Assignment3

CS20Btech11035 -NYALAPOGULA MANASWINI

Download python code from

Download latex code from

Probability	value
$\Pr(W = 1)$	$\frac{1}{3}$
$\Pr(B = 1)$	$\frac{2}{3}$
$\Pr(C = 1\|W = 1)$	$\frac{6}{9}$
$\Pr(C = 1\|B = 1)$	$\frac{5}{9}$

TABLE 0: Table 2

GATE XE-C QUESTION 17

Box-S has 2 white and 4 black balls and box-T has 5 white and 3 black balls.A ball is drawn at random from box-S and put in box-T.Subsequently,the probability of drawing a white ball from box-T is? (rounding off to 2 decimal places)

SOLUTION

Box-0 has 2 white and 4 black balls.
Box-1 has 5 white and 3 black balls.

Event	definition
W	Event of transfering white balls from box-0 to box-1
B	Event of transfering black balls from box-0 to box-1
C	Event of drawing white balls from box-1
$\Pr(W = 1)$	Probability of transfering one whiteball from box-0 to box-1
$\Pr(B = 1)$	Probability of transfering one blackball from box-0 to box-1
$\Pr(C = 1\|W = 1)$	Probability of drawing a whiteball from box-1 after transfering white ball to box-1.
$\Pr(C = 1\|B = 1)$	Probability of drawing a whiteball from box-1 after transfering black ball to box-1.

TABLE 0: Table 1

$$\Pr(\text{drawn ball is white}) = \Pr(C = 1) \quad (0.0.1)$$
$$(0.0.2)$$

From Baye's theorem

$$\Pr(C = 1) = \Pr(C = 1|W = 1) \times$$
$$\Pr(W = 1)$$
$$+ \Pr(C = 1|B = 1) \times \Pr(B = 1) \quad (0.0.3)$$

Substiting values from table (0) in (0.0.3)

$$\Pr(C = 1) = \frac{6}{9} \times \frac{1}{3} + \frac{5}{9} \times \frac{2}{3} \quad (0.0.4)$$
$$= \frac{16}{27} \quad (0.0.5)$$

$\therefore$ Probability of drawing white ball from box-1 = $\Pr(C = 1) = \frac{16}{27} = 0.59$

P.T.O

(Theoretrical)probability of drawn ball(from bag T)

(Simulation)probability of drawn ball(from bag T)