

Assignment 1

AI1110: Probability and Random Variables

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10.15.1.11 Question: Gopi buys a fish from a shop for his aquarium. The shopkeeper takes out one fish at random from a tank containing 5 male fish and 8 female fish . What is the probability that the fish taken out is a male fish?

Solution: There are a total of 13 fishes in the tank and 5 of them are male.

Let X be a random variable which takes the values 0 and 1.

$$X = \begin{cases} 1, & \text{if the chosen fish is male} \\ 0, & \text{if the chosen fish is female} \end{cases} \quad (1)$$

$$\Pr(X = 1) = \frac{\text{Number of male fishes}}{\text{Total number of fishes}} \quad (2)$$

$$\therefore \Pr(X = 1) = \frac{5}{13} \quad (3)$$