*Example 2 -> There are two bags of balls. Tom randomly picks one ball from each bag. What is the probability that he does not get a white ball?

Bag A -> 1 white ball and 2 black balls (W1, B1, B2)
Bag B -> 1 white ball and 1 black ball (W2, B3)

- Random experiment: Pick one ball from each of the two bags.
- Sample Space: $S = \{W1W2; W1B3; B1W2; B1B3; B2W2; B2B3\}$
  Note $n(S) = 6$
- Event: $A = \{\text{get no white ball}\} = \{B1B3; B2B3\}$
  Note $n(A) = 2$

$$\therefore P(A) = n(A)/n(S) = 2/6 = 1/3$$

*Example 3 -> Jasmine forget her 4-digit number (e.g. 1234). The system allows her to try only once. What is the probability for her to log into the system?

- Random experiment: Guess an unknown PIN with 1 attempt
- Sample Space: $S = \{0000, 0001, \ldots, 9998, 9999\}$
- Event: $A = \{\text{get the correct PIN}\} = \{1234\}$.

$$P(A) = n(A)/n(S) = 1/10^4 = 0.0001 = 0.1\%$$

Example 3 -> The system allows her to try twice. What is the probability for her to log into the system?

- Random experiment: Guess an unknown PIN with 2 attempts.
- Sample space: $S = \{(xxxx, xxxx)\}$
- Event: $A = \{(1234; xxxx)\}, \{(xxxx, 1234)\}$.

$$P(A) = n(A)/n(S) = ?$$