NAME

CUTEST_ccifsg − CUTEst tool to evaluate a single constraint function value and possibly gradient in sparse format.

SYNOPSIS

CALL CUTEST_ccifsg(data, status, n, icon, X, ci, nnzgci, lgci, GCI_val, GCI_var, grad)

DESCRIPTION

The CUTEST_ccifsg subroutine evaluates the value of a particular constraint function of the problem decoded from a SIF file by the script *sifdecode* at the point X, and possibly its gradient in the constrained minimization case. The gradient is stored in sparse format. 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 $c_i^l(x) \leq c_i(x) \leq c_i^u(x)$, $(i \in m_E + 1, \ldots, m)$, 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_ccifsg are as follows

data [inout] - CUTEST_data_type derived type
problem-specific private data,

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,

icon [in] - integer
the index of the constraint function to be evaluated,

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

ci [out] - real/double precision
the value of constraint function ICON at X,

nnzgci [out] - integer
the number of nonzeros in GCI_val,

lgci [in] - integer
the declared length of GCI_val and GCI_var,

GCI_val [out] - real/double precision
an array which gives the nonzeros of the gradient of constraint function icon evaluated at X. The i-th entry of GCI_val gives the value of the derivative with respect to variable GCI_var(i) of function icon.

GCI_var [out] - integer
an array whose i-th component is the index of the variable with respect to which GCI_val(i) is the derivative,

grad [in] - logical
a logical variable which should be set .TRUE. if the gradient of the constraint functions are required and .FALSE. otherwise.

AUTHORS

I. Bongartz, A.R. Conn, N.I.M. Gould, D. Orban and Ph.L. Toint

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.

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the number of nonzeros in GCI_val,

lgci [in] - integer
the declared length of GCI_val and GCI_var,

GCI_val [out] - real/double precision
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