Assignment 7

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Python code link: `https://github.com/ParvezAlam123/Assignment-7/tree/main`

$X_1, X_2 \in \{0,1\}$

$$P(A) = P(X_1 = 1)$$
$$= \frac{3}{6}$$
$$= \frac{1}{2}$$
$$P(B) = P(X_2 = 1)$$
$$= \frac{3}{6} = \frac{1}{2}$$
$$P(A \cap B) = P(X_1 = 1 \cap X_2 = 1)$$
$$= \frac{1}{6}$$
$$P(A) \times P(B) = \frac{1}{2} \times \frac{1}{2}$$
$$= \frac{1}{4}$$
$$P(A \cap B) \neq P(A) \times P(B)$$

1 Prob.misc.6.16 :

A die marked 1,2,3 in red and 4,5,6 in green is tossed. Let A be the event 'the number is even,' and B be the event,'the number is red'. Are A and B independent ?

Solution : Let X_1 and X_2 are as follows

X_1	Random variable for even or odd
X_2	Random variable for red or green

Hence both event A and B are not independent.

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