

NAME

CUTEst_cdimse – CUTEst tool to determine the number of nonzeros required to store the Hessian of the Lagrangian.

SYNOPSIS

CALL CUTEst_cdimse(status, ne, he_val_ne, he_row_ne)

DESCRIPTION

The CUTEst_cdimse subroutine determines the number of nonzero elements required to store the Hessian matrix of the Lagrangian function for the problem decoded from a SIF file by the script *sifdecoder*. The matrix is stored in sparse "finite element" format

$$H = \sum_{e=1}^{ne} H_e,$$

where each square symmetric element H_e involves a small subset of the rows of the Hessian matrix.

The problem under consideration is to minimize or maximize an objective function $f(x)$ over all $x \in R^n$ subject to general equations $c_i(x) = 0$, ($i \in 1, \dots, m_E$), general inequalities $c_i^l \leq c_i(x) \leq c_i^u$ ($i \in m_E + 1, \dots, m$), and simple bounds $x^l \leq x \leq x^u$. The objective function is group-partially separable and all constraint functions are partially separable.

ARGUMENTS

The arguments of CUTEst_cdimse are as follows

status [out] - integer

the output status: 0 for a successful call, 1 for an array allocation/deallocation error, 2 for an array bound error, 3 for an evaluation error,

ne [out] - integer

the number of "finite-elements" used,

he_val_ne [out] - integer

the dimension of the array needed to store the real values of the Hessian, taking all the elements into account (i.e. the dimension of the array HE_val).

he_row_ne [out] - integer

the dimension of the array needed to store the integer values of the Hessian (i.e. the dimension of the array HE_row).

AUTHORS

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SEE ALSO

CUTEst: a Constrained and Unconstrained Testing Environment with safe threads,
N.I.M. Gould, D. Orban and Ph.L. Toint,
Computational Optimization and Applications **60**:3, pp.545-557, 2014.

CUTEr (and SifDec): A Constrained and Unconstrained Testing Environment, revisited,
N.I.M. Gould, D. Orban and Ph.L. Toint,
ACM TOMS, **29**:4, pp.373-394, 2003.

CUTE: Constrained and Unconstrained Testing Environment,
I. Bongartz, A.R. Conn, N.I.M. Gould and Ph.L. Toint,
ACM TOMS, **21**:1, pp.123-160, 1995.

cutest_ceh(3M), cutest_csgreh(3M), sifdecoder(1).