Assignment 4

Chirag Mehta - AI20BTECH11006

Download all python codes from

https://github.com/cmapsi/AI1103−Probability−and−random−variables/tree/main/Assignment−4/codes

and latex-tikz codes from

https://github.com/cmapsi/AI1103−Probability−and−random−variables/blob/main/Assignment−4/main.tex

1 Problem

(GATE 2020-IN Q.no 16) A player throws a ball at a basket kept at a distance. The probability that the ball falls into the basket in a single attempt is 0.1. The player attempts to throw the ball twice. Considering each attempt to be independent, the probability that this player puts the ball into the basket only in the second attempt is.....

2 solution

Let $X \in \mathbb{N}$ represent the number of times the experiment is performed.
$X = k$ represents $k-1$ failures were obtained before getting 1 success. p represents the probability of success

$$p_X(k) = \begin{cases} (1-p)^{k-1} \times p & k \in \mathbb{N} \\ 0 & otherwise \end{cases} \tag{2.0.1}$$

Using (2.0.1) we get

$$\begin{aligned} \Pr(X = 2) &= (1-p)^{k-1} \times p \\ &= (0.9) \times 0.1 = 0.09 \end{aligned} \tag{2.0.2}$$

The graph in given below