

Ex No.: 11b**LRU PAGE REPLACEMENT**

Date : 17.04.2025

Aim :

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

Code:

```
#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, pages, i, j, counter = 0, flag1, flag2, page_faults = 0;
    printf("Enter number of frames: ");
    scanf("%d", &frames);
    printf("Enter number of pages: ");
    scanf("%d", &pages);
    int incoming[pages], temp[frames], time[frames];
    printf("Enter page reference string: ");
    for(i = 0; i < pages; i++)
        scanf("%d", &incoming[i]);
    for(i = 0; i < frames; i++) {
        temp[i] = -1;
        time[i] = 0;
    }
    printf("\nPage\t Frame1\t Frame2\t Frame3\t Page Faults\n");
    for(i = 0; i < pages; i++) {
```

```

flag1 = flag2 = 0;
for(j = 0; j < frames; j++) {
    if(temp[j] == incoming[i]) {
        counter++;
        time[j] = counter;
        flag1 = flag2 = 1;
        break;
    }
}
if(flag1 == 0) {
    for(j = 0; j < frames; j++) {
        if(temp[j] == -1) {
            counter++;
            page_faults++;
            temp[j] = incoming[i];
            time[j] = counter;
            flag2 = 1;
            break;
        }
    }
}
if(flag2 == 0) {
    int pos = findLRU(time, frames);
    counter++;
    page_faults++;
    temp[pos] = incoming[i];
    time[pos] = counter;
}
printf("%d\t", incoming[i]);
for(j = 0; j < frames; j++) {
    if(temp[j] != -1)
        printf("%d\t", temp[j]);
    else
        printf("-\t");
}

```

```

    if(flag1 == 0) {
        printf("1\n");
    } else {
        printf("0\n");
    }
}
printf("\nTotal Page Faults: %d\n", page_faults);
return 0;
}

```

Output:

```

Enter number of frames: 3
Enter number of pages: 6
Enter page reference string: 5 7 5 6 7 3

Page      Frame1  Frame2  Frame3  Page Faults
5          5      -      -        1
7          5      7      -        1
5          5      7      -        0
6          5      7      6        1
7          5      7      6        0
3          3      7      6        1

Total Page Faults: 4

```

Result:

Thus the program to find out the number of page faults that occur using Least Recently Used (LRU) page replacement technique has been executed successfully.