Assignment 1

Sushma - CS20BTECH11051

Download all python codes from

https://github.com/Sushma−AI1103/Assignment−1/blob/main/assingment_1code.py

1 Problem

(4.12) Determine P(E|F),if a die is thrown three times,
E : 4 appears on third toss
F : 6 and 5 appears on respectively on first and second toss.

2 Solution

Sample space = 6*6*6 = 216

Then the event E of getting 4 at third throw of die would be = {(1, 1, 4), (2, 1, 4).....(6, 1, 4)
(1, 2, 4), (2, 2, 4).....(6, 2, 4)
(1, 3, 4), (2, 3, 4).....(6, 3, 4)
(1, 4, 4), (2, 4, 4).....(6, 4, 4)
(1, 5, 4), (2, 5, 4).....(6, 5, 4)
(1, 6, 4), (2, 6, 4).....(6, 6, 4)}

probability of event E , Pr(E) = $\frac{36}{216} = \frac{1}{6}$

Event F , getting 6 and 5 on first and second throw respectively = {(6, 5, 1), (6, 5, 2), (6, 5, 3)
, (6, 5, 4), (6, 5, 5), (6, 5, 6)}

therefore ,
Probability of event F , Pr(F) = $\frac{6}{216} = \frac{1}{36}$

E∩F = {(6, 5, 4)}
Probability of E∩F i.e getting 6,5 and 4 on first ,second and third throw respectively, Pr(E∩F) = $\frac{1}{216}$

Probability P(E|F) = $\frac{P(E \cap F)}{P(F)} = \frac{1/216}{6/216} = \frac{1}{6}$