User Manual

November 7, 2014

I. Basic Functions

I. insert(key, value)

Insert function inserts a file with key as filename and value as file-data. Google App Engine restricts the file size to be 32 MB per request to be handled by the application. To over come this restriction, I have implemented insert function in two parts. User can upload multiple files with total size less than 32 MB, which will be processed by the application, and will be inserted to gcs bucket. For large files, user can upload single file of any size which will be redirected to gcs bucket by POST method. This function doesn't support multiple big size files, since GAE limites the number of files to one with one POST request. If the file size less than 100 KB, the file-data is also stored to memcache as key-value pair. The key added to memcache is also inserted to a ndb object to keep track of all the memcache objects.

II. check(key)

Check function searches for given file in the system. It first checks the memcache; If file is not found in memcache, it searches in the cloud storage. To search in cloud storage, it invokes the listing function and if file found in that, the function returns true.

III. find(key)

Find functions is used to get the file with given key. It first invokes check function; If file exists, it checks the memcache. If it is small sized file, the memcache will return the file data, which will be returned as a file. If file is not found in memcache, it checks in the cloud storage, and returns the url to the file under bucket which is rediretcted to the user.

IV. remove(key)

Remove function is used to delete the file from memcache and cloud storage. This function first checks if file exists in system. If file is found, it invokes the delete function of cloud storage to delete from gcs bucket and delete function of memcache to delete from memcache.

V. listing()

Listing functions returns the list of files stored in the cloud storage. The return type of this function is a list of filenames. This function uses the listbucket method of cloud storage to get a list of stored files.

II. Additional Functions

I. checkStorage(key)

CheckStorage function checks for the given file only in cloud storage. To search in cloud storage, it invokes the listing function and if file found in that, the function returns true.

II. checkCache(key)

CheckCache function is used to check if given key exists in the memcache. It invokes the get function of memcache to decide if file exists in memcache as key-value pair.

III. removeAllCache()

RemoveAllCache removes all the data from memcache. It uses flushAll functionality of class memcache.

IV. removeAll()

RemoveAll function removes all the files and data from cloud storage and memcache. It invokes the listing function, and performs remove function on each file. It also invokes the removeAllCache function to remove data from memcache.

V. cacheSizeMB()

CacheSizeMB function returns the size of data stored in memcache. It uses getStats functiuon of class memcache. The return type of getStats is a dictionary which has one key as 'bytes',

which maps to total size of memcache data in Bytes. It is converted to MB and returned to user.

VI. cacheSizeElem()

CacheSizeElem function returns the number of elements stored in memcache. It uses getStats function of class memcache. The return type of getStats is a dictionary which has one key as 'items', which maps to total size of memcache data as number of key value pairs.

VII. storageSizeMB()

StorageSizeMB function calculates the total size of files stored in cloud storage. It first invokes the listing function, and uses stats function to get size of each file. stats function has one attribute names stSize, which is added for all the files of list to get the total size of bucket.

VIII. storageSizeElem()

StorageSizeElem function counts the number of files stored in cloud storage. It invokes the listing function and returns the size of list as count .

IX. findInFile(key, string)

FindInFile function accepts one key as filename and a string as value. It searches the file for the given string and returns true if found. This function reads the given file in a string, and searches for the pattern in the file. It returns true on the first occurance.

X. listingRegEx(string)

ListingRegEx function takes a string as argument, and searches the cloud storage for filename matching with the string. This function invokes listing function, and searches for matching filenames. All the matching filenames are stored in a list which is returned to the user.

III. Memcache

Memcache is used to store small size files as key value pair in cache. The purpose is to improve the performance of find function over small size files. At the time of insert, the system checks the size of file, and adds to memcache if size is less than 100 KB. At the time of retrival, it first checks the memcache for any file. If found, it returns the data in form of a file. If not found, it further checks in the storage.

IV. Application

vap-demo2.appspot.com

The application built can be found at above address. The gcs bucket used is the default bucket with same name as the application web address.