Assignment 9

Operating System Lab (CS342)

Department of CSE, IIT Patna

Date:- 29th-March-2022

Instructions:

1. All the assignments should be completed and uploaded by 29th March 2022, 11.59 PM.
2. Markings will be based on the correctness and soundness of the outputs. Marks will be deducted in case of plagiarism.
3. Proper indentation and appropriate comments (if necessary) are mandatory. [2+2 marks]
4. You should zip all the required files and name the zip file as roll_no.zip, eg. 1701cs11.zip.
5. Upload your assignment (the zip file) in the following link: https://www.dropbox.com/request/1XYa1o4XV8a2gR9uMocD

1. Write a C program to take the number of frames and page sequence as input and select the best page replacement algorithm among (FIFO, LRU, Optimal) based on the number of page faults occurred. For the selected page replacement algorithm, output the frame content at each time step t and also the number of page faults. First line of input is number of frames and second line the page sequence.

Input:-

```
3
4 7 6 1 7 6 1 2 7 2
```

Output:-

Best Page Replacement Algorithms: OPTIMAL

```
F1  F2  F3
X   X   X   at time 0
4   X   X   at time 1
4   7   X   at time 2
4   7   6   at time 3
1   7   6   at time 4
1   7   6   at time 5
1   7   6   at time 6
1   7   6   at time 7
2   7   6   at time 8
2   7   6   at time 9
2   7   6   at time 10
```

#Page faults: 5

2. Either modify the existing page replacement algorithm (FIFO, LRU, Optimal) or design unique page replacement algorithm in such a way that modified technique has less page faults when compared with FIFO, LRU and Optimal. Write a C code for the modified page replacement algorithm.

Input:-

```
4
1 2 3 4 2 7 5 1 1 6 4 7 2 1 2 5
```

Output:-

F1	F2	F3	F4	
X	X	X	X	at t = 0
1	X	X	X	at t = 1
1	2	X	X	at t = 2
1	2	3	X	at t = 3
1	2	3	4	at t = 4
1	2	3	4	at t = 5
1	2	7	4	at t = 6
1	5	7	4	at t = 7
1	5	7	4	at t = 8
1	5	7	4	at t = 9
1	6	7	4	at t = 10
1	6	7	4	at t = 11
1	6	7	4	at t = 12
1	2	7	4	at t = 13
1	2	7	4	at t = 14
1	2	7	4	at t = 15
5	2	7	4	at t = 16

#Page faults: 9