

**NAME**

CUTEST\_classification – CUTEst tool to obtain the name of the problem directly from OUTSDIF.d.

**SYNOPSIS**

CALL CUTEST\_classification( status, input, classification )

For real rather than double precision arguments, instead

CALL CUTEST\_classification\_s( ... )

and for quadruple precision arguments, when available,

CALL CUTEST\_classification\_q( ... )

**DESCRIPTION**

The CUTEST\_classification subroutine obtains the classification string by interrogating the datafile OUTSDIF.d that was created by the script *sifdecoder* when decoding a SIF file. The SIF file must also be present in the directory containing the OUTSDIF.d file. Problems are classified according to the scheme described in

<https://ralna.github.io/SIFDecode/html/classification/>.

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\_classification are as follows

**status** [out] - integer

the output status: 0 for a successful call, -1 if the SIF file is absent, -2 for a read error.

**input** [in] - integer

the unit number for the decoded data; the unit from which OUTSDIF.d is read,

**classification** [out] - character

a 30-character string containing the SIF classification of the problem.

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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\_probname*(3M), *sifdecoder*(1).