Aman Singh & Kim Joongwon

README

Functions

compressT_LOLS.c- multi-threading and thread worker

void * compressT_worker_LOLS(fileMetaData * thread data)-
- Worker function for threads.
- Calls the LOL encoder for compression.

void compressT_LOLS(char * fileName, int parts)-
- Multi-threaded compression.
- Error checking on file,parts
- Child threads spawned from a thread and each waited for or joined.

compress_LOLS.c- LOLS compression and output or compressed file

void compress_LOLS(int start, int end, int numParts, char * fileName)
- LOLS compression into compressed file.
- Used in process and thread worker.
- 1st half of code focuses on the compressed or output file's name and memory allocation.
- 2nd half of code focuses on LOLS and adding the desired characters into the compressed or output file using the range of start to end.
- Considers alphabetical characters.
- Prints if a compressed file already exists, in name, and overwrites it.

compressR_LOLS.c- multi-processing

void compressR_LOLS(char * fileName, int parts)
- Multi-process compression.
- Error checking on file,parts.
- When called as function, it checks for file(if its accessible), and when file is accessible it spawns child process based on number passed from main.
- Although it doesn't directly encode, it shared memory through shared map for it to give position information to children. And each child process does encoding job and make output file based on passed file and positions.

compressR_worker_LOLS.c- multi-processing thread worker

- Worker function for processes
- Calls the LOL encoder for compression.

Things to Know

- Enter make so the makefile can create everything.
- ./test is the command used to test multi-threading and processing. The user will be asked to enter a number to indicate if they want to multi-thread or multi-process. Then the user will be

asked to enter the name of the text file followed by the number parts to split it into (use a reasonable file name size, ie <50 characters). Remember to add the text file to the directory or it doesn't exist! If compressed files with that name already exist then a warning message will appear telling the user that they will be overwritten. Finally the files will show up in the directory to be opened and checked. Example: ./test 2 test.txt 2 ls test_txt_LOLS_0 test_txt_LOLS1.

- ./timetest is the command used to test the average time of multi-threading and processing. The file used for testing is fixed, it is test.txt. Trials and parts can be altered in the main function. This command is not necessary for user testing, but added for clarity.
- compress.h is the header filed used for all c files so functions can be easily linked or called.