**Military College of Signals**

**Department of Computer Software Engineering**

**Computer Organization and Architecture**

**Spring 2012 BESE 16 A and B**

**MINI PROJECT 02 – ASSOCIATIVE MAPPING**

**Total Marks: 20 Due date: *2nd May, 2012***

***INSTRUCTIONS***

1. Execute the assignment in groups of not more than two students.
2. The assignment should illustrate all steps.
3. The assignment is a simulator.
4. Programming Languages – C++, VC++, VB++, Jave, C# or Python only
5. Follow OOP.

**RAM CONTENTS**

The start location of the RAM is the last three digits of the PC/NC/SC/PA number of the older participant. The total number of locations in RAM is 20.

* Identify the blocks (1 Block = 4 locations)
* RAM contents are the first 20 English letters, each stored in one byte

**CACHE CONTENTS**

The cache has 3 lines only. Initially the cache is empty

**MAPPING ALGORITHM – ASSOCIATIVE**

Illustrate the trace of associative mapping for a code that shows the sequence of bytes accessed in RAM. The illustration must show the Byte, the block and the movement into block. The illustration must provide a running count of Hits and Miss. A sample code is shown in Table 1 and should be read as a text file. You need to provide a text file reader.

**REPLACEMENT ALGORITHM – FIFO, LRU and LFU**

Provide the outcome for all three replacement algorithms, simultaneously so as to maintain a comparison. Show a running count of number of replacements. Show the replaced line and the updated block.

**REPORT WRITING**

The report must show your analysis of replacement algorithm based on different codes you have provided. Identify which is better and why. Your must show an analysis on the basis of atleast 20 different codes that you have executed.

The report must show the screen shots and the class diagram as well as sequence diagram associated.

TABLE 1: Sample Code

|  |  |
| --- | --- |
| Code line | Code Byte REQUIRED |
| 1 | A |
| 2 | B |
| 3 | D |
| 4 | A |
| 5 | F |

**THE END**