1. Write a library which maintains a Least Recently Used (LRU) cache for storing information about files being opened by the applications. Information stored in the cache could be : File path, timestamp at which it was opened, metadata information of the file e.g size, timestamp, inode(Information returned by stat() system call)
The LRU cache should have a mechanism to remove the entries which have been stored in the cache for a really long time.
Implement library calls to create LRU, add entry to LRU, search entry in LRU with filepath as key, remove items from LRU

2. Write a multi-threaded application to process a really large file which has integer numbers stored in it. Each thread should work on a separate section of the file and should find out unique numbers from that section and add it to the global unique number list. Each thread keeps adding the unique numbers from its section to the global list. Make sure the unique number should not repeat in the global list.
At the end of processing the whole file, print the list of unique numbers from the global list.