Ex. No.: 11b)
Date: 17/4/25

<div align="center">

LRU

</div>

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 findLru (int time[], int n)
{
    int i, min = time[0], pos = 0;
    for (i=1; i<n; i++)
    {
        if (time[i] < min) {
            min = time[i];
            pos = i;
        }
    }
    return pos;
}

int main() {
    int frames, n;
    printf("Enter no of frames:");
    scanf("%d", &frames);
```

```c
printf("Enter no. of pg : ");
scanf("%d", &n);
int pages[n];
printf(" Enter reference string");
for(int i=0; i<n; i++) {
        scanf("%d", &pages[i]);
}
int frame[frames], time[frames];
int i, j, pos, pg_fault=0, count=0;
int f1, f2;
for(i=0; i<frames; i++)
{
     frame[i] = -1;
}
printf("
for(j=0; j<frames; j++).
{    if(frame[j] == pages[i]){
                count++;
                time[j]=count;
                f1 = f2 = 1;
                break;
        }
    }
    if(flag1==0){
        for(j=0; j<frames; j++)
        {
```

```c
        if (frame [j] == -1) {
            count ++;
            pg-fault ++;
            frame [j] = pg [i];
            time [j] = count;
            f2 = 1;
            break;
        }
    }
}

if (f2 == 0)
{
    pos = findLRU (time, frames);
    count ++;
    pg-fault ++;
    frame [pos] = pg [i];
    time [pos] = count;
}

printf ("%d\t          // struck out

for (j = 0; j < frames; j++) {
    printf ("%d", frame [j]);
}
    printf ("\n");
}

printf ("\n Total Page Fault = %d\n", pg-fault);
return 0;
}
```

Output:

Enter no. of frames : 3
Enter no. of page : 6
Enter ref string : 1 2 3 2 4 1

```
1    4    4
1    2    4
1    2    3
1    2    3
4    2    3
4    2    1
```

Total Pg Faults = 5

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

Result:

Hence LRU page replacement algorithm is implemented using c.