Using LINDO in the PC labs

Lindo (version 6.1 for windows) exists in most (hopefully all) of the PC labs. After logging on click the `Start` button. Then you will proceed through a series of several menus. The items to be selected in each menu are `Programs` → `Courseware` → `Math` → `Lindo Suite` → `Lindo`. Once Lindo has been selected an untitled window is opened for you to enter your linear program. Alternatively, you may wish to close this window and, using the `File` menu, `Open` a previously entered linear program stored on a CD or on the hard disk.

The Lindo format is somewhat peculiar. To begin enter `max` or `min` on a line by itself. This tells Lindo whether you are going to solve a maximize or minimize linear program, respectively. On the next line enter your objective function, say `2x1 - 3x2`. You may use as many lines as needed to enter your objective function. Lindo assumes that there are 72 spaces per line. Do not split terms between lines (ie. if `2x1` is a term in your *objective* function then don't put `2` on one line and `x1` on the next line). Constant terms may not appear.

After entering your objective function, type `s.t.` on a line by itself. This is short for *subject to* and signals Lindo that you are ready to send it some *constraints*. Each constraint has the variable terms on the left hand side of the relational operator ($\leq, \geq, =$) and a constant term on the right hand side. Each variable term on the left hand side is of the form `n varname` where `n` is a number and `varname` is a decision variable. Each `varname` can be at most 8 characters long. The first character must be alphabetic (aA-zZ) while the remaining 7 characters may be either alphabetic or numeric. As was the case for the objective function, a constraint may be more than one line long. The relational operators must be entered as follows: `<=` for $\leq$, `>=` for $\geq$, and `=` for $=$. Lindo assumes that all decision variables are non-negative and automatically generates constraints to this effect.

After the constraints have been entered, the command `end` is entered on a line by itself. This tells Lindo that the linear program is complete. Below is a sample linear program in Lindo format.

```
max
2x1 - 3x2
s.t.
x1 + x2 <= 10
end
```

When you are satisfied that your model is correct, or you want to save the model to use later, select `save` from the `File` menu. You may save the file on a CD or on the hard drive (temporary files may be saved to the `h:` drive). To find a solution to your linear program pull down the `Solve` menu and select `solve`. A new window will be opened (in the background) and the output from Lindo will be printed in this window. (There are other menu options you may wish to explore under `Reports`.) You may save or print the information in this window. In addition, Lindo will ask you if you want sensitivity information. We won't discuss sensitivity analysis until Chapter 7 so you can say no for now. There are further examples for you to peruse in `x:\LINDO\SAMPLES\`.