AI1103 ASSIGNMENT 3

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Download the python code from

https://github.com/ArunSiddardha/Assignment3/assignment3.py

and latex-tikz code from

https://github.com/ArunSiddardha/Assignment3/Assignment3.tex

1 Problem GATE 1997 CS Q1

The probability that it will rain today is 0.5. The probability that it will rain tomorrow is 0.6. The probability that it will rain either today or tomorrow is 0.7 What is the probability that it will rain today and tomorrow?

2 Solution

let X_0 be an event of raining today, X_1 be an event of raining tomorrow. Given that Probability that it will rain today

$$\Pr(X_0) = 0.5 \tag{2.0.1}$$

Probability that it will rain tomorrow

$$\Pr(X_1) = 0.6 \tag{2.0.2}$$

Probability that it will either today or tomorrow is

$$\Pr(X_0 + X_1) = 0.7 \tag{2.0.3}$$

We have to find the probability that it will rain today and tomorrow which is

$$\Pr(X_0 X_1) \tag{2.0.4}$$

we know that

$$\Pr(X_0 X_1) = \Pr(X_0) + \Pr(X_1) - \Pr(X_0 + X_1) \tag{2.0.5}$$

On Substituting the values in (2.0.5)

$$\Pr(X_0 X_1) = 0.5 + 0.6 - 0.7 = 0.4 \tag{2.0.6}$$

So, therefore the probability that it will rain today and tomorrow is 0.4.