NAME

CSH – CUTEr tool to evaluate the Hessian of the Lagrangian, in sparse format.

SYNOPSIS

CALL CSH(N, M, X, LV, V, NNZH, LH, H, IRNH, ICNH)

DESCRIPTION

The CSH subroutine evaluates the Hessian of the Lagrangian function for the problem decoded into OUTSDIF.d at the point X. The matrix is stored in sparse format.

By convention, the signs of the Lagrange multipliers V are set so the Lagrangian function can be written as $L(X, V) = f(X) + < c(X), V >$.

ARGUMENTS

The arguments of CSH are as follows

N [in] - integer
the number of variables for the problem,

M [in] - integer
the total number of general constraints,

X [in] - real/double precision
an array which gives the current estimate of the solution of the problem,

LV [in] - integer
the actual declared dimension of V,

V [in] - real/double precision
an array which gives the Lagrange multipliers,

NNZH [out] - integer
the number of nonzeros in H,

LH [in] - integer
the actual declared dimensions of H, IRNH and ICNH,

H [out] - real/double precision
an array which gives the values of the Hessian matrix of the Lagrangian function evaluated at X and V. The i-th entry of H gives the value of the nonzero in row IRNH(i) and column ICNH(i). Only the upper triangular part of the Hessian is stored,

IRNH [out] - integer
an array which gives the row indices of the nonzeros of the Hessian matrix of the objective function evaluated at X and V, and

ICNH [out] - integer
an array which gives the column indices of the nonzeros of the Hessian matrix of the objective function evaluated at X and V.

AUTHORS

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SEE ALSO

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, TOMS, **21**:1, pp.123-160, 1995.