Assignment 2
Probability

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I. Problem

A die is thrown three times. Events A and B are defined as below:
A : 4 on the third throw.
B : 6 on the first and 5 on the second throw.
Find the probability of A given that B has already occurred?

II. Solution

Total sample space =216
Sample space of A (4 on the third throw) = 36
Sample space of B (6 on the first and 5 on second throw) = 6

$$P(A) = \frac{36}{216} \tag{1}$$

$$P(B) = \frac{6}{216} \tag{2}$$

$$P(A \cap B) = P(A) \times P(B) \tag{3}$$

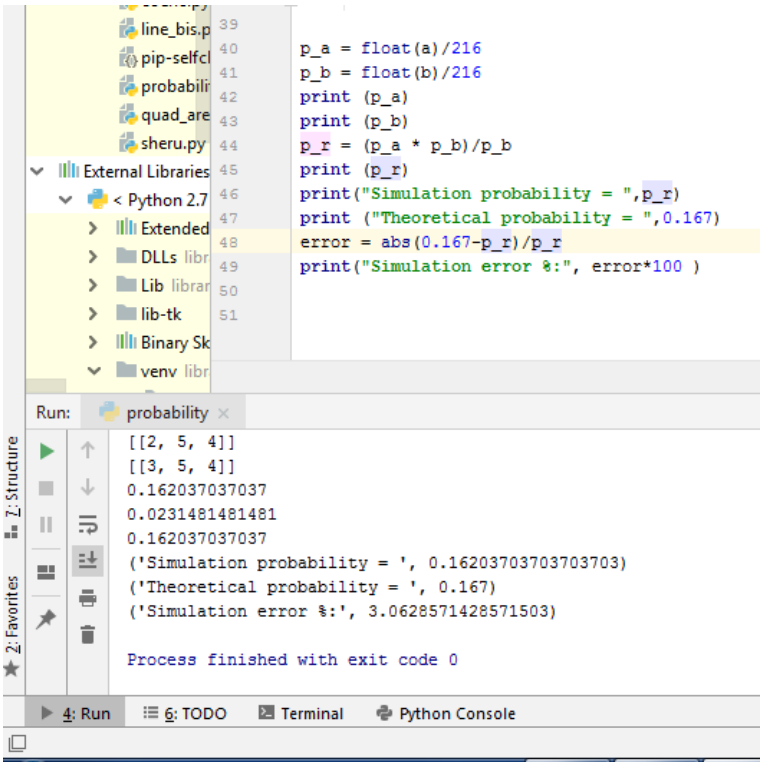
$$= \frac{36}{216} \times \frac{6}{216} = \frac{1}{216} \tag{4}$$

$$P(A|B) = \frac{P(A \cap B)}{P(B)} \tag{5}$$

$$= \frac{\frac{1}{216}}{\frac{6}{216}} = \frac{1}{6} = 0.167 \tag{6}$$

III. Simulation result

Theoretical probability = 0.167
Simulated probability = 0.162
Percetage of error obtained = 3.02



Python project link

https://github.com/Swati-Mohanty/EE5600/tr