

11.16.3.17.1

EE24BTECH11015 - Dhawal

Question:

$P(A) = 0.42$. Find $P(A^c)$

Theoretical Solution:

$$P(A^c) = 1 - P(A) \quad (1)$$

$$P(A^c) = 0.58 \quad (2)$$

Computational Solution:

Using Bernoulli Distribution.

$$A \Rightarrow 1 \quad A^c \Rightarrow 0 \quad (3)$$

The PMF represents the probability of each outcome in the sample space S . For this

$$S = [0, 1],$$

the PMF is given as:

$$P(X = n) = \begin{cases} 0.42 & n = 1, \\ 0.58 & n = 0, \\ 0 & n \notin S. \end{cases} \quad (4)$$

Simulation Process

Using random function 1000 times obtain 0 or 1, where $P(1) = 0.42$

$$P(A) = \frac{\text{Number of 1}}{1000} \quad (5)$$

$$P(A^c) = \frac{\text{Number of 0}}{1000} \quad (6)$$

Final Solution

We get,

$$P(A) = 0.4238 \quad (7)$$

$$P(A^c) = 0.5762 \quad (8)$$

