Ex. No.: 11b)
Date: 18/4/2025

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:

```c
#include <stdio.h>
int main(){
    int frames, pages, i, j, k, pages_faults = 0;
    least_count = 0;
    int ref_str[100], memory, time[10];
    printf("Enter number of frames : ");
    scanf("%d", &frames);
    printf("Enter number of pages);
    scanf("%d", &pages);
    print("Enter reference string : ");
    for (i=0; i< frames; i++){
        memory[i] = -1;
        time[i] = 0;
    }
    printf("\n");
```

```c
for (i=0; i< pages; i++){
    int flag1=0, flag2=0;
    for (i=0; i< frames; i++){
        if (memory[i] == ref-str[i]){
            count++;
            time[i]=count;
            flag1 = flag2 = 1;
            break;
        }
    }

    if (flag1 == 0){
        for (j=0; j< frames; j++){
            if (memory[j] == -1){
                count++;
                Page-faults++;
                memory[i] = ref-str[i];
                time[j] = count;
                flag2 = 1;
                break;
            }
        }
    }

    if (flag2 == 0){
        int min = time[0];
        least = 0;
        for (j=1; j< frames; i++){
            if (time[j] < min){
                min = time[j];
                least = j;
            }
        }
    }
}
```

```c
            Count ++ ;
            Page_faults ++ ;
            memory [ least ] = ref_str [i];
            time [ least ] = count ;
        }
    for( i = 0 ; j < frames ; j++ ){
        if ( memory [j] == -1)
            printf ("-");
        else
            printf ("%d", memory [i]);
    }
    printf ("  \n");
    printf ("Total page faults = %d \n", page_faults);
    return 0 ;
}
```

Sample Output :
Enter number of frames: 3
Enter number of pages: 6
Enter reference string: 5 7 5 6 7 3
5 -1 -1
5 7 -1
5 7 -1
5 7 6
5 7 6
3 7 6
Total Page Faults = 4

Enter number of frames : 3
Enter number of pages : 6
Enter reference string : 1 5 6 4 5 5

1 -
1 5
6 5
6 4
5 4
5 4

Total page faults = 5

Result:

Hence, C program to implement LRU page replacement algorithm has been executed successfully