

Assignment 2

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Download all python codes from

<https://github.com/harshinijangiti/assignment2/blob/main/assignment2/codes/assignment2.py>

and latex-tikz codes from

<https://github.com/harshinijangiti/assignment2/blob/main/assignment2/assignment2.tex>

QUESTION 26

Candidates were asked to come to an interview with 3 pens each. Black, blue, green and red were the permitted pen colours that the candidate could bring. The probability that a candidate comes with all 3 pens having the same colour is

SOLUTION

Let X_i be Random Variable represents a pen

$\{X_1, X_2, X_3\}$ represents 3 pens

Black, blue, green, red colour pens represents

$X_i \in \{0, 1, 2, 3\}$

Probability of all 3 pens having same color=

$$\Rightarrow \frac{\text{No of Outcomes with 3 pens having same colour}}{\text{Total No of outcomes}}$$

$$\Rightarrow \frac{n(\sum_{k=0}^3 X_1 = X_2 = X_3 = k)}{n(\sum_{k=0}^3 X_1 = k) \cdot n(\sum_{k=0}^3 X_2 = k) \cdot n(\sum_{k=0}^3 X_3 = k)} \quad (0.0.1)$$

$$\Rightarrow Pr(X_1 = X_2 = X_3) = \frac{4}{4 \cdot 4 \cdot 4} \quad (0.0.2)$$

$$\Rightarrow 0.06 \quad (0.0.3)$$