IVS výstup profilingu

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1. Výstupy profileru

Pro generování hodnot byl využit online generátor https://www.random.org/integers/
Pro profilování byla využita Python knihovna *cProfile*. Pro export obrázků byly využity programy *gprof2dot* a *dot*.

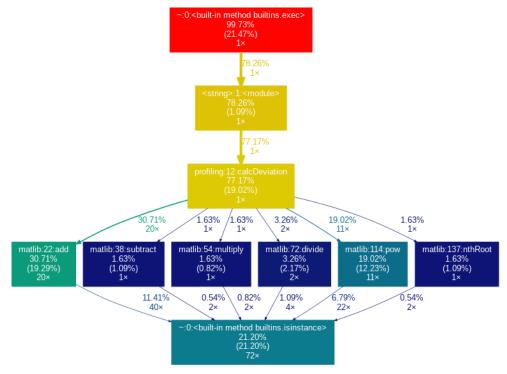
1.1. Profiling s 10 náhodně vygenerovanými hodnotami

```
113 function calls in 0.000 seconds
Ordered by: cumulative time
                           cumtime
                                     percall filename:lineno(function)
ncalls
        tottime
                 percall
                                       0.000 {built-in method builtins.exec}
                    0.000
     1
          0.000
                             0.000
          0.000
                    0.000
                              0.000
                                       0.000 <string>:1(<module>)
          0.000
                                       0.000 profiling.py:12(calcDeviation)
                             0.000
                    0.000
    20
          0.000
                    0.000
                             0.000
                                       0.000 matlib.py:22(add)
                                       0.000 {built-in method builtins.isinstance}
    72
          0.000
                    0.000
                             0.000
    11
          0.000
                    0.000
                             0.000
                                       0.000 matlib.py:114(pow)
                                       0.000 matlib.py:72(divide)
0.000 matlib.py:38(subtract)
     2
          0.000
                    0.000
                             0.000
          0.000
                    0.000
                             0.000
          0.000
                    0.000
                             0.000
                                       0.000 matlib.py:54(multiply)
          0.000
                    0.000
                             0.000
                                       0.000 matlib.py:137(nthRoot)
          0.000
                    0.000
                             0.000
                                       0.000 {built-in method builtins.len}
                                       0.000 {method 'disable' of '_lsprof.Profiler' objects}
          0.000
                    0.000
                             0.000
     1
```

Obrázek 1: Výpis profileru s 10 hodnotami

```
Ordered by: cumulative time
                                                                                    called...
ncalls
Function
                                                                                                         tottime
                                                                                                                       cumtime
{built-in method builtins.exec}
                                                                                                           0.000
                                                                                                                           0.000
                                                                                                                                       <string>:1(<module>)
                                                                                                                                      profiling.py:12(calcDeviation)
matlib.py:22(add)
matlib.py:38(subtract)
matlib.py:54(multiply)
 string>:1(<module>)
                                                                                                            0.000
                                                                                                                           0.000
profiling.py:12(calcDeviation)
                                                                                    ->
                                                                                                  20
                                                                                                            0.000
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                                                                                                                                       matlib.py:72(divide)
                                                                                                                                      matlib.py:114(pow)
matlib.py:137(nthRoot)
{built-in method builtins.len}
{built-in method builtins.isinstance}
                                                                                                  11
                                                                                                            0.000
                                                                                                                           0.000
                                                                                                   1
                                                                                                            0.000
                                                                                                                           0.000
                                                                                                                           0.000
                                                                                                            0.000
matlib.py:22(add)
{built-in method builtins.isinstance}
                                                                                                  40
                                                                                                            0.000
matlib.py:114(pow)
matlib.py:72(divide)
                                                                                                  22
                                                                                                            0.000
                                                                                                                                       {built-in method builtins.isinstance}
                                                                                                                           0.000
                                                                                                                                       {built-in method builtins.isinstance}
                                                                                                                           0.000
                                                                                                            0.000
natlib.py:38(subtract)
natlib.py:54(multiply)
                                                                                                            0.000
                                                                                                                           0.000
                                                                                                            0.000
                                                                                                                           0.000
matlib.py:137(nthRoot)
{built-in method builtins.len}
{method 'disable' of '_lsprof.Profiler' objects}
                                                                                                            0.000
                                                                                                                           0.000
```

Obrázek 2: Call-graph s 10 hodnotami



Obrázek 3: Stromový graf volání

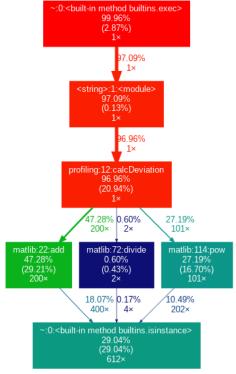
1.2. Profiling se 100 náhodně vygenerovanými hodnotami

```
923 function calls in 0.002 seconds
Ordered by: cumulative time
ncalls
        tottime
                  percall cumtime percall filename:lineno(function)
                                        0.002 {built-in method builtins.exec}
                              0.002
           0.000
                    0.000
           0.000
                              0.002
                                        0.002 <string>:1(<module>)
                    0.000
                    0.000
                              0.002
                                        0.002 profiling.py:12(calcDeviation)
          0.000
     1
                                        0.000 matlib.py:22(add)
0.000 {built-in method builtins.isinstance}
   200
           0.001
                    0.000
                              0.001
   612
          0.001
                    0.000
                              0.001
                                        0.000 matlib.py:114(pow)
   101
          0.000
                    0.000
                              0.001
                                        0.000 matlib.py:72(divide)
0.000 matlib.py:38(subtract)
          0.000
                    0.000
                              0.000
     2
                              0.000
          0.000
                    0.000
           0.000
                    0.000
                              0.000
                                        0.000 matlib.py:54(multiply)
                    0.000
                                        0.000 matlib.py:137(nthRoot)
          0.000
                              0.000
     1
           0.000
                    0.000
                              0.000
                                        0.000 {built-in method builtins.len}
           0.000
                    0.000
                              0.000
                                        0.000 {method 'disable' of '_lsprof.Profiler' objects}
     1
```

Obrázek 4: Výpis profileru se 100 hodnotami

```
Ordered by: cumulative time
                                                                                 called...
                                                                                       ncalls
                                                                                                     tottime
                                                                                                                    cumtime
                                                                                                                      0.002
0.002
{built-in method builtins.exec}
                                                                                                        0.000
                                                                                                                                  <string>:1(<module>)
                                                                                                                                  profiling.py:12(calcDeviation)
matlib.py:22(add)
string>:1(<module>)
                                                                                                        0.000
profiling.py:12(calcDeviation)
                                                                                             200
                                                                                                                       0.001
                                                                                                                                  matlib.py:22(adubtract)
matlib.py:38(subtract)
matlib.py:54(multiply)
matlib.py:72(divide)
matlib.py:114(pow)
                                                                                                        0.000
                                                                                                                       0.000
                                                                                                        0.000
                                                                                                                       0.000
                                                                                                        0.000
                                                                                                                       0.000
                                                                                                        0.000
                                                                                                                       0.001
                                                                                                                       0.000
                                                                                                        0.000
                                                                                                                                  matlib.py:137(nthRoot)
                                                                                                                                  {built-in method builtins.len} {built-in method builtins.isinstance}
                                                                                                        0.000
                                                                                                                       0.000
matlib.py:22(add)
{built-in method builtins.isinstance}
                                                                                             400
                                                                                                        0.000
                                                                                                                       0.000
                                                                                                                                  {built-in method builtins.isinstance} {built-in method builtins.isinstance} {built-in method builtins.isinstance} {built-in method builtins.isinstance}
matlib.py:114(pow)
matlib.py:72(divide)
matlib.py:38(subtract)
matlib.py:54(multiply)
                                                                                                                       0.000
                                                                                             202
                                                                                                        0.000
                                                                                                        0.000
                                                                                                                       0.000
                                                                                                        0.000
0.000
                                                                                                                       0.000
natlib.py:137(nthRoot)
                                                                                                        0.000
                                                                                                                                   {built-in method builtins.isinstance}
{built-in method builtins.len}
{method 'disable' of '_lsprof.Profiler' objects}
```

Obrázek 5: Call-graph se 100 hodnotami



Obrázek 6: Stromový graf volání

1.3. Profiling s 1000 náhodně vygenerovanými hodnotami

```
9023 function calls in 0.022 seconds
Ordered by: cumulative time
                 percall
                          cumtime percall filename:lineno(function)
ncalls tottime
          0.000
                    0.000
                             0.022
                                      0.022 {built-in method builtins.exec}
          0.000
                    0.000
                             0.022
                                       0.022 <string>:1(<module>)
     1
                                      0.022 profiling.py:12(calcDeviation)
0.000 matlib.py:22(add)
                             0.022
          0.004
                    0.004
  2000
          0.007
                    0.000
                             0.011
                             0.006
                                       0.000 {built-in method builtins.isinstance}
  6012
                    0.000
          0.006
  1001
          0.004
                    0.000
                             0.006
                                       0.000 matlib.py:114(pow)
                                       0.000 matlib.py:72(divide)
          0.000
                    0.000
                             0.000
     2
          0.000
                    0.000
                             0.000
                                       0.000 matlib.py:38(subtract)
                    0.000
                             0.000
          0.000
                                       0.000 matlib.py:137(nthRoot)
     1
          0.000
                    0.000
                             0.000
                                       0.000 matlib.py:54(multiply)
                                       0.000 {built-in method builtins.len}
          0.000
                    0.000
                             0.000
                                       0.000 {method 'disable' of '_lsprof.Profiler' objects}
                             0.000
          0.000
                    0.000
```

Obrázek 7: Výpis profileru s 1000 hodnotami

```
Ordered by: cumulative time
                                                                                      called..
Function
                                                                                             ncalls
                                                                                                          tottime
                                                                                                                          cumtime
                                                                                                              0.000
                                                                                                                             0.022
{built-in method builtins.exec}
                                                                                                                                          <string>:1(<module>)
                                                                                                                                         <string>:1(<module>)
profiling.py:12(calcDeviation)
matlib.py:22(add)
matlib.py:38(subtract)
matlib.py:54(multiply)
matlib.py:72(divide)
matlib.py:114(pow)
matlib.py:114(pow)
matlib.py:137(nthPoot)
  string>:1(<module>)
                                                                                                              0.004
profiling.py:12(calcDeviation)
                                                                                                2000
                                                                                                              0.007
                                                                                                                              0.011
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                                                                                                              0.000
                                                                                                                              0.000
                                                                                                 1001
                                                                                                              0.004
                                                                                                                              0.006
                                                                                                                                          matlib.py:137(nthRoot)
{built-in method builtins.len}
                                                                                                              0.000
                                                                                                                              0.000
                                                                                                              0.000
                                                                                                                              0.000
matlib.py:22(add)
{built-in method builtins.isinstance}
matlib.py:114(pow)
                                                                                                 4000
                                                                                                              0.004
                                                                                                                                          [built-in method builtins.isinstance]
                                                                                                                                          {built-in method builtins.isinstance} {built-in method builtins.isinstance} {built-in method builtins.isinstance}
                                                                                                2002
                                                                                                              0.002
                                                                                                                              0.002
matlib.py:72(divide)
matlib.py:38(subtract)
                                                                                                                              0.000
0.000
                                                                                                              0.000
mattib.py:38(subriact)
matlib.py:137(nthRoot)
matlib.py:54(multiply)
{built-in method builtins.len}
{method 'disable' of '_lsprof.Profiler' objects}
                                                                                                              0.000
                                                                                                                              0.000
                                                                                                                                           {f \hat{b}}built-in method builtins.isinstance
                                                                                                                                          {built-in method builtins.isinstance}
```

Obrázek 8: Call-graph s 1000 hodnotami



Obrázek 9: Stromový graf volání