

BRNO UNIVERSITY OF TECHNOLOGY
Faculty of Information Technology

PRACTICAL ASPECTS OF SOFTWARE DESIGN
2018/2019

Profiling report

1 Assignment

Use functions from your math library to create a script that will calculate sample standard deviation from a sequence of numbers, which will be loaded from standard input until the end of the file. The script must be capable to load at least 1000 numbers. The input file contains only numbers, the total count of numbers is unknown. The formula that will be used for calculation of sample standard deviation:

$$s = \sqrt{\frac{1}{N-1} \left(\sum_{i=1}^N x_i^2 - N\bar{x}^2 \right)}$$

$$\bar{x} = \frac{1}{N} \sum_{i=1}^N x_i$$

Then profile this script with input files that contain 10, 100 and 1000 numbers. Hand over a protocol which contains output from profiler and quick summary - what you should focus on when optimizing code and which parts of your code takes longest to finish.

2 Approach and results

The tool that was used to profile the script is Pycharm's built-in profiler which is available in their professional version. As seen in output pictures, current implementation emphasizes the maximum performance of python, thus there is no space for optimization.

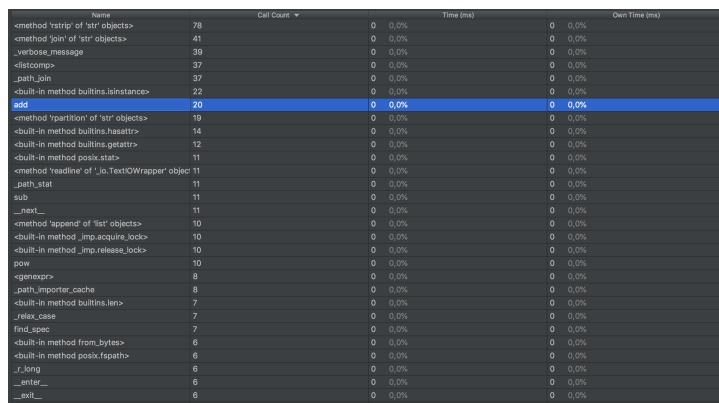


Figure 1: Visualisation of calculations with 10 input values for sample standard deviation

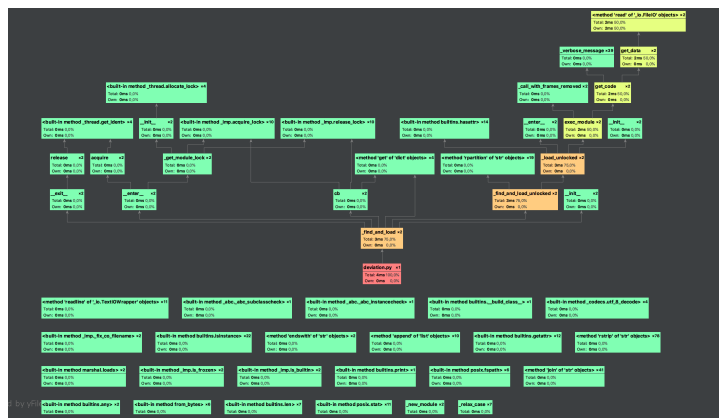


Figure 2: Tree visualisation of calculations with 10 input values for sample standard deviation

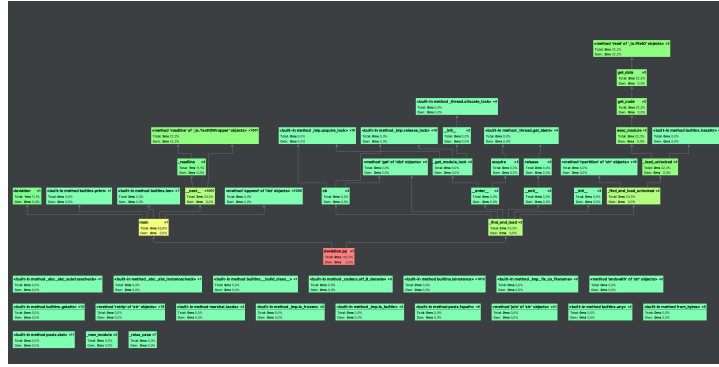


Figure 6: Tree visualisation of calculations with 1000 input values for sample standard deviation