

A Package of Subroutines for NLP and LCP

The tar file that you have received contains a package of Fortran 77 subroutines for solving Nonlinear Programming Problems and Linearly Constrained Problems in continuous optimization, together with descriptive matter and example programs.

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The user needs to choose whether to use a sparse matrix or dense matrix data structure. To solve an NLP using a sparse matrix data structure, the subroutines in the following files are required

`filterSD.f`, `checkd.f`, `glcpd.f`, `l1sold.f`, `shared.f`, `schurQR.f`, `sparseA.f`, `util.f` together with a user supplied driver program. The file `schurQR.f` implements a Schur complement scheme for sparse matrix updates. This replaces an a previous file `sparseL.f` implementing Fletcher-Matthews updates, which is also included in the distribution. These files are interchangeable.

To solve an NLP using a dense matrix data structure, the subroutines in the following files are required

`filterSD.f`, `checkd.f`, `glcpd.f`, `l1sold.f`, `shared.f`, `denseL.f`, `denseA.f`, `util.f` together with a user supplied driver program.

To solve an LCP using a sparse matrix data structure, the subroutines in the following files are required

`glcpd.f`, `checkg.f`, `shared.f`, `schurQR.f`, `sparseA.f`, `util.f`

together with a user supplied driver program.

To solve an LCP using a dense matrix data structure, the subroutines in the following files are required

`glcpd.f`, `checkg.f`, `shared.f`, `denseL.f`, `denseA.f`, `util.f`

together with a user supplied driver program.

Information on how to set up the driver program is contained in the files `filterSD.pdf` and `glcpd.pdf`. Examples of driver programs are provided in the files `hs106.f`, `hs106d.f`, `hs72.f` and `hs72d.f`.

To solve a QP or LP, replace `glcpd.f` by `qlcpd.f` in the above. Usage of `qlcpd.f` is described at the head of the file and is similar to that for `glcpd.f`.

To facilitate access to CUTER NLP test problems, a driver program `driver.f` and associated subroutines in the file `user.f` is provided.