**Computer Organization 2019**

**HOMEWORK 6**

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**問題(Question)**

Q1. How do you know the number of block from input file?

Number of block = (Cache size) / (Block size)

Q2. How do you know how many set in this cache?

Number of block = (Cache size) / (Block size)

Direct map: Number of set = Number of block

Four-way set associative: Number of set = (Number of block) / 4

Fully associative: Number of set = 1

Q3. How do you know the bits of the width of the Tag ?

Offset bits = log2(Block size in byte)

Index bits = log2(Number of block)

Tag bits = 32 – (Offset bits) – (Index bits)

Q4. Briefly describe your data structure of your cache.

用C++的vector做資料儲存，direct map和fully associative都只要用一維的vector，但four-way set associative需要二維的vector，所以我用typedef新增一個struct為一維vector的type

Q5. Briefly describe your algorithm of LRU.

新增資料時用push\_back()，每當使用過一筆data就將其取出並放到最後，這樣每當要刪除的時候直接刪第一筆即可，因為第一筆會是近期最少使用的data

Q6. Briefly describe your algorithm of your policy.

新增資料時用push\_back()，每當使用一筆data時，判斷是否為最後一個，如果不是就和後一筆data交換位置，刪除時刪除第一筆data，因為第一筆data會是使用近期使用頻率最低的data

Q7. Run trace2.txt, trace3.txt and then makefile to get the miss rate and put it in your report.

**心得(Report)**

(請寫下完成本次作業的心得、學到哪些東西、困難點的部分。)

(Please write your learned lesson and conclusion, and difficult point.)