AI1103-Assignment 1

Name: Vikhyath Sai Kothamasu, Roll Number: CS20BTECH11056

Download all python codes from

https://github.com/Vikhyath-vec/AI1103/tree/main/Assignment-1/codes

and latex-tikz codes from

https://github.com/Vikhyath-vec/AI1103/blob/main/Assignment-1/Assignment-1.tex

Question

A box contains 5 red marbles, 8 white marbles, and 4 green marbles. One marble is taken out of the box at random. What is the probability that the marble taken out will be

1) red?
2) white?
3) not green?

Solution

total number of marbles = 5 + 8 + 4 = 17 marbles

1) Probability that the marble taken out will be red = P(red)

$$P(red) = \frac{\text{number of red marbles}}{\text{total number of marbles}} \quad (0.0.1)$$

$$P(red) = \frac{5}{17} = 0.294117647 \quad (0.0.2)$$

2) Probability that the marble taken out will be white = P(white)

$$P(white) = \frac{\text{number of white marbles}}{\text{total number of marbles}} \quad (0.0.3)$$

$$P(white) = \frac{8}{17} = 0.4705882353 \quad (0.0.4)$$

3) Probability that the marble taken out will not be green = P(not green)
P(not green) + P(green) = 1 (since complementary events are mutually exclusive)
$\implies$ P(not green) = 1 - P(green)

$$P(green) = \frac{\text{number of green marbles}}{\text{total number of marbles}} \quad (0.0.5)$$

$$P(green) = \frac{4}{17} = 0.235294117 \quad (0.0.6)$$

$$\implies P(\text{not green}) = 1 - 0.235294117 = 0.764705883 \quad (0.0.7)$$