b) Plot the results of the transformation with matlab. Consider the subspace from different angels and project the data onto the x-y-plane, the x-z-plane and the y-z-plane.

c) Make a statement about the possible separability of different classes.

Print the projections from part b) and submit them together with the rest of your solution.