

Assignment

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Question : A single letter is selected at random from the word 'PROBABILITY'. The probability that it is a vowel is

Solution: Let X be an bernoulli rv defined as in Table I,

RV	Value	Description
X	0	Selection of non-vowels
	1	Selection of vowels

TABLE I
RANDOM VARIABLE X DECLARATION.

Where, The probabilities are as follows:

$$p_X(k) = \begin{cases} \frac{7}{11} & k = 0 \\ \frac{4}{11} & k = 1 \end{cases} \quad (1)$$

From (1), The probability that the selected letter is a vowel is given by:

$$p_X(1) = \frac{4}{11} \quad (2)$$

Therefore, the probability that the selected letter is a vowel is $\frac{4}{11}$.