Assignment 4

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Question :

A die is thrown 1000 times with frequencies for outcomes 1,2,3,4,5 and 6 as given in the following table:

Outcome	1	2	3	4	5	6
Frequency	179	150	157	149	175	190

Table 1:

Find the probability of getting each outcome.

Solution :

Let Rolling of a dice be the experiment and the random variable $X \in \{1, 2, 3, 4, 5, 6\}$ denote the outcome of the experiment.
Where $X = i$ denote the occurence of outcome i in the experiment for $i = 1, 2, 3, 4, 5, 6$

$$\Pr(X = 1) = \frac{179}{1000} = 0.179 \tag{1}$$

$$\Pr(X = 2) = \frac{150}{1000} = 0.150 \tag{2}$$

$$\Pr(X = 3) = \frac{157}{1000} = 0.157 \tag{3}$$

$$\Pr(X = 4) = \frac{149}{1000} = 0.149 \tag{4}$$

$$\Pr(X = 5) = \frac{175}{1000} = 0.175 \tag{5}$$

$$\Pr(X = 6) = \frac{190}{1000} = 0.190 \tag{6}$$

If we plot PMF(Probability Mass Function) of theoretical and experimental data we get the following bar graph

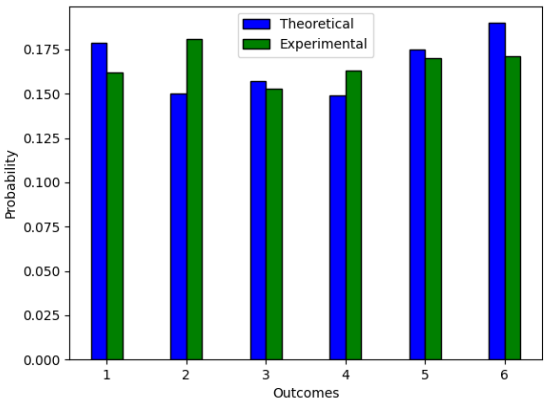

Figure 1: PMF of theoretical and experimental data