BLINK DB

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Chapter 1

Class Index

1.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

StorageEngine 5

Chapter 2

File Index

2.1 File List

Here is a list of all documented files with brief descriptions:

storageEngine.h 7

Chapter 3

Class Documentation

3.1 StorageEngine Class Reference

Public Member Functions

- void **set** (const std::string &key, const std::string &value)
- std::string **get** (const std::string &key)
- void **del** (const std::string &key)

The documentation for this class was generated from the following files:

- storageEngine.h
- storageEngine.cpp

Chapter 4

File Documentation

4.1 storageEngine.h

```
00001 #ifndef STORAGE_ENGINE_H
00002 #define STORAGE_ENGINE_H
00003
00004 #include <unordered_map>
00005 #include <unordered_set>
00006 #include <list>
00007 #include <string>
00008 #include <iostream>
00009 #include <fstream>
00010
00011 class StorageEngine {
00012 private:
00013     std::unordered_map<std::string, std::string> data;
00014     std::unordered_set<std::string> deletedKeys;
00015     std::list<std::string> usageList;
00016     std::unordered_map<std::string, std::list<std::string>::iterator> usageMap;
00017
00018     // LRU Cache
00019     std::list<std::string> cacheList;
00020     std::unordered_map<std::string, std::pair<std::list<std::string>::iterator, std::string» cacheMap;
00021     size_t cacheSize = 3; // Adjust based on memory constraints
00022
00023     // File indexing for efficient retrieval
00024     std::unordered_map<std::string, std::streampos> fileIndex;
00025
00026     size_t maxSize = 3;
00027
00028     void evictIfNeeded();
00029     void persistEvictedKey(const std::string& key, const std::string& value);
00030     std::string retrieveEvictedKey(const std::string& key);
00031     void updateFileIndex();
00032
00033 public:
00034     StorageEngine();
00035     void set(const std::string& key, const std::string& value);
00036     std::string get(const std::string& key);
00037     void del(const std::string& key);
00038 };
00039
00040 #endif // STORAGE_ENGINE_H
```

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