

AI1110: Probability and Random Variables

Assignment 1

Kaipa Venkata Tuhil
CS22BTECH11030

10.15.1.6: Question: A bag contains lemon flavoured candies only. Malini takes out one candy without looking into the bag. What is the probability that she takes out:

- 1) an orange flavoured candy?
- 2) a lemon flavoured candy?

Solution:

- Let the total number of candies in the bag be: n
- Let O be the event that an orange flavoured candy is taken out
- Let L be the event that a lemon flavoured candy is taken out

We know that probability of an event E :

$$\Pr(E) = \frac{\text{Number of outcomes favourable to } E}{\text{Total number of outcomes}} \quad (1)$$

- 1) The number of favourable outcomes for O is 0. So, from (1):

$$\begin{aligned} \Pr(O) &= \frac{0}{n} \\ &= 0 \end{aligned}$$

Hence, the probability of getting an orange flavoured candy is 0.

- 2) The number of favourable outcomes for L is n . So, from (1):

$$\begin{aligned} \Pr(L) &= \frac{n}{n} \\ &= 1 \end{aligned}$$

Hence, the probability of getting a lemon flavoured candy is 1.