NAME

L1REGW − Do weighted simple linear least-absolute-value regression.

SYNOPSIS

CALL L1REGW(X,Y,W,M, BETA,RC)

X(M)   is a REAL*8 vector of independent-variable values
Y(M)   is a REAL*8 vector of corresponding dependent-variable observations
W(M)   is a REAL*8 vector of weights
M   is the INTEGER*4 number of observations in X and Y
BETA(2)   is the REAL*8 vector of coefficients (intercept,slope) returned
RC   is the INTEGER*4 return code; see below

DESCRIPTION

The routine constructs a simplex tableau for the linear program [1] whose solution yields the regression coefficients BETA in y=BETA(1)+BETA(2)*x, and then invokes SIMPLX to solve the linear program.

SEE ALSO

L2REGW, which does simple linear least-squares regression
EXPREG, which does exponential regression
SIMPLX, which is used by this routine

DIAGNOSTICS

These are the values that RC can have on return.

−1   a parameter is in error (M < 2, no nonzero weights)
 0   all went well
 1   the linear program is infeasible
>1   the linear program is unbounded (see the man page for SIMPLX)

LINKAGE

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

AUTHOR

Michael Kupferschmid

REFERENCES

[1] Kupferschmid, Michael, "Least-Absolute-Value Regression"

EXAMPLE

```
      REAL*8 X(5)/0.D0,1.D0,2.D0,3.D0,4.D0/,W(5)/5*1.D0/
      REAL*8 Y(5)/1.D0,3.D0,5.D0,7.D0,17.D0/,BETA(2)
      INTEGER*4 RC
      CALL L1REGW(X,Y,W,5, BETA,RC)
      WRITE(6,901) RC,BETA
  901 FORMAT('RC=',I3/'y=[',1PE13.6,']+[',1PE13.6,']x')
      STOP
      END
```

This example produced the following output:

```
unix[1] a.out
RC=  0
y=[ 1.000000E+00]+[ 2.000000E+00]x
unix[2]
```