Homework 6
Due Friday, November 7, 1pm

Work in groups of 3! Only submit one set of homework per group!

1. Use the grammar ClassExampleOct29a.jff from the class schedule web page. Find two strings in the language and two strings not in the language. Build a LL(1) parse table and parse each of the four strings. Take a screenshot of the successful parse/rejection of each string.

Build SLR(1) parse table, watch bottom up parse. Take a screenshot once half the string has been parsed.
Linux: kscreenshot
Windows: alt-print screen
Remember, when using your bison parser, you need to put a space between each terminal.

2. Build grammar from 2.6 (c) on page 132 in your book in flex/bison.
(Remove X-> empty string, and remove the X's from the right hand side of the X rules)
Show parse/fail of the four strings with screenshots.

You need to turn in:

Your screen shots in a Word or OpenOffice document.
Your flex and bison file for question 2 (flex_2.l & bison_2.y)

Put all these files into a tar or zip file (Hmwk_6_PUNetID_PUNetID_PUNetID.{tar,zip}) and email it to me. There is no paper to turn in for this assignment!

Bonus.

Build a simple integer math calculator that will produce a value from a mathematical expression. Be sure to implement precedence and grouping correctly. The operations you need to implement are +, -, and *.

Build a grammar in JFLAP to test the calculator grammar you develop. Show, using screen shots of the parse tree being built, that precedence and grouping is working correctly by parsing:

8 + 15 * 9
(8 + 15) * 9

Files:

flex_bonus.l
yacc_bonus.y
jflap_bonus.jff

Mac OS X:
Flex/Bison and Lex/Yacc are part of the dev tools for Mac OS X.
http://developer.apple.com/tools/index.html

Windows:
Various ports are available for Windows, some that integrate with Visual Studio. As a standalone, Unix-like environment, Cygwin works well and contains everything you need, though you need to specify (in the devel packages) that you want gcc, flex, and bison installed.
http://cygwin.com/

Linux: Here are links for the source code for the Linux port:
ftp://prep.ai.mit.edu/pub/gnu/bison/bison-2.3.tar.gz
ftp://ftp.gnu.org/non-gnu/flex/flex-2.5.4a.tar.gz

FreeBSD:
Lex and Yacc are part of the base system and Bison is available in the devel ports collection.