Introduction

There exists a tremendous number of random phenomena in nature, real life and experimental sciences.

Almost everything is random in nature : whether, occurrences of rain and their durations, number of double stars in a region of the sky, lifetimes of plants, of humans, and of animals, life span of a radioactive atom, phenotypes of offspring of plants or any biological beings, etc.

The general theory states that each phenomena has a structural part (that is deterministic) and a random part (called the error or the deviation).

Randomness also appears as conceptual experiments : tossing a coin once or 100 times, throwing three dice, arranging a deck of cards, matching two decks, playing roulette, etc.

Every day human life is subject to randomness : waiting times for buses, traffic, number of calls on a telephone, number of busy lines in a communication network, sex of a newborn, etc.

The reader is referred to Feller (1968) for a more diverse and rich set of examples.

The quantitative study of random phenomena is the objective of Probability Theory and Statistics Theory. Let us give two simple examples to briefly describe each of these two disciplines.
In Probability Theory, one assigns a chance of realization to a random event before its realization, taking into account the available information.

Example : A *good coin*, that is, a homogenous and well balanced, is tossed. Knowing that the coin cannot stand on its rim, there is a 50% chances of