Random Excursions Variance Test

The program implements the Random Excursions Variance Test described in NIST section 2.15.

1 Input

- output-file – the name of the output file, where p-values will be saved; when the name is empty it prints the values to the screen (default: `generated_numbers.pkl`),
- input-file – the name of the input file; the file must be in pickle format (default: `ran_exc_var_p_values.pkl`).

The input file must have the following key value pairs:

- M – maximum value of provided numbers + 1, must be a power of 2,
- numbers – a list of integers in range 0 to M-1, M * length of numbers should be larger than 1 000 000.

2 Output

When the name is empty the p-values are printed to the screen. In other cases the program generates an output file in pickle format with the following key value pairs:

- Test – stores the following string: "Random Excursions variance test",
- p-values – list of length 18 that stores the p-values from the test

3 Examples

```
python  z1_ran_exc_var_test.py --input-file generated_numbers.pkl
python  z1_ran_exc_var_test.py --output-file ran_exc_var_p-values.pkl
```