Flex Mini Tutorial (Updated 12/2009)

0) Requirements

a) The guide below should work for Windows Vista and Windows XP

b) Visual Studio C++ Express edition must be installed on your machine. You can download this for free from: http://www.microsoft.com/express

1) Download and Install Flex

a) Download Flex from
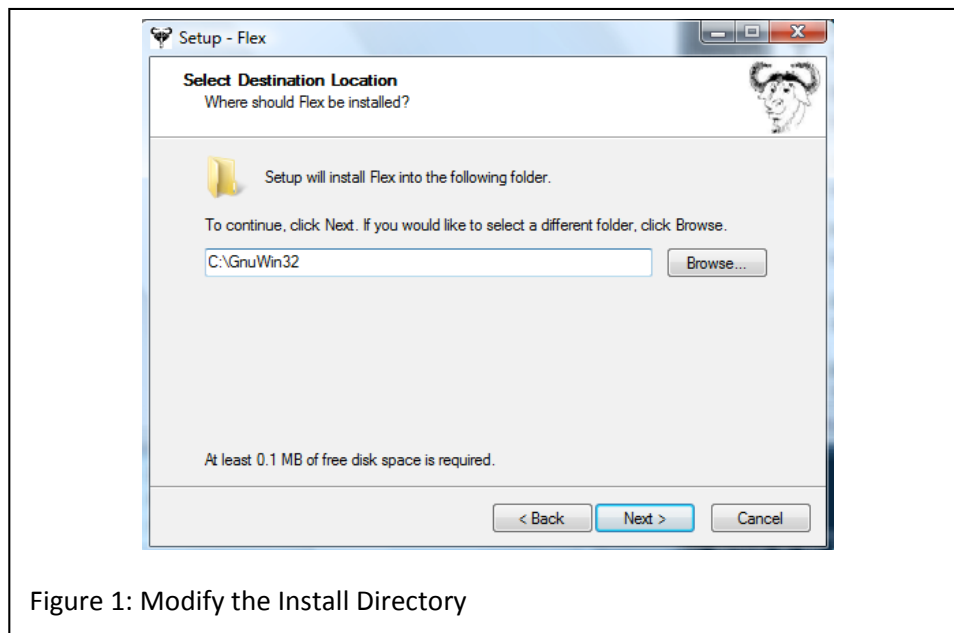
http://gnuwin32.sourceforge.net/packages/flex.htm

Choose the "Complete package, except sources " setup. You will now download *flex-2.5.4a-1.exe*.

b) Run the downloaded file to install Flex.

bi) Click Next, "Accept the license" and click Next

bii) For the install directory, you **MUST** modify this to the following: C:\GnuWin32

Figure 1: Modify the Install Directory

biii) Just click Next with the default choices from now on.

2) Setting the System Path

The Flex package is installed in the following folder: *C:\GnuWin32*. The executable is located within the *\bin* folder in the installation directory. The system path must therefore be modified to point to this directory. This is done by following these steps:

a) Go to: *Control Panel* -> click on *System*-> click on *Advanced system settings* (see Figure 1)
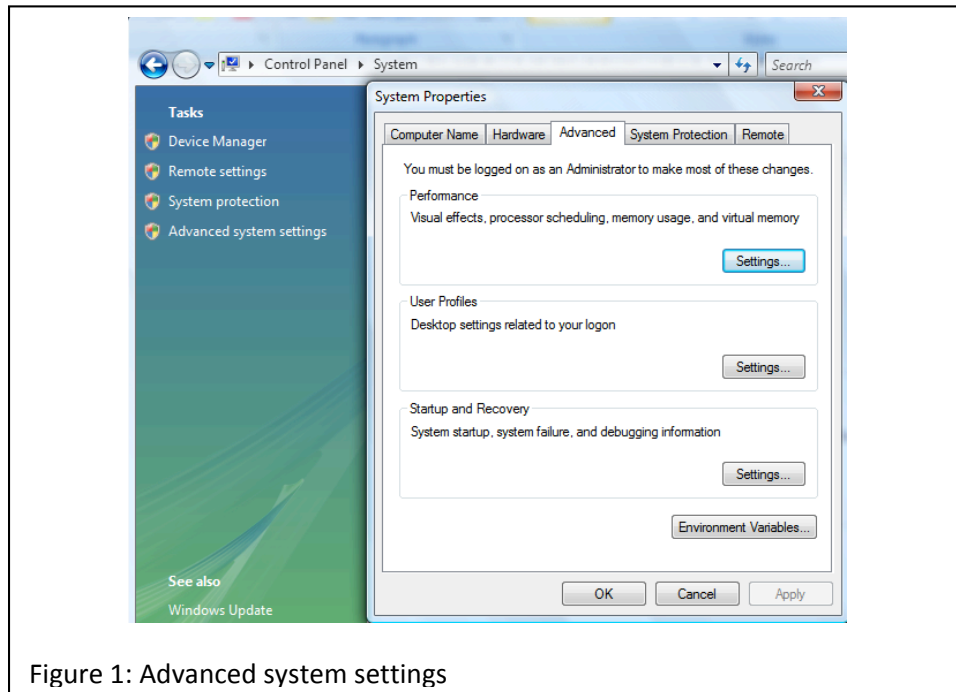

Figure 1: Advanced system settings

b) Click on *Environment Variables…* -> in the dialog that opens click on the line that starts with *Path* (see Figure 2)
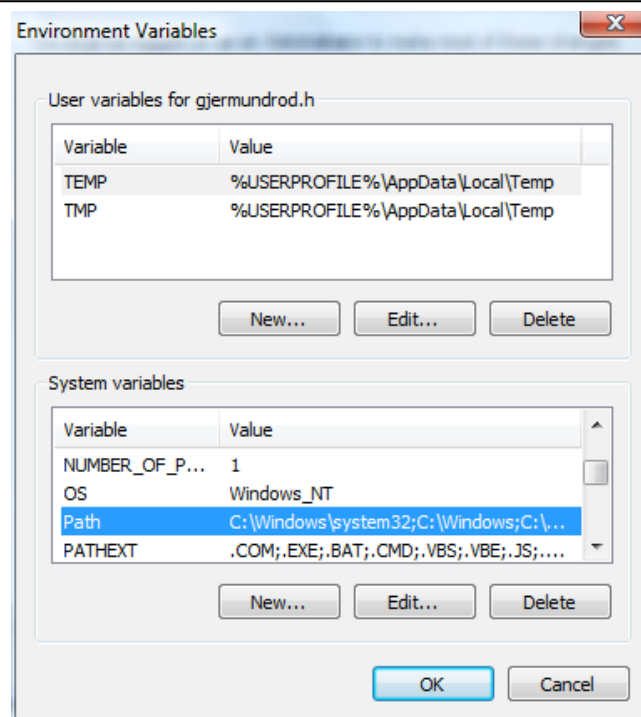

Figure 2: Environment Variable

c) Click on *Edit…* -> scroll to the end of the line, and then insert the following:

;C:\GnuWin32\bin (see Figure 3)

NOTE 1: MAKE SURE THAT YOU DON'T DELETE ANYTHING! IN CASE YOU DO, CLICK ON THE *Cancel* BUTTON AND DO IT AGAIN
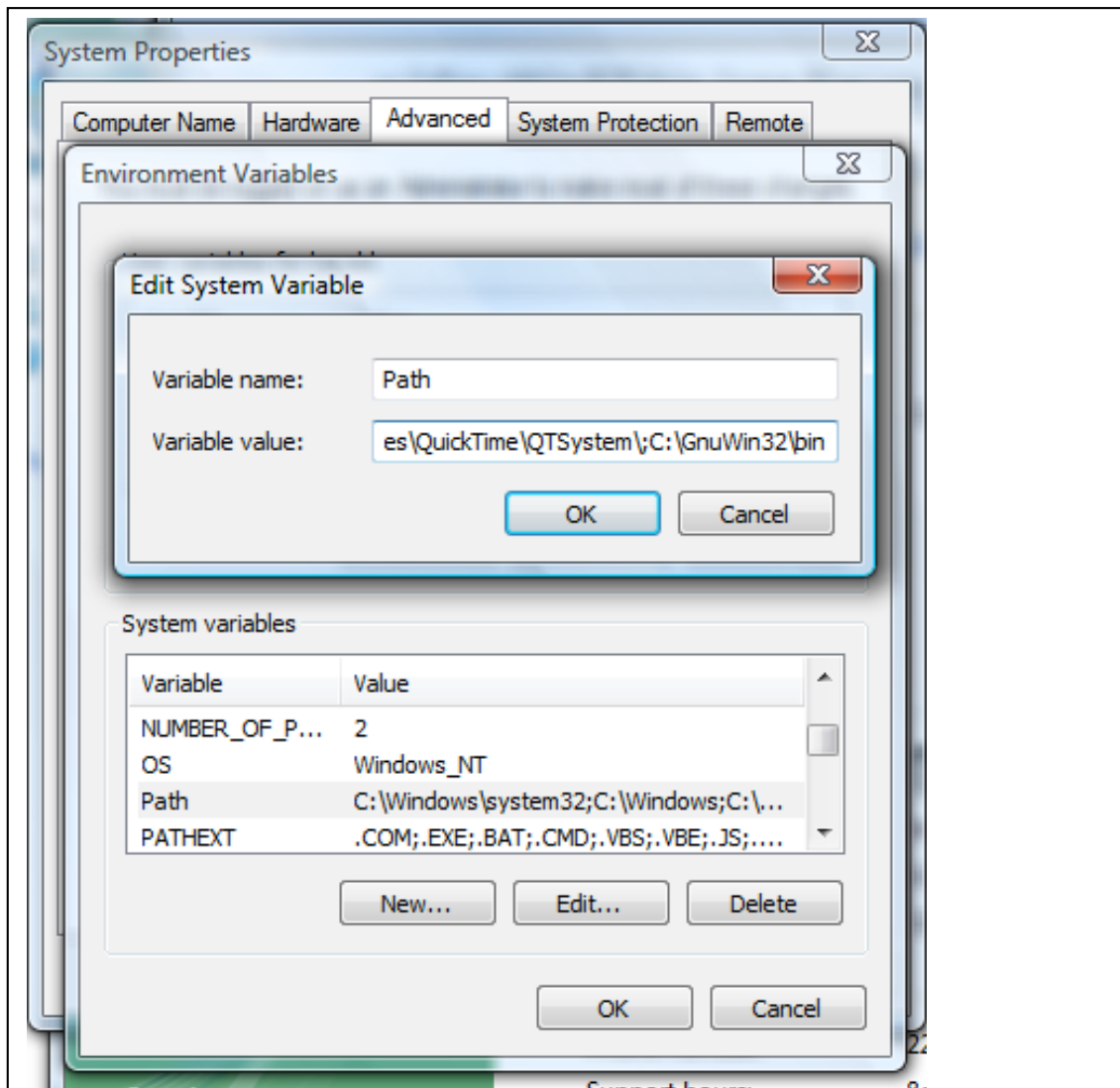
NOTE2: MAKE SURE THAT YOU START WITH THE **SEMICOLON ;**

Figure 3: Setting the path

3) A simple Flex example

a) To use Flex you must use the Visual Studio 2008 Command Prompt. Click on *Start -> All Programs -> Microsoft Visual C++ 2008 Express Edition -> Visual Studio Tools -> Visual Studio 2008 Command Prompt*. (See Figure 4)
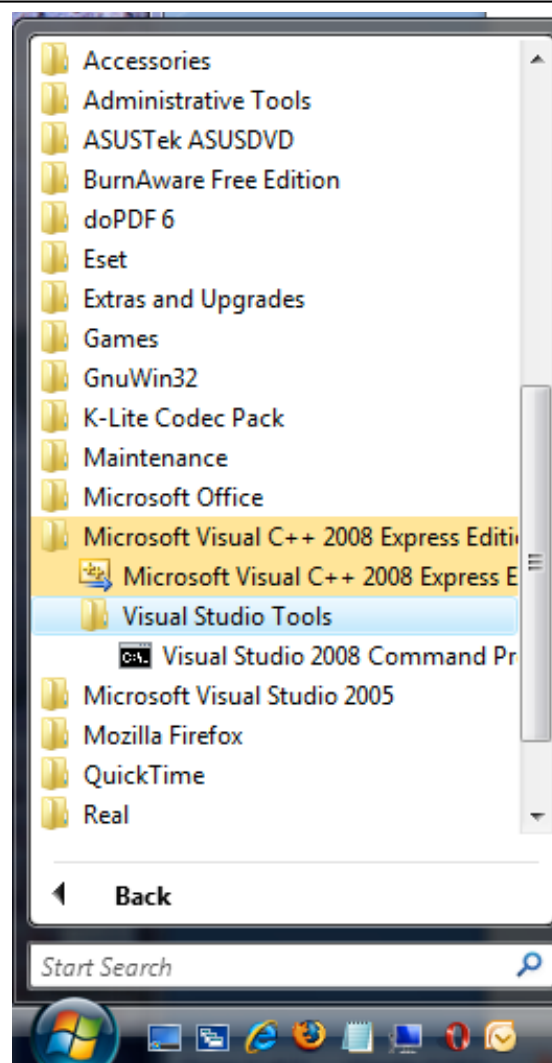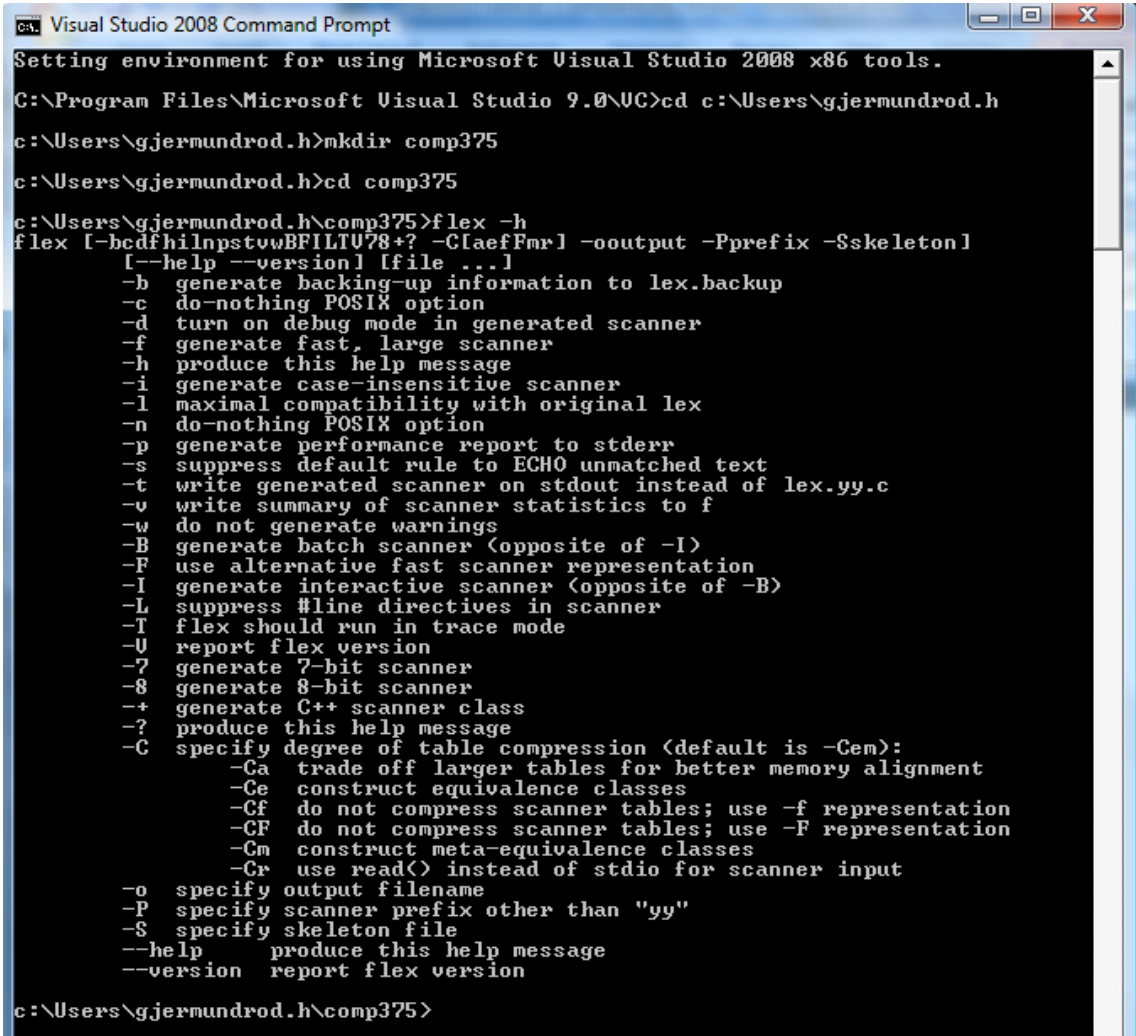

Figure 4: Start the Visual Studio 2008 Command Prompt

b) You may want to navigate to a folder in your home-directory. Type cd c:\Users\"Yours User Name" (my user name is gjermundrod.h). Then you may want to create a separate folder for comp375 course; this is done with the *mkdir* command. In order to go to a new folder you use *cd*, to go back to the previous folder use *cd ..* (that is cd followed by two dots).To list all the files in a directory use *dir*. To see all the options that the Flex program provides to you can type *flex -h* (see Figure 5)

```
Visual Studio 2008 Command Prompt

Setting environment for using Microsoft Visual Studio 2008 x86 tools.

C:\Program Files\Microsoft Visual Studio 9.0\VC>cd c:\Users\gjermundrod.h

c:\Users\gjermundrod.h>mkdir comp375

c:\Users\gjermundrod.h>cd comp375

c:\Users\gjermundrod.h\comp375>flex -h
flex [-bcdfhilnpstvwBFILTV78+? -C[aefFmr] -ooutput -Pprefix -Sskeleton]
        [--help --version] [file ...]
        -b  generate backing-up information to lex.backup
        -c  do-nothing POSIX option
        -d  turn on debug mode in generated scanner
        -f  generate fast, large scanner
        -h  produce this help message
        -i  generate case-insensitive scanner
        -l  maximal compatibility with original lex
        -n  do-nothing POSIX option
        -p  generate performance report to stderr
        -s  suppress default rule to ECHO unmatched text
        -t  write generated scanner on stdout instead of lex.yy.c
        -v  write summary of scanner statistics to f
        -w  do not generate warnings
        -B  generate batch scanner (opposite of -I)
        -F  use alternative fast scanner representation
        -I  generate interactive scanner (opposite of -B)
        -L  suppress #line directives in scanner
        -T  flex should run in trace mode
        -V  report flex version
        -7  generate 7-bit scanner
        -8  generate 8-bit scanner
        -+  generate C++ scanner class
        -?  produce this help message
        -C  specify degree of table compression (default is -Cem):
                -Ca  trade off larger tables for better memory alignment
                -Ce  construct equivalence classes
                -Cf  do not compress scanner tables; use -f representation
                -CF  do not compress scanner tables; use -F representation
                -Cm  construct meta-equivalence classes
                -Cr  use read() instead of stdio for scanner input
        -o  specify output filename
        -P  specify scanner prefix other than "yy"
        -S  specify skeleton file
        --help       produce this help message
        --version  report flex version

c:\Users\gjermundrod.h\comp375>
```
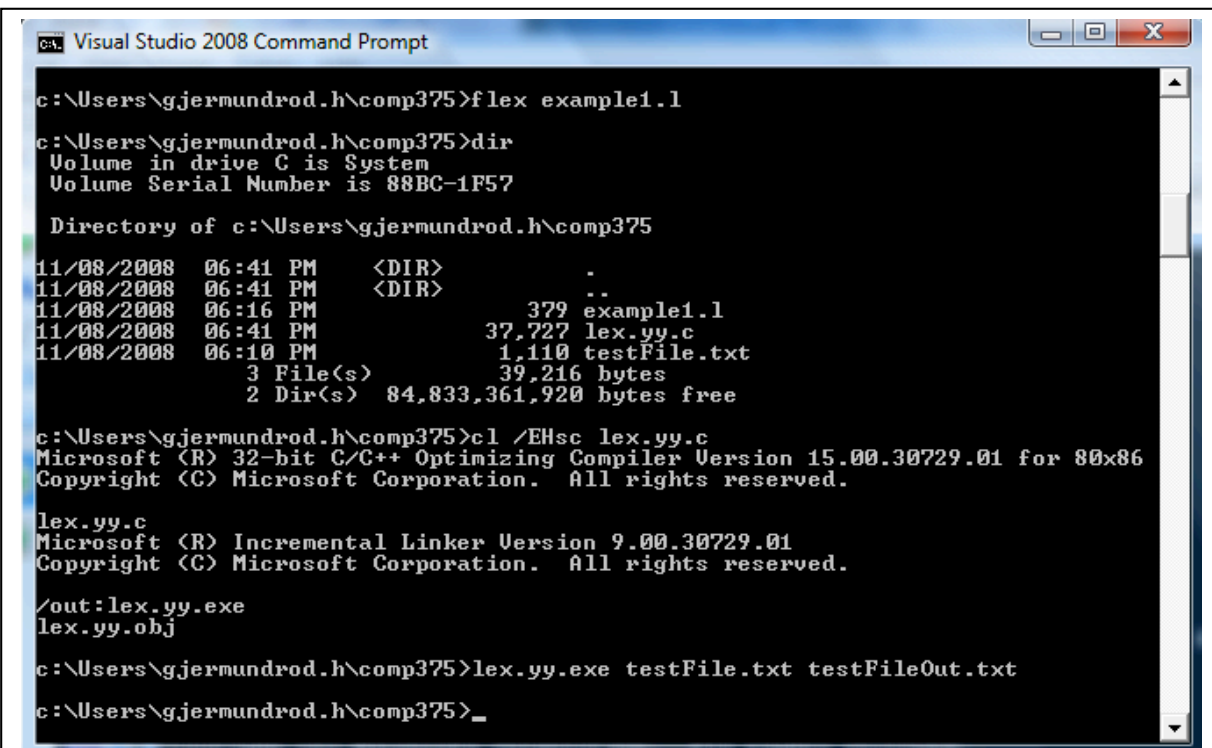
Figure 5: Use the Flex program

c) You can use an editor to create your Flex specification or download the example (*example1.l*) from the website and save it in your *comp375* folder. You will then use the following three commands:

flex *filename.l*

cl /EHsc lex.yy.c

lex.yy.exe *arguments* (where there are two arguments for the example: a text file and the name of a new text file)

See Figure 6 for an execution run.

Figure 6: Execution run