Lab Exercise 2 (Revised 11/30/03)
RUNNING TIME VERSUS PROBLEM DENSITY

The files d02.mps, d05.mps, d10.mps, d25.mps, d50.mps, and d00.mps are synthetic linear programs with densities 2%, 5%, 10%, 25%, 50%, and 100% respectively. They each have 200 rows and 300 columns. Solve them using MINOS, and retroLP. You should see, that as the density increases the running time of MINOS increases, while retroLP stays about the same. Graph the running times for the two solvers on these problems. MINOS is a revised simplex method using sparse matrix techniques, while retroLP is a standard simplex method (not revised). See Chvatal, Chapter 7, especially pp. 113-114 for his view on the relative merits of the two.

I cannot post MINOS because it is proprietary. So if you did not finish the above in lab and want to do it outside. You may do the following exercises instead. Run the files d02.mps, d05.mps, d10.mps, d25.mps, d50.mps, and d00.mps using retroLP, first with the C option and then the S option. The C option uses the classical or Dantzig column choice rule while S uses steepest edge. Both the running times and the number of iterations will be different. Report on both. See Chvatal pp. 114-115 for some information on steepest edge. The classical choice rule is the one we have been using throughout.