Docket #: S98-086

SQOPT (TM)

SQOPT is a software package for solving large-scale linear and quadratic programs. The quadratic objective function may be positive definite or semidefinite (convex). Efficiency is best if many constraints are active at a solution. SQOPT is especially effective if the constraints have no feasible solution. Bounds on the variables and constraints are treated as "elastic" when necessary. SQOPT minimizes the sum of bound violations, perhaps including a multiple of the true objective in the minimization. The user specifies which bounds are elastic.

Applications

- General-purpose linear programming and quadratic programming.
- Engineering, Economics, Finance.
- L1 and L2 data fitting, Portfolio analysis.
- SQOPT is used as a subroutine inside SNOPT to solve a sequence of related quadratic programs, using warm starts.

Advantages

- Thread-safe (reentrant) portable code (Fortran 77).
- Numerically stable algorithms.
- Implicit definition of the quadratic objective via Qx products.
- Optional data input from MPS files.
- Warm start capability.
- Elastic bounds on variables and constraints (for infeasible problems).

Publications

- P. E. Gill, W. Murray and M. A. Saunders, SQOPT 5.3 User's Guide, Report NA 97-4, Dept of Mathematics, University of California, San Diego (revised 1998).

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