

NAME

PIVOT – Perform a single pivot in a linear programming tableau.

SYNOPSIS

CALL PIVOT(TIN,LDT,MP,N,IP,JP, BASIS, TOUT)

TIN(LDT,*)	is the input LP tableau
LDT	is the INTEGER*4 leading dimension of TIN and TOUT
MP	is the INTEGER*4 number of rows in TIN and TOUT
N	is the INTEGER*4 number of variables
IP	is the INTEGER*4 pivot row
JP	is the INTEGER*4 pivot column
BASIS(N)	is the INTEGER*4 vector of row indices for the basic column 1s, 0 for nonbasic
TOUT(LDT,*)	is the output LP tableau

DESCRIPTION

If the pivot element TIN(IP,JP) is not at a place where a pivot is possible, or if the pivot element is zero, the routine writes an error message and stops the program. Otherwise it computes the new tableau elements that are not in the pivot row or pivot column, the new pivot row except for the pivot element, and then the new pivot column. Finally it updates the basis vector and returns.

DIAGNOSTICS

If the requested pivot is impossible this routine writes a message and stops the program.

LINKAGE

gfortran source.f -L\${HOME}/lib -lmisc

AUTHOR

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EXAMPLE

```

PARAMETER (LDT=3,MP=3,N=5,MR=3)
INTEGER*4 ROWS (MR) /1,2,3/
INTEGER*4 BASIS (5) /0,0,0,2,3/,RC
REAL*8 T (LDT,1+N) /0.D0,-5.D0, 5.D0,
;                -2.D0, 1.D0, 0.D0,
;                1.D0,-2.D0, 1.D0,
;                -1.D0, 2.D0,-1.D0,
;                0.D0, 1.D0, 0.D0,
;                0.D0, 0.D0, 1.D0/
REAL*8 TOUT (LDT,1+N)
DO 1 I=1,MP
    WRITE (6,901) (T (I,J),J=1,1+N)
901    FORMAT (6(1X,F5.1))
1 CONTINUE
CALL PIVOT (T,LDT,MP,N,2,3, BASIS, TOUT)
WRITE (6,900)
900 FORMAT (' ')
DO 2 I=1,MP
    WRITE (6,901) (TOUT (I,J),J=1,1+N)
2 CONTINUE
WRITE (6,902) BASIS
902 FORMAT (5I2)
STOP
END

```

This example produced the following output:

```

unix[1] a.out
  0.0 -2.0  1.0 -1.0  0.0  0.0
-5.0  1.0 -2.0  2.0  1.0  0.0
  5.0  0.0  1.0 -1.0  0.0  1.0

-2.5 -1.5  0.0  0.0  0.5  0.0
  2.5 -0.5  1.0 -1.0 -0.5 -0.0
  2.5  0.5  0.0  0.0  0.5  1.0
0 2 0 0 3
unix[2]

```