Ex. No.: 11 b
Date: 15-04-2024

LRU

Aim:

To write a c program to implement LRU page replacement algorithm.

Algorithm:

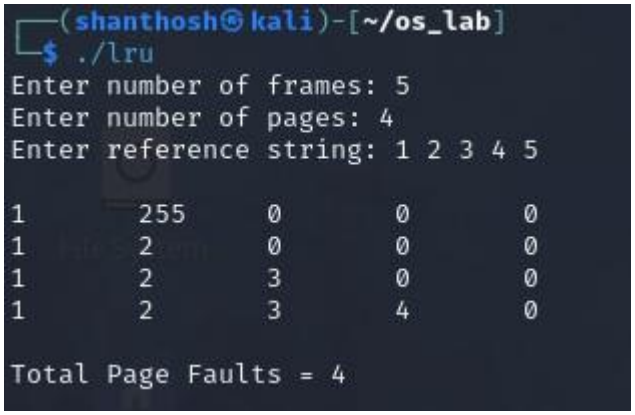
1: Start the process
2: Declare the size
3: Get the number of pages to be inserted
4: Get the value
5: Declare counter and stack
6: Select the least recently used page by counter value
7: Stack them according the selection.
8: Display the values
9: Stop the process

Program Code:

```
#include<stdio.h>
#include<string.h>
int findLRU(int time[], int n){
	int i, minimum = time[0], pos = 0;
	for(i = 1; i < n; ++i){
		if(time[i] < minimum){
			minimum = time[i];
			pos = i;
		}
	}
	return pos;
}

int main(){
	int no_of_frames, no_of_pages, frames[10], pages[30], counter =
0, time[10], flag1, flag2, i, j, pos, faults = 0;
	printf("Enter number of frames: ");
	scanf("%d",&no_of_frames);

	printf("Enter number of pages: ");
	scanf("%d", &no_of_pages);

	printf("Enter reference string: ");
	for(i = 0; i < no_of_pages; ++i){
		scanf("%d", &pages[i]);
	}
	memset(frames, -1, no_of_frames);

	for(i = 0; i < no_of_pages; ++i){
		flag1= flag2 = 0;
```

```
            for(j = 0;j < no_of_frames; ++j){
                if(frames[j] == pages[i]){
                    counter++;
                    time[j] = counter;
                    flag1 = flag2 = 1;
                    break;
                }
            }

            if(flag1 == 0){
                for(j = 0; j < no_of_frames; ++j){
                    if(frames[j] == -1){
                        counter++;
                        faults++;
                        frames[j] = pages[i];
                        time[j] = counter;
                        flag2 = 1;
                        break;
                    }
                }
            }
            if(flag2 == 0){
                pos = findLRU(time, no_of_frames);
                counter++;
                faults++;
                frames[pos] = pages[i];
                time[pos] = counter;
            }

            printf("\n");
            for(j = 0; j < no_of_frames; ++j){
                printf("%d\t", frames[j]);
            }
        }
        printf("\n\nTotal Page Faults = %d", faults);
}
```

Output:



Result:

Hence the C program to implement LRU page replacement algorithm has been successfully executed and completed.