AI1103-Assignment 3

Name: Asish sashank reddy, Roll Number: CS20BTECH11010

Download all python codes from

https://github.com/asishcs2011010/demo/blob/main/assignment−3/assignment−3.py

and latex-tikz codes from

https://github.com/asishcs2011010/demo/blob/main/assignment−3/assignment−3(1).tex

QUESTION NO

GATE 2019 (IN), Q.3 (IN Engg. section)

Question

A box has 8 red balls and 8 green balls . Two balls are drawn randomly in succession from the box without replacement. The probability that the first ball drawn is red and the second ball drawn is green is

A) 4/15 (C) 7/16

(B) 1/2 (D) 8/15

Solution

Given, 2 balls are drawn without replacement in quick succession

Let A be the event of getting red ball on the first draw

and B be the event of getting green ball on the second draw

$$\Pr(A) = \frac{\text{no of red balls in box}}{\text{total no of balls in box}} \tag{0.0.1}$$

$$\Pr(A) = \frac{8}{16} \tag{0.0.2}$$

The probability of drawing green ball after it is given that the first ball drawn is red = Pr(B|A)

$$\Pr(B|A) = \frac{\text{no of green balls in box}}{\text{total no of remaining balls in box}} \tag{0.0.3}$$

$$\Pr(B|A) = \frac{8}{15} \tag{0.0.4}$$

the probability that the first ball is red and second ball drawn is green is = Pr(A∩B)

Pr(A∩B) = Pr(B|A)×$Pr(A)$

$\Pr(A \cap B)$ =(8/15)×(8/16) = (4/15)