Computerized Simulation
Exercise No. 2
due date: 1402.08.30
By:

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1. Under which condition, the LCG and Multiplicative Congruential methods achieve their maximum period (theoretical task)?

2. Describe a physical process for generating a sequence of random numbers with 2-digit accuracy.

3. Use LCG random number generator in interval $[0, 1]$ to generate a sequence of random numbers in the interval $[-10, 23]$. Please write the Python code for it and compare the histograms of your generated PRNG and the one which Python uses (randint).

4. Write a script for 'Traffic flow simulation game'. In this exercise, vehicles type (cars, trucks) are controlled by a PRNG. Hint: define a basic road network with intersections and traffic lights and then Randomly introduce vehicles onto the road to simulate realistic traffic using a PRNG. Finally simulate traffic light changes at the intersection and move the cars....