

Assignment 1

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Download all python codes from

<https://github.com/diya-goyal-29/AI1103/tree/main/Assignement\%201/Code>

and latex - tikz codes from

<https://github.com/diya-goyal-29/AI1103/blob/main/Assignment%201/Assignment%201.tex>

Question 1.19 :

Harpreet tosses two different coins simultaneously (say, one is of rupee 1 and other of rupees 2). What is the probability that she gets at least one head?

Solution :

Total number of coins = $n = 2$

The total no. of outcomes = 4

Let p = probability of head = $\frac{1}{2}$

q = probability of tail = $\frac{1}{2}$

X = number of heads

Probability of at least one head

$$= Pr(X = 1) + Pr(X = 2) \quad (1)$$

$$= {}^2C_1 \times p \times q + {}^2C_2 \times p^2 \quad (2)$$

$$= {}^2C_1 \left[\frac{1}{2} \right] \left[\frac{1}{2} \right] + {}^2C_2 \left[\frac{1}{2} \right]^2 \quad (3)$$

$$= 2 \times \frac{1}{4} + \frac{1}{4} \quad (4)$$

$$= \frac{3}{4} \quad (5)$$

$$= 0.75 \quad (6)$$