NAME

CUTEST_cchprodsp – CUTEst tool to detetrmine the sparsity structure used when forming the matrix-vector products of a vector with each of the Hessian matrices of the constraint functions.

SYNOPSIS

CALL CUTEST_cchprodsp(status, n, m, lchp, CHP_ind, CHP_ptr)

DESCRIPTION

The CUTEST_cchprodsp subroutine obtins the sparsity structure used when forming the product of a vector with each of the Hessian matrices of the constraint functions $c(x)$ corresponding to the problem decoded from a SIF file by the script *sifdecoder* at the point $x = X$.

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

ARGUMENTS

The arguments of CUTEST_cchprodsp are as follows:

status [out] - integer
the outputr status: 0 for a succesful call, 1 for an array allocation/deallocation error, 2 for an array bound error, 3 for an evaluation error,

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

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

lchp [in] - integer
a variable that specifies the declared lengths of CHP_val and CHP_ind. The precise length required may be found by calling *CUTEST_cdimchp* prior to *CUTEST_cchprodsp*,

CHP_ind [inout] - integer
an array that gives the indices of the nonzeros in the result obtained by multiplying the constraint Hessians by VECTOR. The indices for the i-th constraint are stored in CHP_ind(CHP_ptr(i):CHP_ptr(i+1)-1), and will match the values stored in CHP_val from a cutest_cchprods(3M) call.

CHP_ptr [inout] - integer
an array of length m+1 that gives pointers to the starting positions in CHP_ind for the indices of the nonzeros for the product with each Hessian. CHP_ptr(m+1)-1 gives the total space required by CHP_ind.

AUTHORS

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SEE ALSO

CUTEst: a Constrained and Unconstrained Testing Environment with safe threads for mathematical optimization,
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ACM TOMS, **29**:4, pp.373-394, 2003.

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cutest_cdimchp(3M), cutest_cchprods(3M), sifdecoder(1).