

# Assignment 2

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Download all python codes from

<https://github.com/Yagna20/AI1103/blob/main/Assignment1/Assignment%201.py>

and latex-tikz codes from

<https://github.com/Yagna20/AI1103/blob/main/Assignment%202/assignment%202.tex>

## 1 PROBLEM Q.47

A fair dice is tossed two times. The probability that the second toss results in a value that is higher than the first toss is

## 2 SOLUTION

Let  $X_1$  and  $X_2$  represent the first toss and second toss respectively.

- 0 if  $X_1 = 1$ , then no. of cases that second toss value is greater than first value toss is 5. Similarly,
- 1 if  $X_1 = 2$ , then no. of cases is 4.
- 2 if  $X_1 = 3$ , then no. of cases is 3.
- 3 if  $X_1 = 4$ , then no. of cases is 2.
- 4 if  $X_1 = 5$ , then no. of cases is 1.
- 5 if  $X_1 = 6$ , then no. of cases is 0.

As total no. of cases are  $6 * 6 = 36$ , the probability that second toss value is greater than first toss value is

$$P = \Pr(X_2 > X_1) = \frac{5 + 4 + 3 + 2 + 1}{36} = \frac{10}{36} = \frac{5}{12}$$