

# Assignment 4

## AI1110: Probability and Random Variables

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## CBSE Probability Grade 9

**Example 7** The percentage of marks obtained by a student in the monthly unit tests are given below:

Unit test	I	II	III	IV	V
Marks obtained	69	71	73	68	74

TABLE 1

Based on this data, find the probability that the student gets more than 70% marks in a unit test.

**Solution.** Let a random variable  $X \in \{0, 1\}$  denote the possible outcomes of a unit test. Also, let  $m$  denote the percentage of marks obtained in a unit test.

Outcome	$X$	Number
$m \leq 70$	0	$n(X = 0) = 2$
$m > 70$	1	$n(X = 1) = 3$

TABLE 2

The probability that the student gets more than 70% marks in a unit test is given by:

$$\Pr(X = 1) = \frac{n(X = 1)}{n(X = 0) + n(X = 1)} \quad (1)$$

$$= \frac{3}{2 + 3} \quad (2)$$

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

$\therefore$  The probability that the student gets more than 70% marks in a unit test is 0.6