Benchmark for compilation high-dimensional convex problems via cvxpy

Here you find code analysing an impact of a dimension of a conic optimisation problem on compilation time via the cvxpy library. The compilation time is spent on a transformation of an original problem into its canonic form that is required for the majority of modern conic solvers. This benchmark shows that the compilation time drastically increases for high-dimension conic optimisation problems (more than 2000 variables). The main goal of the presented here script is to provide the cvxpy community with a stress test example that could help to accelerate the compilation of high-dimension conic optimisation problems.

Disclaimer: Github's markdown may not render properly LaTeX equations of this readme, so, please, download the README file and render it locally on your machine.

In brief

The vectorized conic optimisation problem is formulated in the following way

$$\min_{\mathbf{\Sigma}, \mathbf{P}} F(\mathbf{\Sigma}, \mathbf{P}), f(\mathbf{\Sigma}, \mathbf{P}) \leq 0,$$