Design a Simple Database management system (DBMS) with following properties –

* Server

Server will only store (Key -> Value) pairs with following characteristics –

* Need to support following operations –
* Insert
* Update
* Delete
* Read

Also design a (Input / Output) protocol for before mentioned operations.

* All incoming operations will be received by Single thread.
* Key and Value both will be binary data.
* (Key -> Value) pairs need to be saved to disk periodically. File need to be rotated based on the following two conditions –
* File size
* Time

On Server restart, saved data need to be read and stored in memory.

* Maintains simple statistics like the followings –
* How many (Key -> Value) Pairs
* Total In-Memory usage of (Key -> Value) pairs
* Total number of connected clients
* Maintains a configuration file to change default behavior.
* Client

A single threaded application which will have the following characteristics –

* Will accept application arguments, like the followings

client -s localhost -p 3000

Following are the possible arguments

* -s, --server – Server IP
* -p, --port – Server port
* -h, --help – Help menu
* Following operations will be supported –
* INSERT <Key> <Value>
* UPDATE <Key> <Value>
* DELETE <Key>
* DELETEALL – Delete all the keys
* READ <Key>
* READALL
* INFO – Server statistics

After showing server response, execution time also need to be shown like the following

>> INSERT hello world

OK

Execution time (0.01s)