**UNIX Programming Assignment 3**

**Due date : 2016/11/1 23:59**

**Demo time: 2016/11/1 18:30~22:00**

**Demo room: EECS 328**

a) (3%) Write a utility like cp(1), say lcp, that copies a file containing holes, without copying the hole to the target file. Instead, your utility writes “\0” to fill those holes in the target file.

* **lcp** only needs to support basic copy feature; copying a file to another file. (usage : lcp <source\_file> <destination\_file>)
* Your output file should be identical to the original input file (size, content), but the block usage on the disk is different.

**Sample output**

**8** -rw-r--r-- 1 mao mao 16394 10月 28 12:47 file\_with\_hole.txt

**20** -rw-rw-r-- 1 mao mao 16394 10月 28 12:48 output.txt

* You need to check how to create a file with holes as explained in Chapter 3.
* The test cases will be regular files, and you don’t have to handle any unusual exceptions.
* Submit your code and Makefile via iLMS

1. (2%) In Section 4.22, our version of ftw, called ftw8.c, never changes its directory. Modify this routine so that each time it encounters a directory, it uses the **chdir** function to change to that directory, allowing it to use the filename and not the pathname for each call to **lstat**. When all the entries in a directory have been processed, execute **chdir("..")**. Compare the time consumed by this version and the version in the text book.

* Trace the ftw8 source code given by TA. (compile with “make ftw8”)
* Modify the code with **chdir**
* Submit your code, Makefile, and the observations in a text file via iLMS