NAME

CJPROD − CUTEr tool to form the matrix-vector product of a vector with the Jacobian of the constraints, or its transpose.

SYNOPSIS

CALL CJPROD(N, M, GOTJ, JTRANS, X, V, LV, R, LR)

DESCRIPTION

The CJPROD subroutine forms the product of a vector with the Jacobian matrix, or with its transpose, of the constraint functions of the problem decoded into OUTSDIF.d at the point X.

ARGUMENTS

The arguments of CPROD are as follows

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

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

GOTJ [in] - logical
a logical variable which specifies whether the first derivatives of the groups and elements have already been set (GOTJ = .TRUE.) or if they should be computed (GOTJ = .FALSE.),

JTRANS [in] - logical
a logical variable which specifies whether the product should involve the Jacobian (JTRANS = .FALSE.) or its transpose (JTRANS = .TRUE.),

X [in] - real/double precision
when GOTJ = .FALSE., the derivatives will be evaluated at X. Otherwise X is not used,

V [in] - real/double precision
the vector for which the product is required,

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

R [out] - real/double precision
the result of the matrix-vector product,

LR [in] - integer
the actual declared dimension of R.

NOTE GOTJ should be set to .TRUE. whenever

(1)
a call has been made to CGR, CSGR, CGRDH, CSGEH or CSGRSH at the current point, or

(2)
a previous call to CJPROD, with GOTJ = .FALSE., at the current point has been made.

Otherwise, it should be set .FALSE.

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.