LAB211 Assignment

Type:	**Short Assignment**
Code:	**J1.S.P0012**
LOC:	**100**
Slot(s):	**2**

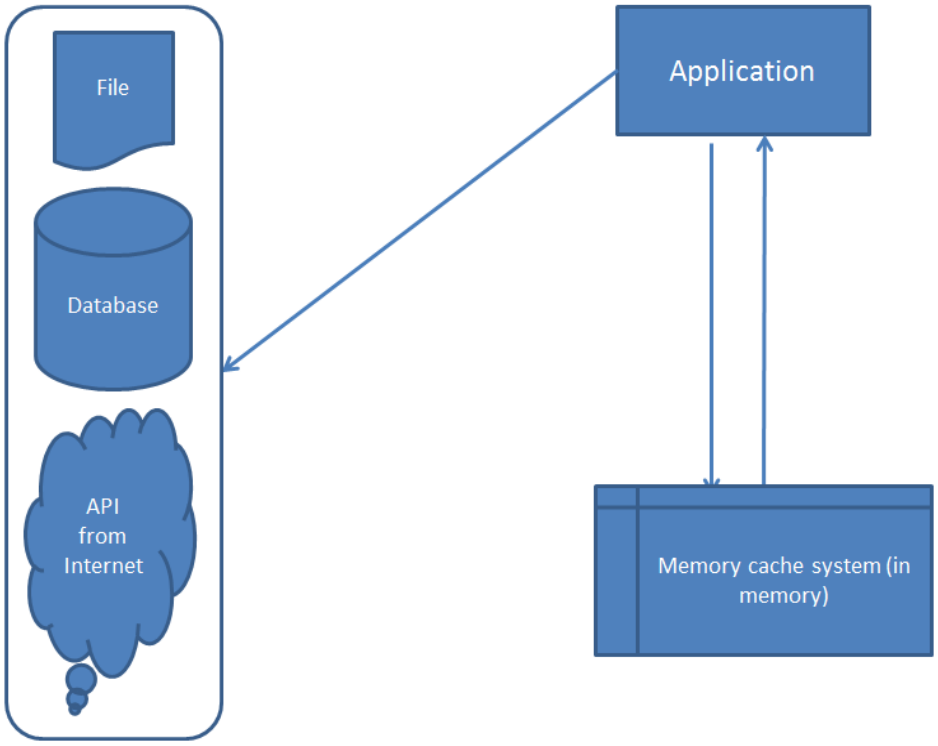
Title

Memory cache management program

Background Context

Memory caches are the system caches data and objects in memory. It is often used to speed up dynamic database-driven websites by caching data and objects in RAM to reduce the number of times an external data source (such as a database or API) must be read.

In the memory cache system (mem-cache), each item usually has a key, an expiration time. When an item is



requested, it checks the expiration time to see if the item is still valid before returning it to the client.

Program Specifications

Design a Simple memory cache system program that allows cache data in memory to reduce number of time read data from external sources.

Function details:

Suggestion: Program use a HashMap store Object, and wrapper class contains object and expired time.

Expectation of User interface:

Guidelines

1. Write wapper class FuCached contains 2 field `Object data`, and `Date expiredDate`.
2. Write class FuMemoryCached contain static field *`HashMap<String,FuCached>` cached.*
   a) `public boolean putObject(String key, Object object, int timeTolive).`

   - This method will put *`Object`* to *`HashMap<String,FuCached>` cached* cached, (new a instance of FuCached, set data, expiredDate)

   b) `public static Object getObject(String key)`

   - This method will return Object from HashMap cached if key exist in *`HashMap<String,FuCached>` cached* and current time < *expiredDate* of Object. (remember remove object if current time > *expiredDate* of Object)

   c) `public static boolean clean (String key)`

   - This method remove Object have key equal key from HashMap cached

   d) `public static boolean cleanAll()`
   - This methed will remove all Object in HashMap cached

3. Write Main class Main test Program you wrote (example : read student from a file and put to cache)

Note:

In fact memory cache system must resolve the problem concurrent user. (Example: the same time there are two processes that call method putObject) . Thus, try to research about synchronization mechanism in java.
Suggestion: search google with some keyword like: synchronized, thread safe.