Ex. No.: 11(b) **Date: 15/04/25**

NAME:SOMILA **ROLLNO:231901052**

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:**

```
#include <stdio.h>

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

int main() {
   int frames[10], pages[30], time[10], counter = 0, faults = 0;     int n, f, i, j, flag1,
flag2, pos;

   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;
time[i] = 0;
   }
```

```
   printf("\n");

   for (i = 0; i < n; ++i) {
      flag1 = flag2 = 0;

      for (j = 0; j < f; ++j) {            if (frames[j] ==
pages[i]) {               counter++;               time[j] =
counter;               flag1 = flag2 = 1;               break;
         }
      }

      if (flag1 == 0) {            for (j = 0; j < f; ++j) {
if (frames[j] == -1) {                  counter++;
faults++;                  frames[j] = pages[i];
time[j] = counter;                  flag2 = 1;
break;
            }
         }
      }

      if (flag2 == 0) {            pos = findLRU(time, f);
counter++;            faults++;            frames[pos] =
pages[i];
         time[pos] = counter;
      }

      for (j = 0; j < f; ++j) {            if (frames[j] != -1)
printf("%d ", frames[j]);
         else               printf("-1 ");         }
printf("\n");
   }

   printf("\nTotal Page Faults = %d\n", 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

Result:

Thus the algorithm is executed successfully.