

AI1103 : Assignment 4

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Download all python codes from

<https://github.com/BokkaRajaRaviKiranReddy/AI1103/tree/main/Assignment4/codes>

and latex codes from

<https://github.com/BokkaRajaRaviKiranReddy/AI1103/blob/main/Assignment4/Assignment4.tex>

Probability in percentage is,

$$= \frac{26}{6^5} \times 100$$

$$= 0.334$$

Option c is correct.

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A six-faced fair dice is rolled five times. The probability (in percentage) of obtaining “ONE” at least four times is

- 1) 33.3
- 2) 3.33
- 3) 0.33
- 4) 0.0033

SOLUTION

Let X be the random variable denoting the number the times “ONE” is obtained when a six-faced die is rolled n-times. X follows binomial distribution.

From binomial Distribution,

$$\Pr(X = k) = {}^nC_k p^k (1 - p)^{n-k} \quad k = 0, 1, \dots, n$$

For this given problem $n = 5$, $p = \frac{1}{6}$ for a six-faced die

The probability (in percentage) of obtaining “ONE” at least four times is $\Pr(X \geq 4) \times 100$

$$\begin{aligned} \Pr(X \geq 4) &= \sum_{k=4}^5 \Pr(X = k) \\ &= \Pr(X = 4) + \Pr(X = 5) \\ &= {}^5C_4 \frac{5}{6^5} + {}^5C_5 \frac{1}{6^5} \\ &= \frac{26}{6^5} \end{aligned}$$

