Practical 1

Jumping Rivers

Lists

The following code will import the package associated with this course as `jr` and assign a variable which contains a series of random numbers.

```
import jrpyml as jr
x1 = jr.get_numeric_list()
```

Using this list:

1. How many elements are in `x1`?

2. What is the 55th element of `x1`? Remember, indexing starts at 0

3. What is the final value of `x1`?

4. What is the 50th smallest values in `x1`?

5. Get a fresh copy of the random numbers with `x1 = jr.get_numeric_list()`. The `sum()` function can be used on a list of numbers to calculate the total. What is the sum of the first 5 values?

6. What is the average value of the list? Note that there is no `mean` function for lists. Mean is total sum divided by number of values.

Numpy arrays

For mathematics and statistics **numpy** provides a more convenient data structure, the `array`. For this section import the numpy library and get a new copy of the random list:

```
import numpy as np
x1 = jr.get_numeric_list()
```

1. Convert your list to a **numpy** array.

2. Calculate the mean, median and standard deviation of the array

3. By default the answers to the previous question have a lot of decimal places so look a bit messy, round them to 2 decimal places. Hint: look at the `round()` function from **numpy**.