

CS698O: Quiz-4

Name: _____ Roll No.: _____

$$\text{viterbi}(i, c_k) := \max_{y_1, \dots, y_{i-1}} P(Y_1 = y_1, \dots, Y_i = c_k, X_1 = x_1, \dots, X_i = x_i)$$

$$\text{viterbi}(i, c_k) = \left(\max_{c_l} \text{viterbi}(i-1, c_l) \times P(Y_i = c_k \mid Y_{i-1} = c_l) \right) \times P(X_i \mid Y_i = c_k)$$

	STUDY (x_1)	SHOP (x_2)	PLAY (x_3)
SUNNY (c_1)	0.2	0.4	0.4
RAIN (c_2)	0.5	0.4	0.1

	SUNNY (c_1)	RAIN (c_2)
SUNNY (c_1)	0.6	0.4
RAIN (c_2)	0.5	0.5

	SUNNY (c_1)	RAIN (c_2)
START	0.8	0.2

	STOP
SUNNY (c_1)	0.8
RAIN (c_2)	0.2

**What is the most probable state sequence for the observation:
PLAY, STUDY, PLAY**

	SUNNY (c_1)	RAIN (c_2)
viterbi(1, c_l)		
viterbi(2, c_l)		
viterbi(3, c_l)		

MOST PROBABLE STATE SEQUENCE: _____, _____, _____