# Practical: Learning Vector Quantization

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# Introduction

In this practical, we applied the Learning Vector Quantization to a data set that is composed of 100 data points in a 2D plane. The training was based on prototypes, with the squared euclidian distance as a reference. The data is divided into two different classes, which are represented in the following graph:
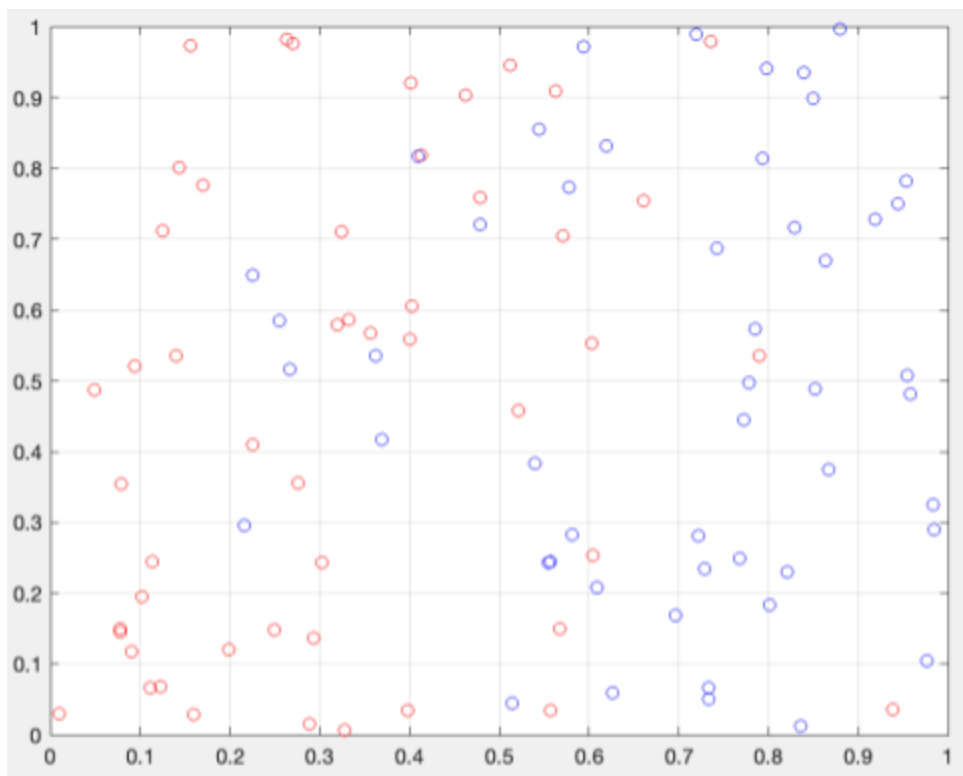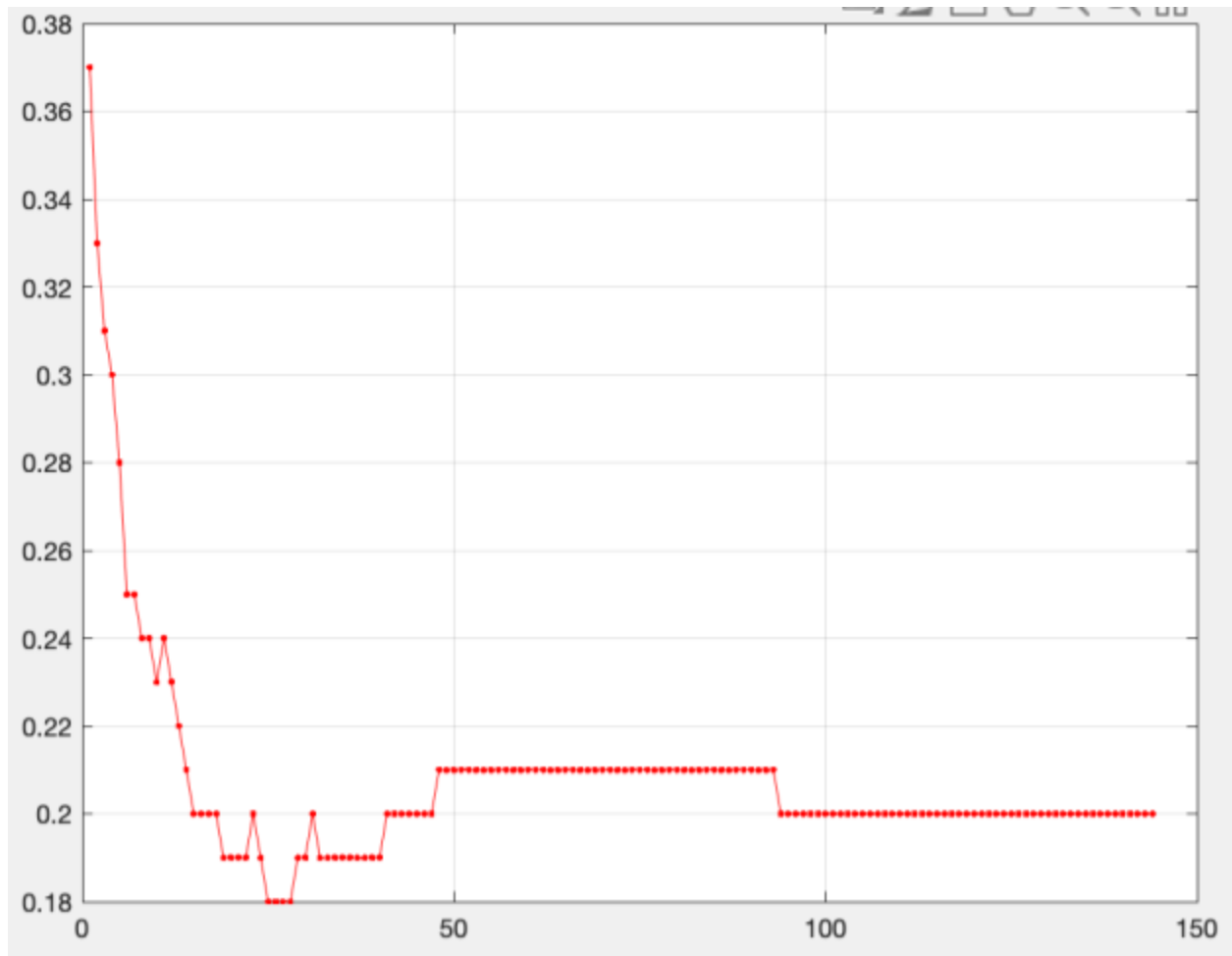


Figure 1: data points with corresponding *class 1* and *class 2*

The prototypes are randomly picked from the data set, with an equal amount of prototypes for each class. During the practical, we experimented with different amounts of prototypes, as well as varying factors for the learning rate and considerations for constant error rates.

# Example Learning Curve

(a)



Figure 2: learning curve for training with two prototypes
X value represents the epoch, y value represents the training error rate
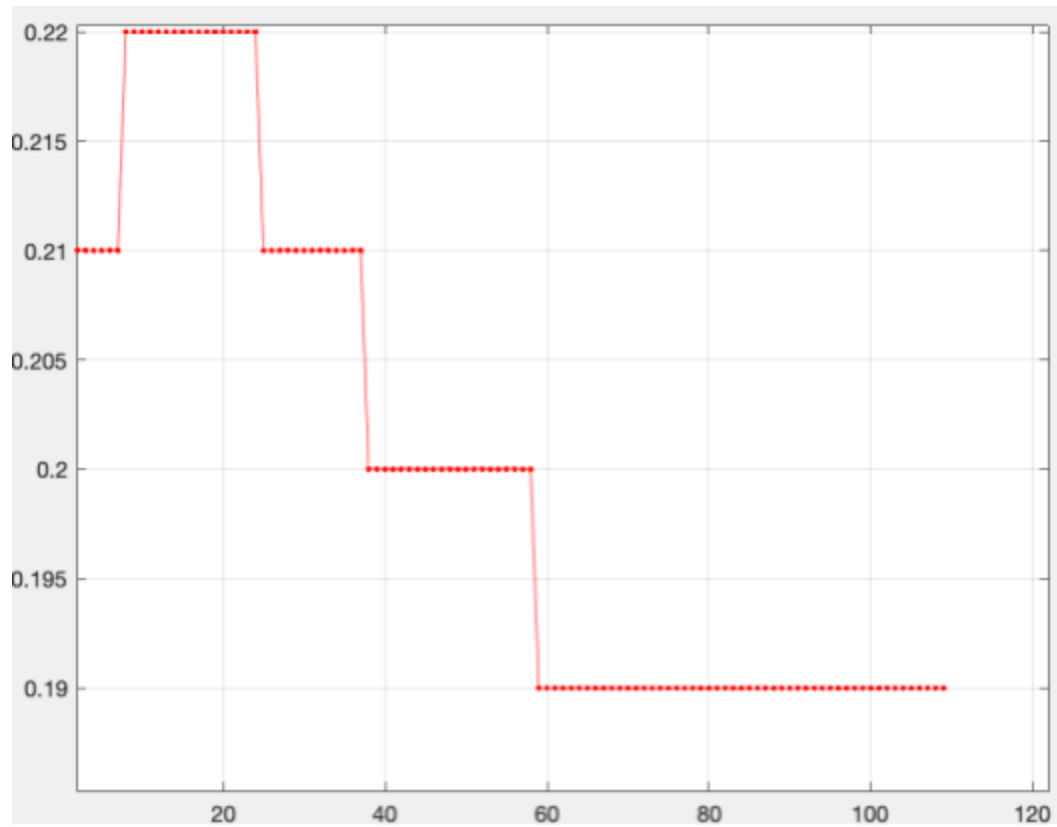
(b)



Figure 3: learning curve for training with four prototypes
X value represents the epoch, y value represents the training error rate