Assignment 5

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***Abstract*—This document contains the solution for Assignment 5 (CBSE Class 11 Chapter 16 Exercise 16.3 Question 6)**

Question 21: There are four men and six women on the city council. If the council member is selected for a committee at random, how likely is it that it is woman?

Solution : Given ,

1) Number of men = 4
2) Number of women = 6
3) Thus, total number of people on the city council = 4 + 6 = 10

Let the random variable X be mapped to the following set of real numbers , $X \in \{0, 1\}$, where $X = 0$ denotes "the selected council member is a man" and $X = 1$ denotes "the selected council member is a woman".

(i) Probability that the selected council member is a man:

$$\Pr(X = 0) = \frac{4}{10} = 0.4 \tag{1}$$

(ii) Probability that the selected council member is a woman:

$$\Pr(X = 1) = \frac{6}{10} = 0.6 \tag{2}$$

One can also notice that:

$$\Pr(X = 0) + \Pr(X = 1) = 0.4 + 0.6 = 1 \tag{3}$$

The program `./Codes/sim.py` simulates this problem experimentally.