Random Mirror

Vikas Malviya   
SRM Institute of Science & Technology, Ramapuram

**Aim**

To mirror a function that is used to generate random numbers in programming languages.

**Abstract**

With the rise of data analysis and machine learning tools and techniques, many complex problems that seemed unsolvable earlier are easily solved now. Using the same approach, this project aims at modeling a function that could find a pattern in the random numbers that an inbuilt random function in a programming language generates; to mirror that function and to predict the next number that the function might be producing with probabilities of occurrence of all the other numbers. It will tell whether the numbers are really random or just a collection of pseudo random numbers. It can also be used in building a model that could find different patterns in many different sequences of numbers, when a part of that sequence is already given. It also holds uses in game theory and probability models.

**Introduction**

Think of a random number between 0 to 9. What is the probability of you choosing that number? 1/10 right. Or is it?

The idea behind this project is, although the random functions used by programming languages to generate random numbers may seem to be working properly at first, there may be a hidden pattern that we are not able to see yet. Here are a few questions that this project will be able to solve:

1. The primary question is how can a machine produce numbers randomly, since it follows a particular set of procedures for all its operations?
2. Does it produce all numbers with equal frequencies or does it have a preference i.e. does machine have a favorite number that it keeps on producing more than the other numbers?
3. Does the machine produce random number in a very abstract pattern that we are not able to visualize?
4. 'IF' a machine is biased towards a/some particular number(s) that it keeps on producing it at a higher frequency than the other numbers, are other machines also biased towards that number, or do they have a/some different favorite number(s)?

And most importantly

1. Can we make an intelligent model using machine learning that will learn from the data of random numbers previously generated by the machine and predict the next random number that the machine is going to produce?
2. And ‘IF’ we are able to make such a model, how efficient is our random number predictor or random mirror (because it mirrors the original random functions) in predicting the next possible number that will be generated by the random functions in python?

…and many more.

With the rise of data analysis and machine learning, many complex problems are now solvable. This is one such approach.