Operating Systems Lab-9 (Analysis of Page Faults)

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Assumption: I have assumed that the number of pages for each process is between 36-40, which is the reason for the large numbers in table.

Base Cases case 1:

Initial Queue: 2, 4, 1, 3.
Sequence of Termination: 1, 3, 2, 4

pid	Page Fault	Page References
1	3	11040
2	5	10848
3	7	21696
4	11	43392

In this case every process have their behaviour greater than 3
Initial Queue: 2, 3, 4, 1.
Sequence of Termination: 1, 2, 3, 4
In this case as the number of pages are less than the number of

pid	Page Fault	Page References
1	2	6066
2	4	3568
3	8	7136
4	11	14272

frames in the physical memory, the page faults are only because of the initial loading of pages into the physical memory.

Lightly Loaded Case 2(a):

Replacement type: Global
Initial Queue: 3, 5, 4, 6, 1, 2.
Sequence of Termination: 4, 3, 6, 5, 1, 2.
The number of page faults are directly proportional to the

pid	Page Fault	Page References
1	80	34658
2	44	33480
3	43	32643
4	39	30132
5	46	30969
6	73	30132

behaviour of the process, if it's a bad process then the number of page faults will be more.
Initial Queue: 4, 3, 5, 2, 6, 1.
Sequence of Termination: 1, 5, 4, 3, 6, 2.

pid	Page Fault	Page References
1	41	134168
2	45	152240
3	70	140822
4	42	152240
5	75	137016
6	81	152240

and so on.....
The average page faults for each process is given below.

pid	Page Fault	Page References
1	49.75	98239
2	49.50	101843.50
3	49.00	98316
4	41.00	102048.25
5	52.00	98337.25
6	65.25	101537.25

Case 2(b):
Replacement type: Local
Initial Queue: 2, 3, 4, 5, 6, 1.
Sequence of Termination: 4, 3, 6, 1, 2, 5.
and so on.....

pid	Page Fault	Page References
1	50	62765
2	39	62548
3	39	60902
4	33	60902
5	48	65840
6	68	60902

The average page faults for each process is given below.

pid	Page Fault	Page References
1	43.50	77386.50
2	49.75	80978.00
3	38.75	81742.50
4	39.00	78512.50
5	47.75	81743.50
6	44.75	79143.50

Heavily Loaded

Case 2(a):
Replacement type: Global
Initial Queue: 3, 4, 5, 6, 2, 1.
Sequence of Termination: 4, 2, 6, 5, 3, 1.
and so on.....

pid	Page Fault	Page References
1	72	145250
2	115	143488
3	127	151040
4	72	139712
5	122	135936
6	116	135936

pid	Page Fault	Page References
1	70.50	111985.00
2	120.00	110618.00
3	122.00	116440.00
4	68.75	107707.00
5	116.50	140796.00
6	117.25	104796.00

The average page faults for each process is given below.
So from the above tables, we get to know that the ratio of page faults of the heavily loaded process to the Lightly loaded process is 2:1, as the number of Frames in the physical memory reduced to half the page fault count increased by twofold.

Conclusion: As the number of frames decreses the page-faults increses.