AI1103-Assignment 3

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Download all python codes from

https://github.com/AravindShounik/AI1103/blob/main/Assignment−3/Codes/assignment−3.py

and latex-tikz codes from

https://github.com/AravindShounik/AI1103/blob/main/Assignment−3/assignment−3.tex

Question Gate 2021 (ma) Q.8 (Apti. section)

There are five bags each containing identical sets of ten distinct chocolates. One chocolate is picked from each bag.
The probability that at least two chocolates are identical is

Solution

Let $X \in \{0, 2, 3, 4, 5\}$ represent the random variable, denoting the number of similar chocolates in the picked chocolates
Here X=1 is not present because there can't be one similar object.

$$\Pr(X \geq 2) + \Pr(X = 0) = 1 \tag{0.0.1}$$

$$\Pr(X = 0) = \frac{10.9.8.7.6}{10^5} \tag{0.0.2}$$

$$\Pr(X = 0) = 0.3024 \tag{0.0.3}$$

$$\Pr(X \geq 2) = 1 - \Pr(X = 0) \tag{0.0.4}$$

$$= 1 - 0.3024 \tag{0.0.5}$$

$$= 0.6976 \tag{0.0.6}$$