SPS COMMERCE

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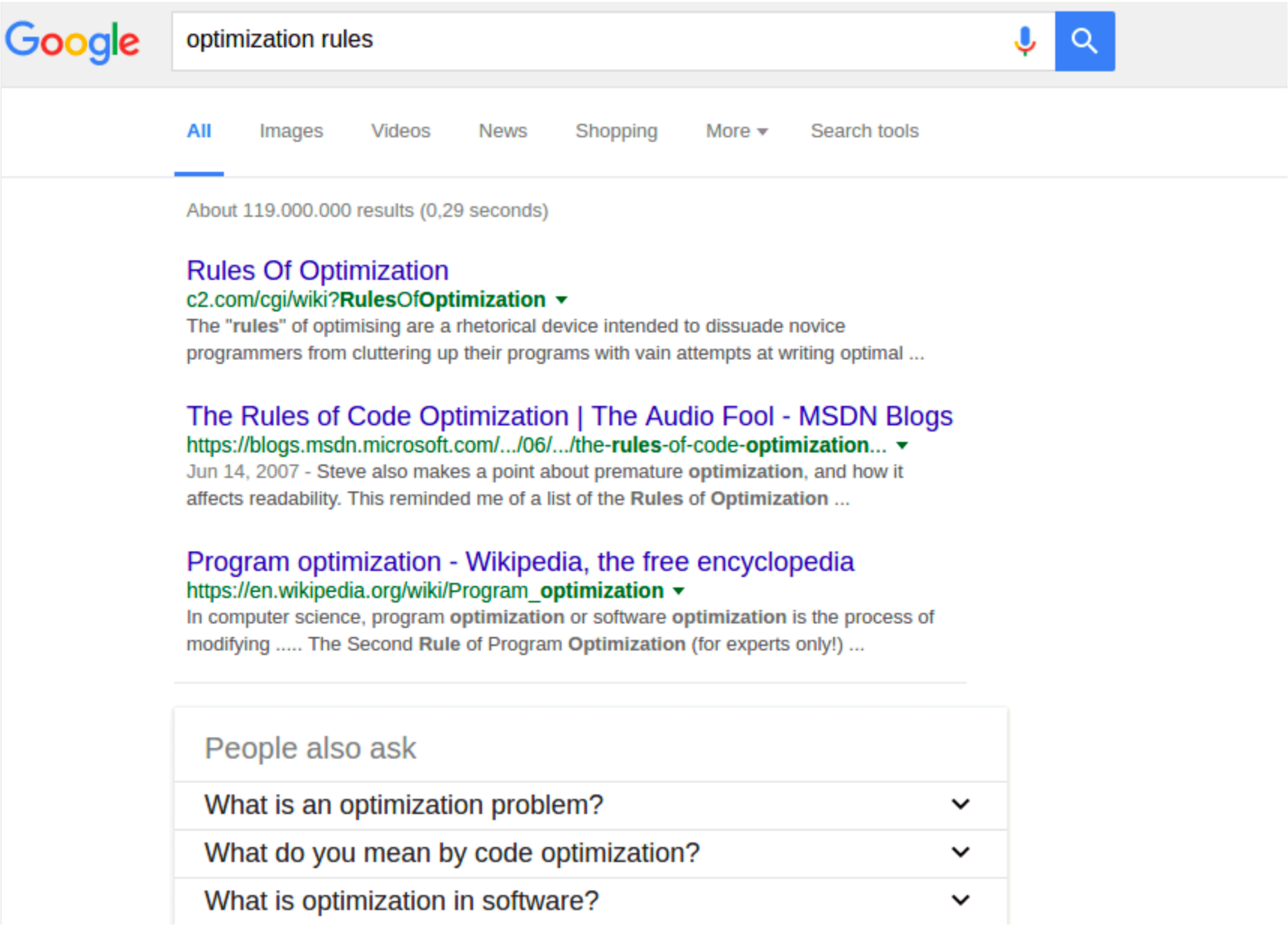
OPTIMIZATION

PYTHON WAS NOT MADE TO BE FAST…

…BUT TO MAKE DEVELOPERS FAST.

OPTIMIZATION



optimization rules

About 119.000.000 results (0,29 seconds)

Rules Of Optimization
c2.com/cgi/wiki?**RulesOfOptimization**
The "**rules**" of optimising are a rhetorical device intended to dissuade novice programmers from cluttering up their programs with vain attempts at writing optimal ...

The Rules of Code Optimization | The Audio Fool - MSDN Blogs
https://blogs.msdn.microsoft.com/.../06/.../the-**rules**-of-code-**optimization**...
Jun 14, 2007 - Steve also makes a point about premature **optimization**, and how it affects readability. This reminded me of a list of the **Rules** of **Optimization** ...

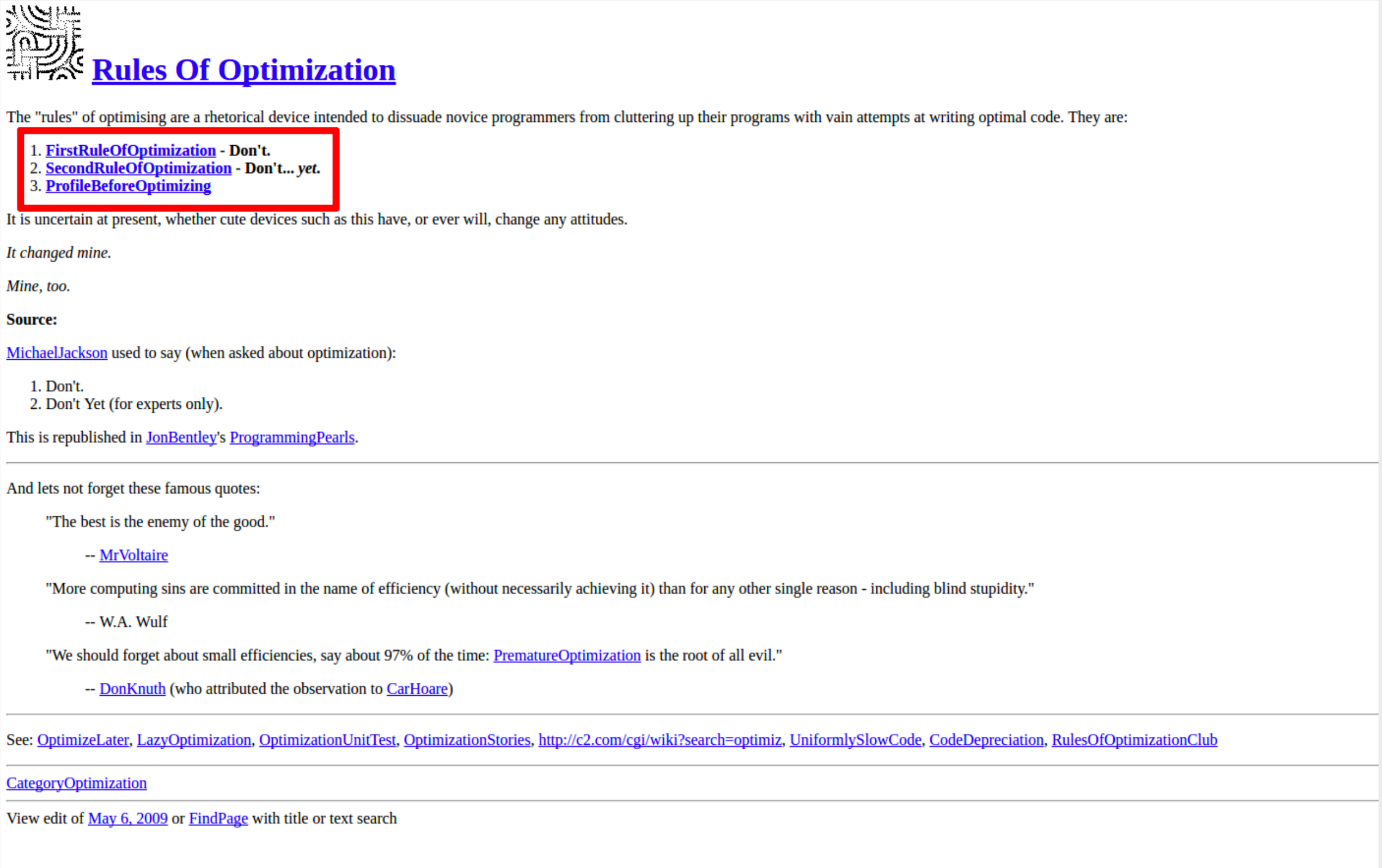
Program optimization - Wikipedia, the free encyclopedia
https://en.wikipedia.org/wiki/Program_**optimization**
In computer science, program **optimization** or software **optimization** is the process of modifying ..... The Second **Rule** of Program **Optimization** (for experts only!) ...

People also ask

What is an optimization problem?

What do you mean by code optimization?

What is optimization in software?



Rules Of Optimization

The "rules" of optimising are a rhetorical device intended to dissuade novice programmers from cluttering up their programs with vain attempts at writing optimal code. They are:

1. **FirstRuleOfOptimization - Don't.**
2. **SecondRuleOfOptimization - Don't... *yet*.**
3. **ProfileBeforeOptimizing**

It is uncertain at present, whether cute devices such as this have, or ever will, change any attitudes.

It changed mine.

Mine, too.

Source:

MichaelJackson used to say (when asked about optimization):

1. Don't.
2. Don't Yet (for experts only).

This is republished in JonBentley's ProgrammingPearls.

And lets not forget these famous quotes:

> "The best is the enemy of the good."
>
> -- MrVoltaire
>
> "More computing sins are committed in the name of efficiency (without necessarily achieving it) than for any other single reason - including blind stupidity."
>
> -- W.A. Wulf
>
> "We should forget about small efficiencies, say about 97% of the time: PrematureOptimization is the root of all evil."
>
> -- DonKnuth (who attributed the observation to CarHoare)

See: OptimizeLater, LazyOptimization, OptimizationUnitTest, OptimizationStories, http://c2.com/cgi/wiki?search=optimiz, UniformlySlowCode, CodeDepreciation, RulesOfOptimizationClub

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CategoryOptimization

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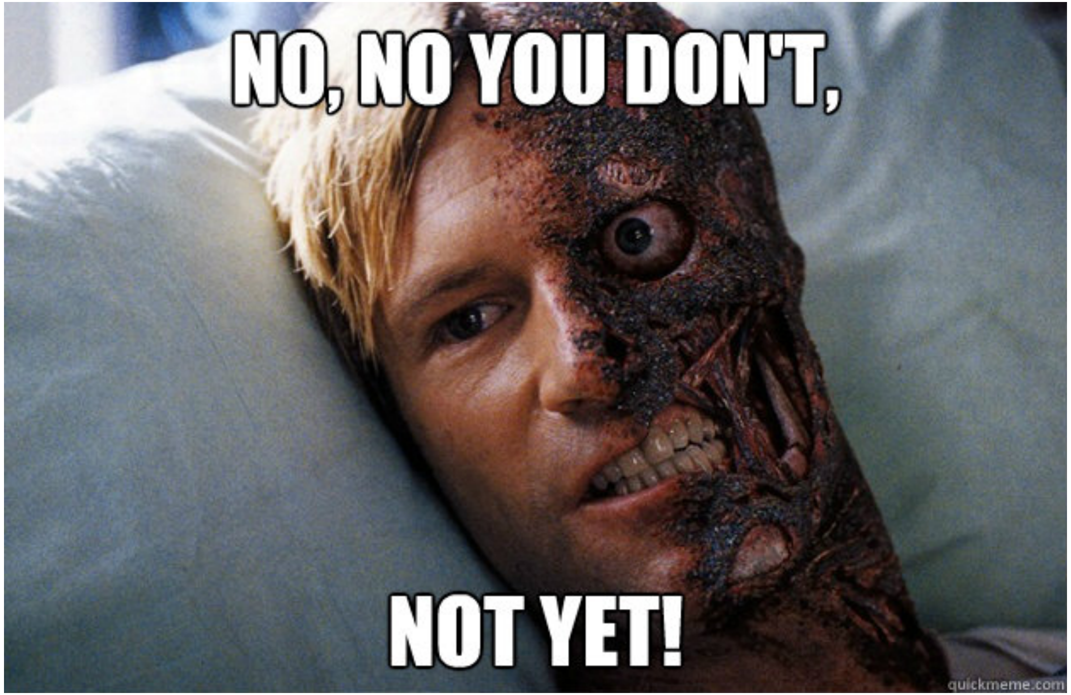
RULES OF OPTIMIZATIONS

- Don’t

RULES OF OPTIMIZATIONS

- Don’t
- Don't … yet

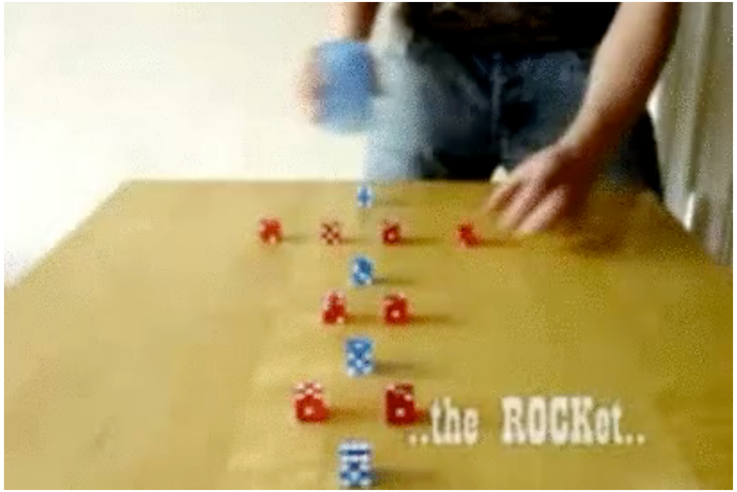


RULES OF OPTIMIZATIONS

- Don’t
- Don't … yet
- Profile
  - cProfile
  - PyCharm
  - pstats,RunSnakeRun, SnakeViz

LEVELS OF OPTIMIZATION

- Design
- Algorithms and data structures



IDEAS FOR AUGMENTING YOUR DATA STRUCTURE:

- Extra fields
- Extra search indexes
- Extra information about elements
- If queries are expensive, add a cache.

SMALL MEMORY SOFTWARE

- Rearrange your data
- Change to a slower data structure
- Custom compression format for your data

http://smallmemory.com/book.html

LEVELS OF OPTIMIZATION

- Design
- Algorithms and data structures
- Source code
- Build level
- Compile level
- Runtime level

OPTIMIZATION IS ALL ABOUT THE SPEED

… AND MEMORY
... AND DISK SPACE
... DISK I/O
... NETWORK I/O
... POWER CONSUMPTION
... AND MORE.

OPTIMIZATION WORKFLOW

1. Determine your performance goals and confirm you are not meeting them
2. Profile to identify the areas to improve.
3. This can be CPU, heap allocations, or concurrent blocking.
4. Benchmark to determine the speed up your solution
5. Make sure you're benchmarking the right thing on your target operating system and architecture.
6. Profile again afterwards to verify the issue is gone
7. Do load testing http services or full application
8. If possible, test ramp-up/ramp-down in addition to steady-state load
9. Make sure your numbers make sense

SUMMARY

- There are different kinds of optimization
- There are different levels of optimization
- Source code optimizations is cheap
  - Idiomatic Python
  - Don't reinvent the wheel
- Profile your code!

EVGEN KOSTENKO

Thank you !

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