**CS149: Spring 2016**

**Project #2: Shell commands and Directory GUI using JNI**

**Due Date: May 17, 2016**

**Description:**

There are 2 parts to this assignment. For part one, you will implement 2 shell commands with a certain syntax/options. For part two, you will display files and directory from a Java GUI using the JNI interface for a set of file system API wrappers.

**Project Specification:**

**Part 1: shell.exe “command and options”**

Command 1: dir start\_directory options

e.g. shell dir .\ /zd

e.g. shell dir c:\ /zs

Two special options

/zd - order the directory listing by timestamp with latest time first

/zs - order the directory listing by file sizes with the largest file first

Note that start\_directory can be an absolute or relative path.

Command 2: compare file1 file2 [optional file1 masking character]

[masking character] : Any displayable character. If file1 contain this character in any position, it will skip the comparison for that position with file 2.

e.g. shell compare p1.cpp p1.c

e.g. shell compare p1.cpp p1.c @

e.g. shell compare p1.cpp p1.c %

Note that file1 and file2 can be text or binary file. (hint: a text file can be read as binary)

**Part 2: Simple Java GUI displaying files and directory using JNI**

* Always start with C:\ as the default directory.
* Display 4 columns in this order, Name, Date modified, Type (either folder or file), Size.
* The default display order is by the file/directory names.
* Allow the user to click on any of the 4 columns for diff sort order.
* MUST use the JNI to invoke native Windows API to get the file/dir info.
* That means you will build a wrapper layer to for the required API(s).

Write the “C” functions in p2\_IO.cpp and compiled them in p2\_IO.dll. Your GUI will start from p2.java.

Good example-> http://www.ibm.com/developerworks/java/tutorials/j-jni/j-jni.html