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A. Consider the following series of accesses to memory pages: 0,1,2,3,0,1,4,0, 1,2,3,4. How many page faults would happen, when using FIFO replacement policy and a memory which contains only 3 frames?

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INPUL	0	1	2	ч	ß	1	4	0	۲	۵	3	4
		0	O	0	3	3	3	4	4	4	4	4
memory			Ā	1	1	0	0	0	O	0	2	2
				J	2	<u>a</u>	1	1	1	1	1	3
fault	ş	t	£	t	ţ	£	ş			f	£	

Total of 9 page faults.

B. Repeat A, when given that the memory contains 4 frames.

- oldest

input	0	1	l a	3	в	1	4	0	1	2	3	4
		0	اه	0	0	0	0	4	4	ч	31	3
memory			1	1	1	1	1	1	0	0	0	0
				a_	d	d	J.	2	2	٨	1	1
				3	3	3	3	3	3	3	2	2
fault	۶	£	f	f			f	f	f	f	÷	f

Total of 10 page faults.

C. Prove or disprove: When using FIFO algorithm, the set of pages which reside in the memory of n pages is always a subset of the set of pages which reside in the memory of n+1 pages.

Disprove - Counter example is A)+B). For the same input the set of pages
Which reside in the memory of 3 pages arent the subset of 4 pages.

_	input	0	1	ہ	3	а	1	4	0	1	2	3	4
			0	D	0	3	3	3	4	4	4	4	4
•	memory			Ā	1	1	0	0	0	O	0	2	2
_					a.	2	2	4	1	1	7	1	3
	fault	£	£	f	f	f	f	£			f	f	

input	0	1	Z	3	в	1	4	0	1	2	3	4
		0	اھ	0	0	0	0	4	4	ч	15	3
memory			1	1	7	1	1		0	0	0	0
				J	d	d	a.	2	2	٨	1	1
				3	3	3	3	3	ッ	જ	2	2
fault	£	£	f	£			f	f	£	f	£	f

D. Prove or disprove: When using FIFO algorithm, enlarging the memory may increase the number of page faults.

Prove - (A) gave us a page faults while (B) (enlarged memory) gave us 10.

E. Prove or disprove: When using LRU algorithm, the set of pages which reside in the memory of n pages is always a subset of the set of pages which reside in the memory of n+1 pages.

Prove - as we learnt in class, LRU is a stack algorithm which applies this property (prooved in the class).

F. Prove or disprove: When using LRU algorithm, enlarging the memory may increase the number of page faults.

Disprove - as prooved in class for stack algorithms (e.g. LRU), enlarging the memory does not increase the number of Page faults (stems from proprety (E)).