COSC 480/MATH 482
CPLEX Installation and Usage Guide
September 24, 2012

For Mac:

1.) Download cplex_studio124.macos.bin. Place the file in your home directory (/Users/<your user name>). Copying and pasting from the Download directory will work fine here.

2.) To install: Open Terminal. To do this, click on the magnifying glass in the top right corner of your screen and type in Terminal and hit enter.

3.) At the prompt, type in "/bin/bash ~/cplex_studio124.macos.bin" and hit enter. Follow all the prompts.

4.) To help make it easier to run CPLEX, navigate to

/Users/yourusername/Applications/IBM/ILOG/CPLEX_Studio124/cplex/bin/x86_darwin9_gcc4.0/

and copy the cplex file and paste it to your Desktop. From there you can double-click and run CPLEX.

For Windows:

1.) Download and run cplex_studio124.win-x86-32.exe. You may need to right-click the exe and "Run as Administrator"

2.) You should now be able to find the CPLEX application under:

C:\Program Files (x86)\IBM\ILOG\CPLEX_Studio124\cplex\bin\x86_win32\

copy the cplex file and paste it to your Desktop. From there you can double-click and run CPLEX.

General Usage:

Upon starting CPLEX, issuing the **help** command will bring up a list of all the commands you can use in CPLEX.

To enter a new problem formulation, issue the **enter** command. Follow the prompts for entering the name of your problem, then enter your problem. For instance:

```
Last login: Mon Sep 24 18:08:10 on ttys000
Rex:~ ajamies$ /Users/ajamies/Applications/IBM/ILOG/CPLEX_Studio124/cplex/bin/x86_darwin9_gcc4.0/cplex ; exit;

Welcome to IBM(R) ILOG(R) CPLEX(R) Interactive Optimizer 12.4.0.0
  with Simplex, Mixed Integer & Barrier Optimizers
5725-A06 5725-A29 5724-Y48 5724-Y49 5724-Y54 5724-Y55
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Type 'help' for a list of available commands.
Type 'help' followed by a command name for more
information on commands.

CPLEX> enter
Enter name for problem: foo
Enter new problem ['end' on a separate line terminates]:
maximize x1 + x2 + x3
subject to x1 + 2x2 <= 12
x2 + 3x3 <= 14
bounds
x1 >= 0
x2 >= 0
x3 >= 0
end
CPLEX> 
```

Once entered, you can issue the **optimize** command to have CPLEX solve the problem as written. Once it has been solved, you can use the **display solution** command to look at various parts of your solution, specifically:

display solution variables –

will display all variables with their solutions (thanks to Alex Stek and Kaitlyn Kistler for this tip).

Writing an lp file – once you have your problem entered into CPLEX, you can write it out to a file by entering the following command:

write filename.lp

Which will place filename.lp in your home directory if you are using a Mac (/Users/yourusername). For Windows, the file will be placed on your Desktop. This assumes that you are running CPLEX as noted in the instructions above.

Reading an lp file – if you've created an lp file outside of CPLEX (an .lp file) using notepad or something else, you can read it into CPLEX. Be sure that the file is in your home directory (if you're on a Mac) or on the Desktop (Windows), then issue the command:

read filename.lp

To read the file.
CPLEX likes seeing constraints and such where the constant is on the right hand side of the equation. So this:

x1 + x2 <= 12

Not this:

12 >= x1 + x2