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 occurrence of outcome i in the experiment for i = 1, 2, 3, 4, 5, 6

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

$$\Pr(X = 2) = \frac{150}{1000} = 0.150$$
 (2)
$$\Pr(X = 3) = \frac{157}{1000} = 0.157$$
 (3)

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

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

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

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

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

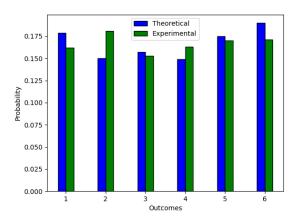


Figure 1: PMF of theoretical and experimental data