

- 1) Worst case fragmentation = 1 frame – 1 byte = 1024 – 1 = 1023 byte
 Worst case memory waste = Memory size/Page size * Worst case
 fragmentation = 8 GB/1024B * 1023B = 8,581,545,984B = 8184MB = 7.99GB

2) در ستون هر الگوریتم، صفحات موجود پس از درخواست به همراه جواب درخواست آمده است.

Request	LRU	FIFO	Optimal
7	X, 7	X, 7	X, 7
2	X, 7 2	X, 7 2	X, 7 2
3	X, 7 2 3	X, 7 2 3	X, 7 2 3
1	X, 1 2 3	X, 1 2 3	X, 1 2 3
2	✓, 1 2 3	✓, 1 2 3	✓, 1 2 3
5	X, 1 2 5	X, 1 5 3	X, 1 5 3
3	X, 3 2 5	✓, 1 5 3	✓, 1 5 3
4	X, 3 4 5	X, 1 5 4	X, 1 5 4
6	X, 3 4 6	X, 6 5 4	X, 1 5 6
7	X, 7 4 6	X, 6 7 4	X, 1 5 7
7	✓, 7 4 6	✓, 6 7 4	✓, 1 5 7
1	X, 7 1 6	X, 6 7 1	✓, 1 5 7
0	X, 7 1 0	X, 0 7 1	X, 1 5 0
5	X, 5 1 0	X, 0 5 1	✓, 1 5 0
4	X, 5 4 0	X, 0 5 4	X, 1 4 0
6	X, 5 4 6	X, 6 5 4	X, 1 6 0
2	X, 2 4 6	X, 6 2 4	X, 1 2 0
3	X, 2 3 6	X, 6 2 3	X, 1 3 0
0	X, 2 3 0	X, 0 2 3	✓, 1 3 0
1	X, 1 3 0	X, 0 1 3	✓, 1 3 0
Page Fault	18	17	13

(3)

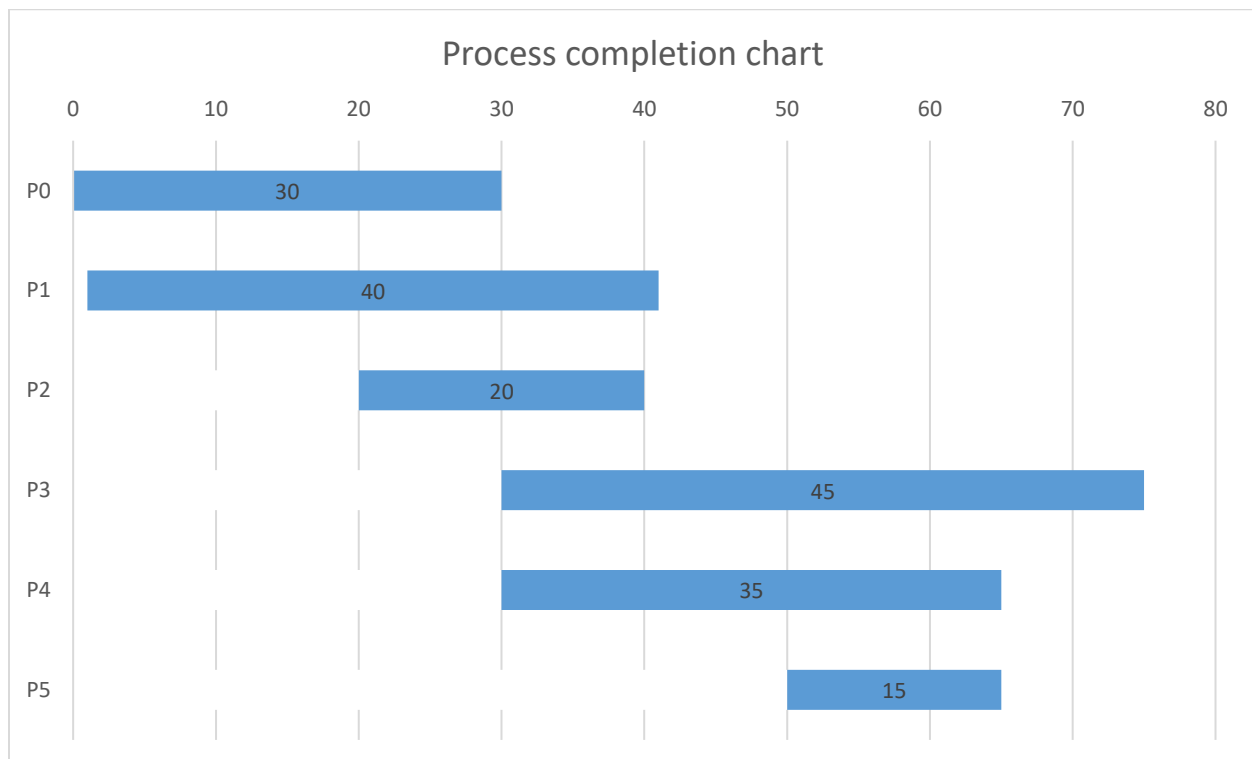
فرض:

(۱) بی شمار پردازنده داریم.

(۲) فرایندها پس از ورود، در صورت امکان در حافظه قرار می گیرند.

(۳) پیدا کردن فضای مناسب، زمانی نمی برد.

Process	Waiting time	Turnaround Time
P0	$30 - 30 = 0$	$30 - 0 = 30$
P1	$40 - 40 = 0$	$41 - 1 = 40$
P2	$38 - 20 = 18$	$40 - 2 = 38$
P3	$72 - 45 = 27$	$75 - 3 = 72$
P4	$61 - 35 = 26$	$65 - 4 = 61$
P5	$60 - 15 = 45$	$65 - 5 = 60$
Average	$116 / 6 = 19.34$	$301 / 6 = 50.17$



P^* = Pointer

P0 at T	30kb full	20kb empty	10kb full	40kb P0(25kb) P^*	20kb full	30kb empty	40kb full	30kb empty
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P1 at T+1	30kb full	20kb empty	10kb full	40kb P0	20kb full	30kb P1(20kb) P^*	40kb full	30kb empty
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P2 at T+20	30kb full	20kb empty	10kb full	40kb P0	20kb P2(40kb) P^*	30kb	40kb full	30kb empty
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P3 at T+30	30kb full	20kb empty	10kb full	40kb P3(25kb) P^*	20kb P2(40kb)	30kb	40kb full	30kb empty
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P4 at T+30	30kb full	20kb empty	10kb full	40kb P3(25kb)	20kb P2(40kb)	30kb	40kb full	30kb P4(10kb) P^*
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P5 at T+50	30kb full	20kb empty	10kb full	40kb P5(35kb) P^*	20kb empty	30kb	40kb full	30kb P4(10kb)
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