abstract

We have developed a software, which does statistical testing for built in arithmetic generators of programming technologies (such as: C++, Java, C#, Python, PHP, GO, Javascript). Statistical tests are about uniform distribution, independence and degree of correlation.

For testing, in each programming language we generate a set of random numbers, which are inputted to our software as parameters. Program then calculates statistical criterias which are used for checking null hypothesis about uniform distribution, independence and degree of correlation.

In our experiments we have generated random numbers which are about 1,2,3,4,5,30,100 and 500 million and also 1,2 and 4 billion, which we afterwards inputted to our software.

Accrding to the results, for generated sequences consisting of million of numbers (about 1,2,3,4,5 million) no language comes out on top as the one with most successes in testing, some languages perform well on unfirom distribution but fail on independence tests, etc. as we increase the number of elements in the sequence (talking about billions of numbers) Python performs best on independence and correlation tests, whileas Java succeeds the most at uniform distribution testing.