SAFETY ALGORITHM

needs to be ≤ WORK

PROCESS	FINISHED	ALLOCATION A B C	MAX A B C	NEED A B C
0	T	0 1 0	7 5 3	7 4 3 → 4
1	T	2 0 0	3 2 2	1 2 2 → 1
2	T	3 0 2	9 0 2	6 0 0 → 5
3	T	2 1 1	2 2 2	0 1 1 → 2
4	T	0 0 2	4 3 3	4 3 1 → 3

add

dito kasi gusto mag request kaya dito nag add

(102 ≤ 332)

332 − 102 = 230

AVAILABLE A B C	WORK A B C
3 3 2	3 3 2
	5 3 2
	7 4 3
	7 4 5
	7 5 5
	10 5 7

→ equal to available@first

→ equal to instances of resources

SEQUENCE

P 1
P 3
P 4
P 0
P 2

NOTE

wag tignan as a whole number si ABC

BANKER'S ALGO

+230

needs to be ≤ WORK

PROCESS	FINISHED	ALLOCATION A B C	NEED A B C	WORK A B C
0	T	0 1 0	7 4 3	7 5 5 → 4
1	T	3 0 2	0 2 0	3 3 2 → 1
2	T	3 0 2	6 0 0	10 5 7 → 5
3	T	2 1 1	0 1 1	5 4 3 → 2
4	T	0 0 2	4 3 1	7 4 5 → 3

AVAILABLE A B C	WORK A B C
2 3 0	

SEQUENCE

Process	ALLOCATION A	B	C	MAX A	B	C	AVALLABLE A	B	C	NEED A	B	C	WORK A	B	C
1	1	1	0	4	5	1	5	7	6	3	4	1	6	8	6
2	2	1	0	4	3	3				2	2	3	8	9	6
3	0	2	1	1	5	2				1	3	1	8	11	7
4	0	0	2	3	3	3				3	3	1	8	11	9
5	1	0	1	2	3	9				1	3	3	9	11	10

work = need + allocation
then work + allocation

BANKER'S ALGO

1

PROCESS	FINISHED	ALLOCATION A	B	C	NEED A	B	C	WORK A	B	C
0	T	0	1	0	7	4	3	7	5	5 → 4
1	T	3	0	2	0	2	0	3	3	2 → 1
2	T	3	0	2	6	0	0	10	5	7 → 5
3	T	2	1	1	0	1	1	5	4	3 → 2
4	T	0	0	2	4	3	1	7	4	5 → 3

WORTH

DETECTION ALGORITHM

needs to be ≤ WORK

PROCESS	FINISHED	ALLOCATION	REQUEST	AVAILABLE	WORK
		A B C	A B C	A B C	A B C
0	T	0 0 0	0 0 0	0 0 0	0 1 0 → 1
1		2 0 0	2 0 2		7 2 6 → 5
2		0 0 0	0 0 0		3 1 3 → 2
3		0 0 0	1 0 0		5 2 4 → 3
4		0 0 0	0 0 2		5 2 6 → 4

AVAILABLE			WORK		
A	B	C	A	B	C
0	0	0			

SEQUENCE

$P_0 \rightarrow P_2 \rightarrow P_3 \rightarrow P_4 \rightarrow P_1$

LEC 9

→ oldest

FIFO ALGO →

owala pa sa frame

nasa frame

7	0	1	2	0	3	0	4	2	3	0	3	2	1	2	0	1	7	0	1
7	7	7	2		2	2	4	4	4	0			0	0			7	7	7
	0	0	0		3	3	3	2	2	2			1	1			1	0	0
		1	1		1	0	0	0	3	3			3	2			2	2	1

nasa frame

nasa frame

15

LRU

consider distance

consider distance

vs

7	0	1	2	0	3	0	4	2	3	0	3	2	1	2	0	1	7	0	1
7	7	7	2		2		4	4	4	0			1		1		1		
	0	0	0		0		0	0	3	3			3		0		0		
		1	1		3		3	2	2	2			2		2		7		
1	1	1	1		1		1	1	1	1			1		1		1		= 12

LFU

7	0	1	2	0	3	0	4	2	3	0	3	2	1	2	0	1	7	0	1
7	7	7	2		2		4	4	3				3	3		1	7		1
	0	0	0		0		0	0	0				0	0		0	0		0
		1	1		3		3	2	2				1	2		2	2		2
1	1	1	1		1		1	1	1				1	1		1	1		1 = 13

(Page fault) LFU

counter | frame

7 | 1 → 2

0 | 1 → 2 → 3 → 4 → 6

1 | 1 → 2 → 3 → 4

2 | 1 → 2 → 3 → 4

3 | 1 → 2 → 3

4 | 1

↳ magiincrement
lang after magchange
ng page frame

↳ hanapin ang
pinaka mababa
@ kung equal,
mag FIFO

MFU → hanapin ang pinakamatagal na counter tapos yun ang papalitan kapag equal then FIFO

	7	0	1	2	0	3	0	4	2	3	0	3	2	1	2	0	1	7	0	1
	7	7	7	2		2	0	4	4		4	4		4	4	4		4	4	4
		0	0	0		3	3	3	3		0	3		3	2	0		7	7	7
			1	1		1	1	1	2		2	2		1	1	1		1	0	1
Page fault	1	1	1	1		1	1	1	1		1	1		1	1	1		1	1	1

16

counter	frame
7	1 → 2
0	1 → 2 → 3 → 4 → 5
1	1 → 2 → 3 → 5
2	1 → 2 → 3 → 4
3	1 → 2 → 3
4	1

DISK SCHED

H = 3

INPUT: 69 17 12 50 28 3 72 85 123 143 25 101 189 116 198 156

3 12 17 25 28 50 69 72 85 101 116 123 143 156 189 198 → arranged increasing

FCFS

FCFS: 69 17 12 50 28 3 72 85 123 143 25 101 189 116 198 156

Tracks: 69-3 69-17 17-12

THM: ΣTracks = 827

Tracks/acces: 827/16 = 51.675

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69 17 12 50 28 3 72 85 123 143 25 101 189 116 198 156

SSTF

SSTF: 3 12 17 25 28 50 69 72 85 101 116 123 143 156 189 198

THM: 195

T/A: 12.19

H = 70: 69 72 85 101 116 123 143 156 189 198 50 28 25 17 12 3

THM: 325

T/A: 20.3

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69 17 12 50 28 3 72 85 123 143 25 101 189 116 198 156

SCAN

SCAN: 3 0 12 17 25 28 50 69 72 85 101 116 123 143 156 189 198

THM: 201

T/F: 12.56

H = 70: 69 50 28 25 17 12 3 0 72 85 101 116 123 143 156 189 198

THM: 268

T/A: 16.75

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69 17 12 50 28 3 72 85 123 143 25 101 189 116 198 156

C-SCAN

H = 3: 3 12 17 25 28 50 69 72 85 101 116 123 143 156 189 198

H = 70: 72 85 101 116 123 143 156 189 198 199 0 3 12 17 25 28 50 69

THM: 397

T/F: 24.8125

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69 17 12 50 28 3 72 85 123 143 25 101 189 116 198 156

CLOOK

H = 3: 3 12 17 25 28 50 69 72 85 101 116 123 143 156 189 198

H = 70: 72 85 101 116 123 143 156 189 198 3 12 17 25 28 50 69

THM: 389

T/A: 24.31

5 8 23 94 85 82 64 30

85 - 82 - 94 - 64 - 30 - 23 - 8 - 5