

# 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 :

The total no. of outcomes = 4

{HH, HT, TH, TT}

Let  $X$  and  $Y \in \{0, 1\}$  represent the random variable where, 0 represents head and 1 represents tail.

Probability of at least one head

$$\begin{aligned}
 &= P(X = 0, Y = 0) \\
 &+ P(X = 0, Y = 1) \\
 &+ P(X = 1, Y = 0) \\
 &= 1 - P(X = 1, Y = 1) \\
 &= 1 - \frac{1}{2} \times \frac{1}{2} \\
 &= 1 - \frac{1}{4} \\
 &= \frac{3}{4} \\
 &= 0.75
 \end{aligned}$$