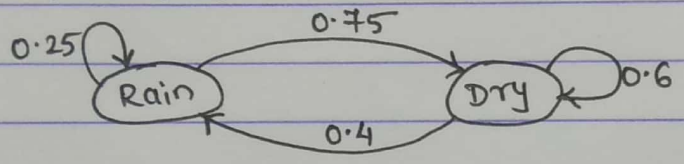
MACHINE LEARNING

UT-2 QUESTION BANK 27/03/20.

1. Write short note on :- Steepest Descent optimization Technique.
2. Minimize the objective function $f(x) = x_1^2 + x_2^2 + 2x_1 + 4x_2 + 60$ using the steepest descent method with the starting point $x_0 = [0\ 0]^T$.
3. Write short note on :- Simplex Downhill Algorithm
4. Compare :- Derivative-based optimization & Derivative-free optimization.
5. Numerical on Naive Baye's classifier.
6. Consider the Markov chain Model for 'Rain' and 'Dry' as shown :-



P(Rain|Rain) = 0.3
P(Dry|Rain) = 0.7
P(Rain|Dry) = 0.45
P(Dry|Dry) = 0.55

P(Rain) = 0.4 P(Dry) = 0.6

Calculate a probability of sequence of states {Dry, Rain, Dry, Rain}

7. Numerical on SVM.
8. S.N. on :- Expectation - Maximization algorithm
9. S.N. on :- Radial Basis Function Network
10. Numerical on PCA
11. S.N. on :- Independent component Analysis
12. Numerical on SVD