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1. Consider a reference string:

4 2 3 1 4 2 3 4 5 5 6 5 4 3 3 1 1 2 7 5 1 3 6 4 2 5

There are a total of 4 page frames available.

a. Construct the page replacement table for FIFO algorithm and record how many page faults. Fill in the page table after each reference.

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

F = 17

b. Construct the page replacement table for LRU algorithm and record how many page faults. Fill in the page table after each reference.

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

F = 15

c. Construct the page replacement table for 2nd chance algorithm and record how many page faults. Fill the page table after each reference.

4 ¹				4 ²			4 ³	4 ⁴		4 ⁵		4 ⁶		4 ⁷	2 ¹	2 ²			3 ¹	3 ²	3 ³				
	2 ¹				2 ²			2 ³			6 ¹				1 ¹	1 ²			1 ³	1 ⁴	1 ⁵				
		3 ¹				3 ²		3 ³		3 ⁴		3 ⁵	3 ⁶	3 ⁷	3 ⁸	3 ⁹			7 ¹	7 ²	7 ³	6 ¹	6 ²	6 ³	
4	2	3	1	4	2	3	4	5	5	6	5	4	3	3	1	1	2	7	5	1	3	6	4	2	5
F	F	F	F				F	F							F	F	F	F	F	F	F	F	F	F	F

F = 13

d. Construct the page replacement table for MFU algorithm and record how many page faults. Show the page table after each reference.

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

F=12