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A Coin Is Tossed Three Times. An Outcome Is Represented By A String Of The Sort HTT (meaning A Head On and continues to be a fundamental example used in probability theory to illustrate how outcomes are determined and represented. This simple experiment involves tossing a fair coin three times and recording the result of each toss as either a Head (H) or a Tail (T). The sequence of these outcomes can be written as a three-letter string, such as HHT or TTH, providing a clear and concise way to analyze the possible results. Understanding this process offers insights into basic probability concepts, combinatorial analysis, and the foundation for more complex statistical models.

Understanding the Basic Setup of the Coin Toss Experiment

The Nature of a Fair Coin

A fair coin has two equally likely outcomes on each toss: Head (H) or Tail (T). When tossed, the probability of getting a Head or a Tail is 0.5, assuming the coin is unbiased. This symmetry ensures that each outcome is equally likely, which simplifies calculations and theoretical analysis.

The Sequence of Tosses and Their Representation

When a coin is tossed multiple times, each sequence of results can be represented as a string of Hs and Ts. For example:

- HHT — Head, Head, Tail
- TTH — Tail, Tail, Head
- HTT — Head, Tail, Tail

This notation offers a straightforward way to catalog all possible outcomes and analyze their probabilities.

Sample Space for Three Tosses

The total number of possible outcomes when tossing a coin three times is $2^3 = 8$. These outcomes are:

- HHH