Ex. No.: 11b)
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<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: #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[10], pages[30],
counter[10];   int i, j, k, pos, max, faults = 0,
time = 0;   int n, f;   printf("Enter
number of frames: ");   scanf("%d", &f);
printf("Enter number of pages: ");
scanf("%d", &n);
          printf("Enter reference string: ");
for (i = 0; i < n; ++i)
scanf("%d", &pages[i]);   for (i = 0;
i < f; ++i) {
          frames[i] = -1;
counter[i] = 0;

```c
        }
        printf("\n");    for (i = 0; i < n; ++i) {          int
flag1 = 0, flag2 = 0;              for (j = 0; j < f; ++j) {
if (frames[j] == pages[i]) {              time++;
counter[j] = time; // Update recent use time          flag1
= flag2 = 1;            break;
        }
        }
        if (flag1 == 0) {
        for (j = 0; j < f; ++j) {
if (frames[j] == -1) {
time++;              faults++;
frames[j] = pages[i];
counter[j] = time;            flag2
= 1;                break;
             }
        }
        }
        if (flag2 == 0) {      pos
= findLRU(counter, f);
time++;        faults++;
frames[pos] = pages[i];
counter[pos] = time;
        }
        // Display current frame state
for (k = 0; k < f; ++k) {          if
(frames[k] != -1)
printf("%d ", frames[k]);
else            printf("-1 ");
        }
        printf("\n");
        }
        printf("\nTotal Page Faults = %d\n", faults);
        return 0;
}
```

OUTPUT:

```
Enter number of frames: 3
Enter number of pages: 10
Enter reference string: 3
2
6
8
3
4
1
2
2
6

3 -1 -1
3 2 -1
3 2 6
8 2 6
8 3 6
8 3 4
1 3 4
1 2 4
1 2 4
1 2 6

Total Page Faults = 9
```

RESULT:

Hence, page faults that occur using LRU page replacement technique has been found.