Probability Assignment

T.Sai Raghavendra(FWC22087)

भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

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I. PROBLEM3

Let X represent the difference between the number of heads and the number of tails obtained when a coin is tossed 6 times. What are possible values of X?

II. SOLUTION

A coin is tossed 6 times and X represents the difference between the number of heads and the number of tails.

$Y = \{0, 1\}$ represents the head and tail.

$$X(60,01) = |6 - 0| = 6$$
$$X(50,11) = |5 - 1| = 4$$
$$X(40,21) = |4 - 2| = 2$$
$$X(30,31) = |3 - 3| = 0$$
$$X(20,41) = |2 - 4| = 2$$
$$X(10,51) = |1 - 5| = 4$$
$$X(00,61) = |0 - 6| = 6$$

Thus, the possible values of X are 0,2,4 and 6.