QCG II PRNG

PRNG using recursion:

$$x_0 = (seed) mod M$$

$$x_n = (ax_{n-1}^2 + bx_{n-1} + c) mod M$$

Where defaults are: a = 2, b = 3, c = 1

Input

Seeds file in *.csv* format with a column named *seeds* including positive integers indicating seeds.
Remaining inputs are well described in *help* (check *Usage* section).

Results

As a result you get a *.pkl* file generated in the specified directory with the specified name, given after
–output-file flag. If not specified, there is a default name given (check Usage section).
If *seeds* flag is specified, then the programme takes decimal numbers in the specified .csv file, and generates numbers for each seed. Afterwards, the programme creates .pkl files (as many as there are seeds) and saves them in the specified directory(if not specified, saves in the working directory).

Usage

To use *QCG II*, you need to run *z3qcg2.py* using python version 3 with installed *time*, *argparse*, *numpy*, *pandas* and *pickle* packages.
To learn how to use this PRNG, it is advised to run programme with one of the following commands:

```
python3 z3qcg2.py --help
python3 z3qcg2.py -h
```

Examples

```
python3 z3qcg2.py --output-file numbers.pkl  #saves results in file 'numbers.pkl' in working directory
python3 z3qcg2.py -n 10000  #generates 10000 numbers
python3 z3qcg2.py -n 10 -M 16  #generates 10 numbers with modulus equal to 16
python3 z3qcg2.py -a 3 -b 17 -c 100  #generates numbers with specific recursion
python3 z3qcg2.py --output-file ""  #does not generate file, only prints out numbers on the screen
python3 z3qcg2.py --output-dir numbers_dir --seeds seeds_file.csv    #saves .pkl files in specified
                                                                     directory with seeds from file
```