Homework 3 Report

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1. ## implementation

   use dynamic programming to try to find out the hidden states.
   for each timestep t,
   for each state s,
   find the most likely previous state coming to state s
   times the emission probability for state s to emit the observation at timestep t
   for the last timestep, find the state with largest probability
   backtrack through the most likely previous state to get decoded hidden state sequence.

2. ## log

   for the probability computation, we could use log functionality to help avoid underflow.
   a * b -> log(a * b) -> log(a) + log(b)
   we don’t have zero value for each probability in this homework, so I didn’t apply smoothing method for avoiding log(0).

3. ## results

   for the input_10.txt
   the log version and non-log version output the same results
   for the input_200.txt
   the log version outputs the same result as the provided output_200.txt, however the non-log version gets larger accuracy (0.64), I think it’s only a coincidence…?