AI1110: Assignment 4

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Abstract—**This document contains the solution to Question of Chapter 15 (Probability) in the NCERT Class 10 Textbook.**

Probability Excercise 15.1 Q8. A bag contains 3 red balls and 5 black balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is

 1) red
 2) not a red

Solution.

Let $X \in \{0, 1\}$ is random variable that denote whether the ball is red or a black.

Event	Description
X=0	ball drawn is red
X=1	ball drawn is black

TABLE 1: Events

1) The probability that the ball drawn is red

$$\Pr(X = 0) = \frac{\text{no of red colored balls}}{\text{Total no of balls}} \quad (1)$$

$$= \frac{3}{3+5} \quad (2)$$

$$= 0.375 \quad (3)$$

2) The probability that the ball drawn is not a red is same as the probability that ball drawn is black because there are only is two type of colors and both events mentioned in the table are mutual exhaustive and exculsive events.

$$\Pr(X = 1) = 1 - \Pr(X = 0) \quad (4)$$

$$= 1 - \frac{3}{8} \quad (5)$$

$$= 0.625 \quad (6)$$

$\therefore$ the probability that the ball drawn is red and is not red are 0.375 and 0.675 respectively.