AI1103-Assignment 4

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Download all python codes from

https://github.com/SHASHANK-1-ALL/AI1103-Assignment-4/blob/main/Assignment4.py

and latex-tikz codes from

https://github.com/SHASHANK-1-ALL/AI1103-Assignment-4/blob/main/Assignment4.tex

Question

A single die is thrown twice. What is the probability that the sum is neither 8 or 9?

(a) $\frac{1}{9}$ (b) $\frac{5}{36}$ (c) $\frac{1}{4}$ (d) $\frac{3}{4}$

Solution

Let $X \in \{0, 1\}$ be the random variable, where X=0 represents that we get sum to be 8 or 9 and X=1 represents that we get sum between 2 and 12 except 8 and 9.

Total number of possible outcomes is :

$$N = {}^{6}C_1 \times {}^{6}C_1 = 36 \tag{0.0.1}$$

Probability that the sum is neither 8 or 9

$$\Pr(X = 1) = 1 - \Pr(X = 0) \tag{0.0.2}$$

Only 9 outcomes are favourable to the occurrence of X=0 .

Probability of getting sum 8 or 9 is :

$$\Pr(X = 0) = \frac{9}{36} = \frac{1}{4} \tag{0.0.3}$$

Substituting value in (0.0.2) , we get

$$\Pr(X = 1) = 1 - \frac{1}{4} = \frac{3}{4} \tag{0.0.4}$$

Hence, the correct option is (d) $\frac{3}{4}$