CS 210: Principles of Computer Organization
Page Replacement Strategies

Problem 1: Suppose we have 10 pages and a page table that has **4 page frames**. Assume the page table is initially empty. The following pages are needed in this order:

0 1 5 3 0 1 4 0 1 5 3 4

a) Draw the page table illustrating the **optimal** page replacement policy. How many page faults are there?

b) Draw the page table illustrating the **FIFO** replacement policy. How many page faults are there?

c) Draw the page table illustrating the **LRU** replacement policy. How many page faults are there?

Problem 2: Suppose now that we have a page table with **3 frames**, and the same ordered list of pages:
0 1 5 3 0 1 4 0 1 5 3 4

a) Draw the page table illustrating the **optimal** page replacement policy. How many page faults are there?

b) Draw the page table illustrating the **FIFO** replacement policy. How many page faults are there?

c) Draw the page table illustrating the **LRU** replacement policy. How many page faults are there?

d) Which page replacement policies resulted in **less** page faults when the size of the page table was larger (4 page frames) compared to the same policy with a smaller page table (3 page frames)?

e) Which page replacement policy resulted in **more** page faults with a larger page table? What phenomenon does that illustrate?