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HW7: Virtual Memory and Storage Scheduling

1)   Given a 3 frame VMM and the page request sequence below (it's the top row), perform the VMM **First In First Out** page replacement policy (complete the table) to determine the total number of page faults for the sequence.

F	1	2	3	4	2	4	5	1	6	3	7	5	3	2	6	6	2	4	5	3	2	1	5	1	6	3	4	2	1
0	1	2	3	4	4	4	5	1	6	3	7	5	5	2	6	6	6	4	5	3	2	1	5	5	6	3	4	2	1
1		1	2	3	3	3	4	5	1	6	3	7	7	5	2	2	2	6	4	5	3	2	1	1	5	6	3	4	2
2			1	2	2	2	3	4	5	1	6	3	3	7	5	5	5	2	6	4	5	3	2	2	1	5	6	3	4

How many page faults? 23

2)   Given a 4 frame VMM and the page request sequence below (it's the top row), perform the VMM **Least Recently Used** page replacement policy (complete the table) to determine the total number of page faults for the sequence.

F	1	2	3	4	2	4	5	1	6	3	7	5	3	2	6	6	2	4	5	3	2	1	5	1	6	3	4	2	1
0	1	2	3	4	2	4	5	1	6	3	7	5	3	2	6	6	2	4	5	3	2	1	5	1	6	3	4	2	1
1		1	2	3	4	2	4	5	1	6	3	7	5	3	2	2	6	2	4	5	3	2	1	5	1	6	3	4	2
2			1	2	3	3	2	4	5	1	6	3	7	5	3	3	3	6	2	4	5	3	2	2	5	1	6	3	4
3				1	1	1	3	2	4	5	1	6	6	7	5	5	5	3	6	2	4	5	3	3	2	5	1	6	3

How many page faults? 21

3)   Given a 3 frame VMM and the page request sequence below (it's the top row), perform the VMM **Optimal** page replacement policy (complete the table) to determine the total number of page faults for the sequence.

F	1	2	3	4	2	4	5	1	6	3	7	5	3	2	6	6	2	4	5	3	2	1	5	1	6	3	4	2	1
0	1	2	3_7	4_2	4_1	4_2	5_5	5_4	5_3	5_2	5_1	5_2	5_6	5_5	5_4	5_3	5_2	5_1	5_4	5_3	5_2	5_1	$5_?$	$5_?$	6_i	6_i	4_i	4_i	4
1		1	2_2	2_1	2_4	2_8	2_7	2_6	2_5	2_4	7_i	7_i	7	2_3	2_2	2_1	2_4	2_3	2_2	2_1	$3_?$	1_2	1_1	1_5	1_4	1_3	1_2	$1_?$	1
2			1_5	1_4	1_3	1_2	1_1	1_4	6_6	3_3	3_2	3_1	3_7	3_6	6_1	6_9	6_8	4_9	4_8	3_6	3_5	3_4	3_3	3_2	3_1	3_i	3_i	2_i	2

How many page faults? 16