

3.	Used in OS.	Used in OS.	Not used in OS.
4.	Future predication is not required.	Future predication is not required.	Future predication is required.
5.	Simple to implement.	Considered to be good.	Difficult to implement.

Example 4.12.1 For the following reference string :

1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 3, 6

Count the number of page faults that occur with 3 frames using FIFO and LRU page replacement methods. Discuss the result.

SPPU : Dec.-17, Marks 8

Solution : i) FIFO (page frame = 3)

	1	2	3	4	2	1	5	6	2	1	2	3	3	6
1	1	1	1	4	4	4	4	6	6	6	6	3	3	3
2	-	2	2	2	2	1	1	1	2	2	2	2	2	6
3	-	-	3	3	3	3	5	5	5	1	1	1	1	1
Page Fault	PF	PF	PF	PF		PF	PF	PF	PF	PF		PF		PF

Total number of page fault = 11

ii) LRU (least recent use)

	1	2	3	4	2	1	5	6	2	1	2	3	3	6
1	1	1	1	4	4	4	5	5	5	1	1	1	1	6
2	-	2	2	2	2	2	2	6	6	6	6	3	3	3
3	-	-	3	3	3	1	1	1	2	2	2	2	2	2
Page Fault	PF	PF	PF	PF		PF	PF	PF	PF	PF		PF		PF

Total number of page fault = 11

Example 4.12.1 For the following reference string.

5, 6, 7, 8, 5, 6, 9, 5, 6, 7, 8, 9, 6, 7, 4, 9, 8

Count the number of page faults that occur with 3 frames using FIFO, Optimal and LRU page replacement methods. Discuss the result.

SPPU : May-18, Marks 12

Solution : Page frame = 3

FIFO :

	5	6	7	8	5	6	9	5	6	7	8	9	6	7	4	9	8
1	5	5	5	8	8	8	9	9	9	9	9	9	6	6	6	6	8

2	-	6	6	6	5	5	5	5	5	7	7	7	7	7	4	4	4
3	-	-	7	7	7	6	6	6	6	6	8	8	8	8	8	9	9
Page fault	PF	PF	PF	PF	PF	PF	PF			PF	PF		PF		PF	PF	PF

Total number of page fault = 13

LRU :

	5	6	7	8	5	6	9	5	6	7	8	9	6	7	4	9	8
1	5	5	5	8	8	8	9	9	9	7	7	7	6	6	6	9	9
2	-	6	6	6	5	5	5	5	5	5	8	8	8	7	7	7	8
3	-	-	7	7	7	6	6	6	6	6	6	9	9	9	4	4	4
Page fault	PF	PF	PF	PF	PF	PF	PF			PF	PF	PF	PF	PF	PF	PF	PF

Total number of page fault = 15

Optimal : *feature*

	5	6	7	8	5	6	9	5	6	7	8	9	6	7	4	9	8
1	5	5	5	5	5	5	5	5	5	7	8	8	8	8	8	8	8
2	-	6	6	6	6	6	6	6	6	6	6	6	6	7	4	4	4
3	-	-	7	8	8	8	9	9	9	9	9	9	9	9	9	9	9
Page fault	PF	PF	PF	PF			PF			PF	PF			PF	PF		

Total number of page fault = 9

Example 4.12.3 For the following reference string. 6,5,1,2,5,3,5,4,2,3,6,3,2,1,2 Count the number of page faults that occur with 3 frames using FIFO, Optimal and LRU page replacement methods. Discuss the result.

SPPU : Dec.-18, Marks 12

Solution : FIFO (Page frame = 3)

	6	5	1	2	5	3	5	4	2	3	6	3	2	1	2
1	6	6	6	2	2	2	2	4	4	4	6	6	6	1	1
2	-	5	5	5	5	3	3	3	2	2	2	2	2	2	2
3	-	-	1	1	1	1	5	5	5	3	3	3	3	3	3
Page Fault	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF			PF	

Total number of page fault = 12