Ex. No.: 11b)
Date: 17/04/25

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 find_LRU (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 the no of frames:");
```

```c
scanf("%d", &frames);
printf("Enter no 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 PageFaults \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++){
```

```c
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 ("i \n"); }
else {
    printf ("0 \n"); }}
```
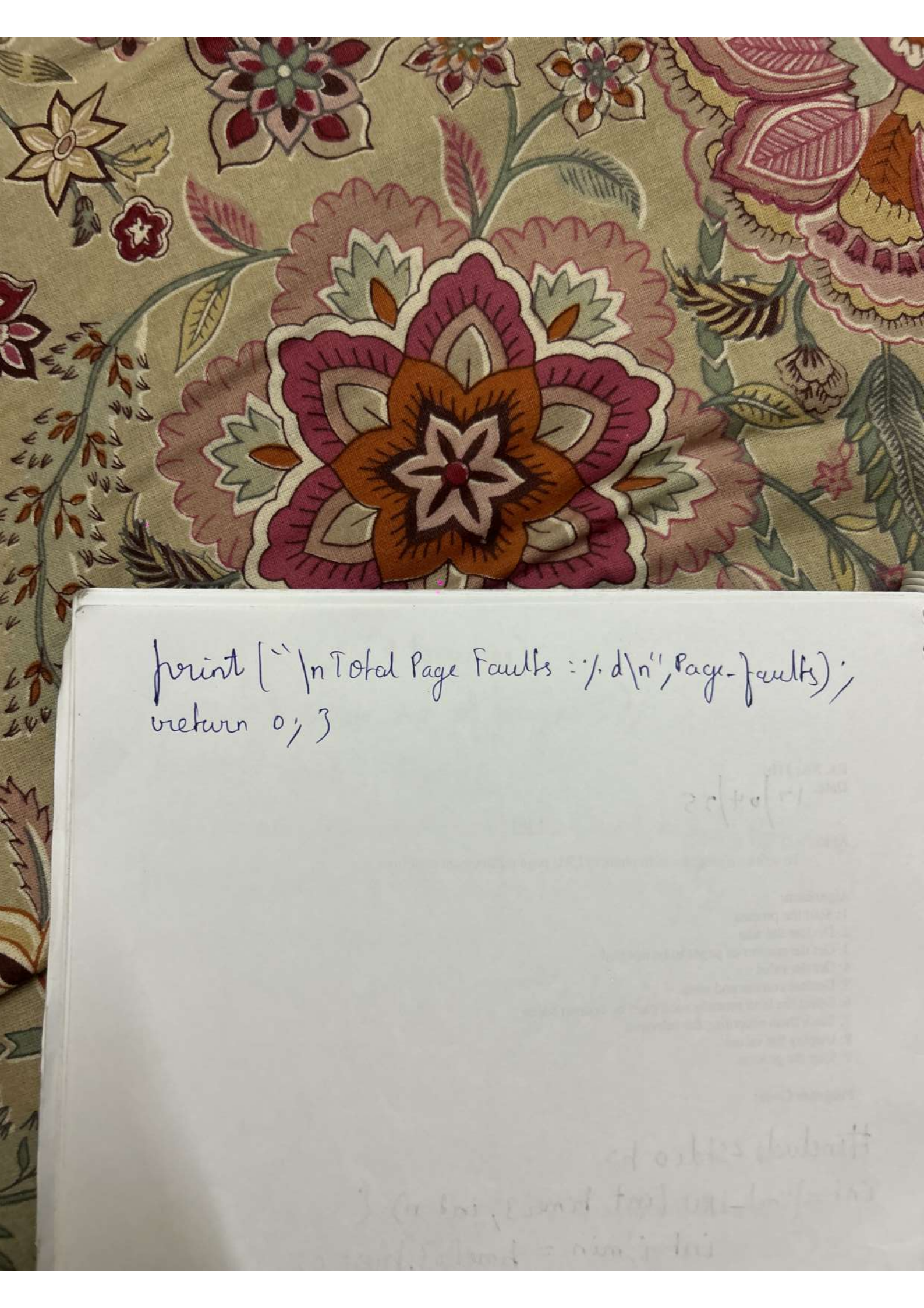
70

```c
print ("\nTotal Page Faults :%d\n", Page_faults);
return 0; }
```

Enter no of frames = 3

Enter no of Pages = 6

Enter page reference string = 5 7 5 6 7 3

Page	Frame 1	Frame 2	Frame 3	Page Faults
5	5	-	-	1
7	5	7	-	1
5	5	7	-	0
6	5	7	6	1
7	5	7	6	0
3	5	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