Vysoké učení technické v Brně
Fakulta informačních technologií

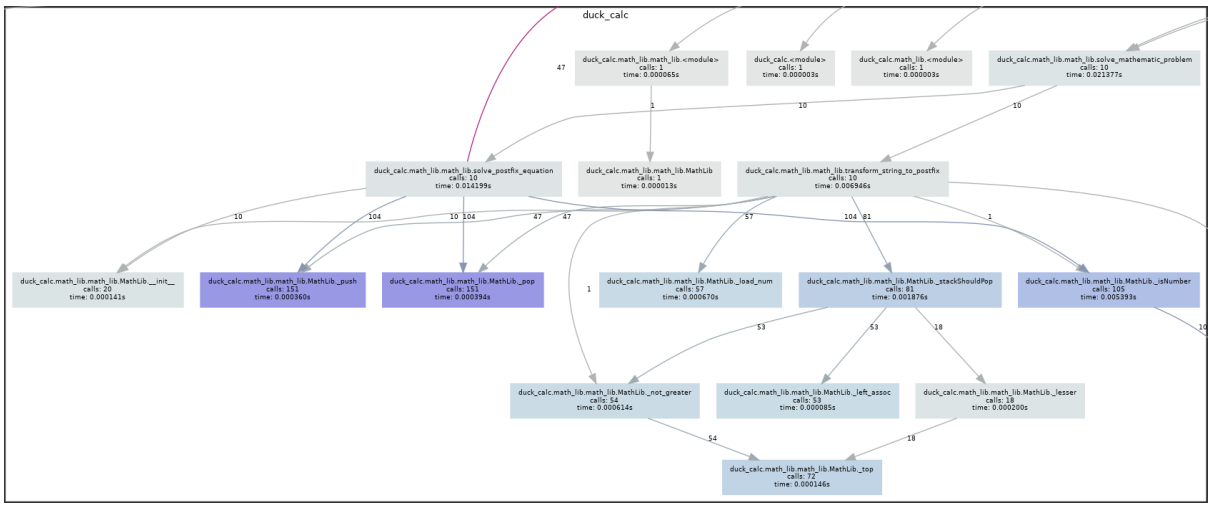
IVS – 2. Project
Profiling

27. Dubna 2021

10 vzorků

```
3812 function calls (3759 primitive calls) in 0.010 seconds

ncalls  tottime  percall  cumtime  percall filename:lineno(function)
     2    0.000    0.000    0.000    0.000 __init__.py:1(<module>)
     1    0.000    0.000    0.000    0.000 cProfile.py:27(Profile)
     1    0.000    0.000    0.001    0.001 cProfile.py:3(<module>)
     2    0.000    0.000    0.000    0.000 codecs.py:319(decode)
     2    0.000    0.000    0.000    0.000 codecs.py:331(getstate)
     4    0.000    0.000    0.000    0.000 enum.py:283(__call__)
     4    0.000    0.000    0.000    0.000 enum.py:562(__new__)
     2    0.000    0.000    0.000    0.000 enum.py:833(__and__)
     1    0.000    0.000    0.000    0.000 math_lib.py:1(<module>)
    53    0.000    0.000    0.000    0.000 math_lib.py:105(_left_assoc)
   105    0.000    0.000    0.002    0.000 math_lib.py:109(_isNumber)
    20    0.000    0.000    0.000    0.000 math_lib.py:11(__init__)
    10    0.000    0.000    0.002    0.000 math_lib.py:113(transform_string_to_postfix)
    10    0.000    0.000    0.006    0.001 math_lib.py:190(solve_mathematic_problem)
    10    0.000    0.000    0.003    0.000 math_lib.py:198(solve_postfix_equation)
   151    0.000    0.000    0.000    0.000 math_lib.py:27(_push)
   151    0.000    0.000    0.000    0.000 math_lib.py:32(_pop)
    72    0.000    0.000    0.000    0.000 math_lib.py:39(_top)
    54    0.000    0.000    0.000    0.000 math_lib.py:45(_not_greater)
    18    0.000    0.000    0.000    0.000 math_lib.py:54(_lesser)
    81    0.000    0.000    0.000    0.000 math_lib.py:63(_stackShouldPop)
    57    0.000    0.000    0.000    0.000 math_lib.py:71(_load_num)
     1    0.000    0.000    0.000    0.000 math_lib.py:9(MathLib)
     1    0.000    0.000    0.000    0.000 profile.py:102(Profile)
     1    0.000    0.000    0.000    0.000 profile.py:348(fake_code)
     1    0.000    0.000    0.000    0.000 profile.py:358(fake_frame)
     1    0.000    0.000    0.000    0.000 profile.py:41(_Utils)
     1    0.000    0.000    0.000    0.000 profile.py:9(<module>)
     1    0.000    0.000    0.010    0.010 profile:0(<code object <module> at 0x7fbff896a7c0, file "profiler.py", line 1>)
     0    0.000             0.000          profile:0(profiler)
     1    0.000    0.000    0.009    0.009 profiler.py:1(<module>)
     1    0.000    0.000    0.000    0.000 profiler.py:12(GetAritmeticMean)
     1    0.000    0.000    0.006    0.006 profiler.py:16(GetStandardDeviation)
     2    0.000    0.000    0.000    0.000 profiler.py:5(GetSum)
```



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     1    0.000    0.000    0.000    0.000 cProfile.py:27(Profile)
     1    0.000    0.000    0.001    0.001 cProfile.py:3(<module>)
     2    0.000    0.000    0.000    0.000 codecs.py:319(decode)
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     4    0.000    0.000    0.000    0.000 enum.py:283(__call__)
     4    0.000    0.000    0.000    0.000 enum.py:562(__new__)
     2    0.000    0.000    0.000    0.000 enum.py:833(__and__)
     1    0.000    0.000    0.000    0.000 math_lib.py:1(<module>)
   593    0.001    0.000    0.001    0.000 math_lib.py:105(_left_assoc)
   825    0.002    0.000    0.008    0.000 math_lib.py:109(_isNumber)
    20    0.000    0.000    0.000    0.000 math_lib.py:11(__init__)
    10    0.003    0.000    0.014    0.001 math_lib.py:113(transform_string_to_postfix)
    10    0.000    0.000    0.033    0.003 math_lib.py:190(solve_mathematic_problem)
    10    0.003    0.000    0.019    0.002 math_lib.py:198(solve_postfix_equation)
  1231    0.002    0.000    0.003    0.000 math_lib.py:27(_push)
  1231    0.002    0.000    0.003    0.000 math_lib.py:32(_pop)
   792    0.001    0.000    0.001    0.000 math_lib.py:39(_top)
   594    0.001    0.000    0.002    0.000 math_lib.py:45(_not_greater)
   198    0.000    0.000    0.001    0.000 math_lib.py:54(_lesser)
   801    0.002    0.000    0.005    0.000 math_lib.py:63(_stackShouldPop)
   417    0.002    0.000    0.002    0.000 math_lib.py:71(_load_num)
     1    0.000    0.000    0.000    0.000 math_lib.py:9(MathLib)
     1    0.000    0.000    0.000    0.000 profile.py:102(Profile)
     1    0.000    0.000    0.000    0.000 profile.py:348(fake_code)
     1    0.000    0.000    0.000    0.000 profile.py:358(fake_frame)
     1    0.000    0.000    0.000    0.000 profile.py:41(_Utils)
     1    0.000    0.000    0.000    0.000 profile.py:9(<module>)
     1    0.000    0.000    0.037    0.037 profile:0(<code object <module> at 0x7f431047b7c0, file "profiler.py", line 1>)
     0    0.000             0.000          profile:0(profiler)
     1    0.000    0.000    0.037    0.037 profiler.py:1(<module>)
     1    0.000    0.000    0.000    0.000 profiler.py:12(GetAritmeticMean)
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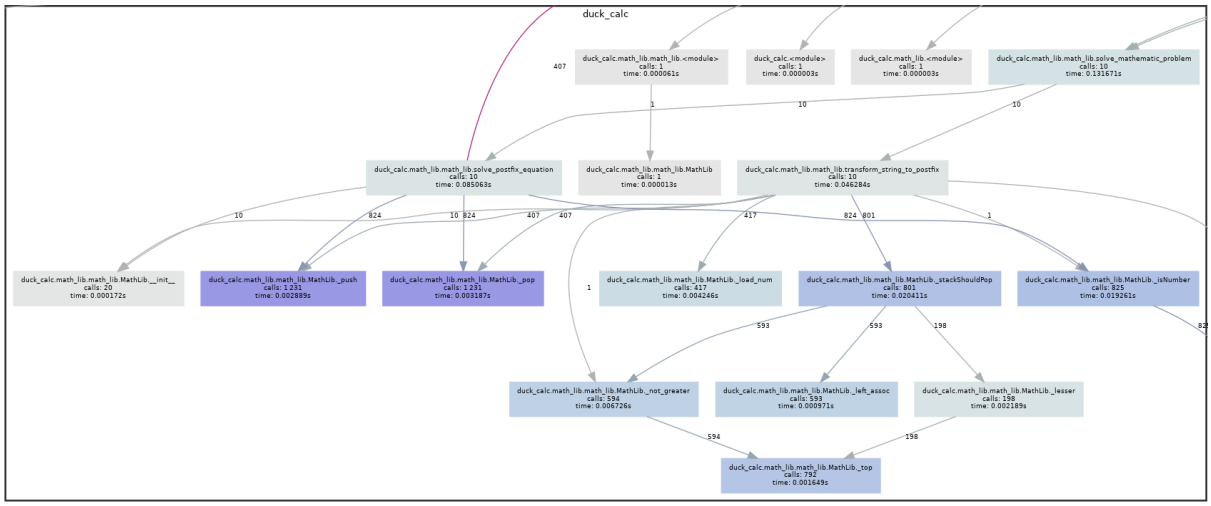

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ncalls  tottime  percall  cumtime  percall filename:lineno(function)
     1    0.000    0.000    0.000    0.000 math_lib.py:1(<module>)
  5993    0.005    0.000    0.005    0.000 math_lib.py:105(_left_assoc)
  8025    0.015    0.000    0.070    0.000 math_lib.py:109(_isNumber)
    20    0.000    0.000    0.000    0.000 math_lib.py:11(__init__)
    10    0.030    0.003    0.129    0.013 math_lib.py:113(transform_string_to_postfix)
    10    0.000    0.000    0.299    0.030 math_lib.py:190(solve_mathematic_problem)
    10    0.028    0.003    0.169    0.017 math_lib.py:198(solve_postfix_equation)
 12031    0.021    0.000    0.030    0.000 math_lib.py:27(_push)
 12031    0.020    0.000    0.030    0.000 math_lib.py:32(_pop)
  7992    0.007    0.000    0.007    0.000 math_lib.py:39(_top)
  5994    0.011    0.000    0.016    0.000 math_lib.py:45(_not_greater)
  1998    0.004    0.000    0.005    0.000 math_lib.py:54(_lesser)
  8001    0.020    0.000    0.047    0.000 math_lib.py:63(_stackShouldPop)
  4017    0.015    0.000    0.023    0.000 math_lib.py:71(_load_num)
     1    0.000    0.000    0.000    0.000 math_lib.py:9(MathLib)
     1    0.000    0.000    0.000    0.000 profile.py:102(Profile)
     1    0.000    0.000    0.000    0.000 profile.py:348(fake_code)
     1    0.000    0.000    0.000    0.000 profile.py:358(fake_frame)
     1    0.000    0.000    0.000    0.000 profile.py:41(_Utils)
     1    0.000    0.000    0.000    0.000 profile.py:9(<module>)
     1    0.000    0.000    0.304    0.304 profile:0(<code object <module> at 0x7fe184df87c0, file "profiler.py", line 1>)
     0    0.000             0.000          profile:0(profiler)
     1    0.000    0.000    0.303    0.303 profiler.py:1(<module>)
     1    0.000    0.000    0.000    0.000 profiler.py:12(GetAritmeticMean)
     1    0.000    0.000    0.299    0.299 profiler.py:16(GetStandardDeviation)
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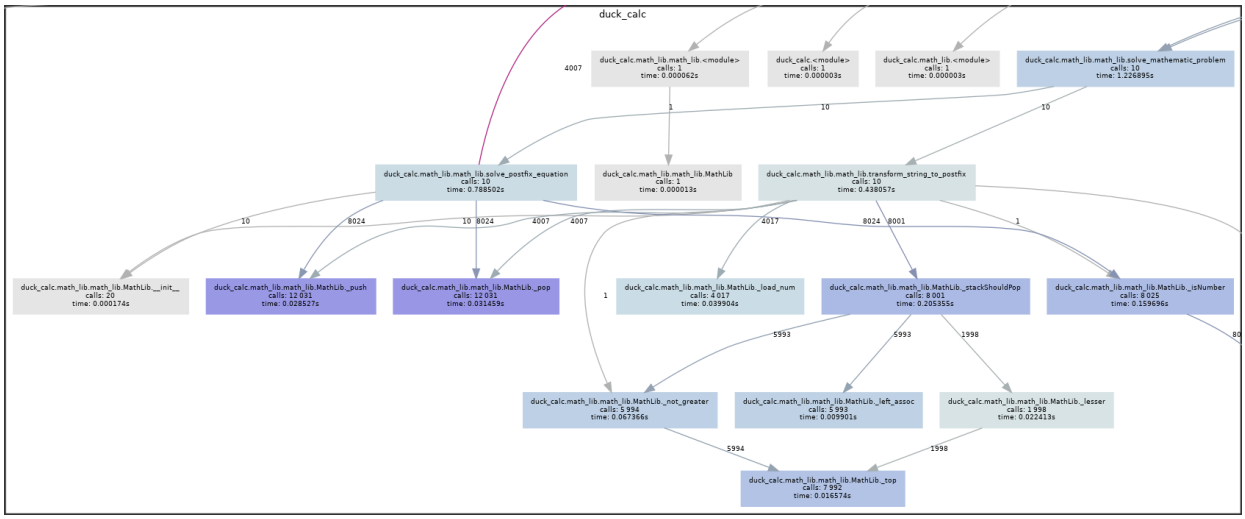

Závěr

Nejvíce času při spuštění programu v matematické knihovně zabírá funkce „solve_mathematic_problem”, která slouží k vypočtení uživatelem zadaný matematický problém. Další časově náročné funkce jsou „solve_postfix_equation” a „transform_string_to_postfix”, které mají podle výsledků zhruba polovinu délky času trvání.

Pro urychlení spuštění programu, je nutné refaktorizovat tyto tři zmíněné funkce jelikož jejich doba trvání je největší v porovnání s ostatními funkcemi.