Assignment 2:

Parameter estimation and decoding in HMMs.

You are given a function for generating random samples from an HMM. The function can generate samples from an HMM with discrete valued observations (then E is the emission probability matrix), as well as from an HMM with continuous valued observations (1D-Gaussians then E.mu is a vector of means and E.sigma2 is a vector of variances).

a. Given the observations generated by the HMM write functions that perform the EM algorithm to estimate the parameters. You need to provide different functions for performing smoothing and filtering
b. Given the parameters and a string of observations write a function that performs Viterbi decoding (optional).