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

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 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 frm[10], pgs[30], nf, np, c = 0, time[10], i, j, f1, f2, pos;
 printf("Enter no of frames: ");
 scanf("%d", &nf);
 printf("Enter no of pages: ");
 scanf("%d", &np);
```

```
printf("Enter page reference string: ");
for(i=0; i<np; ++i)
{   scanf("%d", &pgs[i]);
for(i=0; i<nf; i++)
    frm[i] = -1;
printf("\n Page \t Frames\n");
for(i=0; i<np; i++)
   f1 = f2 = 0;
  for(j=0; j<nf; j++)
  { if (frm[j] == pgs[i])
    {
       c++;
       time[j] = c;
       f1 = f2 = 1;
       break;
    }
  }
 if(f1==0)
 {for(j=0; j<nf; j++)
  { if (frm[j]==-1)
    {
       c++;
       fault++;
       frm[j] = pgs[i];
       time[j] = c;
       f2 = 1;
       break;
    }
  }
 }
 if(f2==0)
 { pos = LRU(time, nf);
   c++;
   fault++;
   frm[pos]= pgs[i];
   time[pos]= c;
}
```

```
        printf ("%d\t", pgs[i]);
        for(j=0; j<nf; j++)
        {
            if (frm[j] != -1)
                printf ("%d ", frm[j]);
            else
                printf ("- ");
        }
        printf("\n");
    }
    printf ("\n Total Page Faults = %d\n", faults);
    return 0;
}
```

Output:-

Enter no of frames: 2

Enter no of pages: 5

Enter page reference string: 1 2 1 3 2

Page	Frames
1	1 –
2	1 2
1	1 2
3	3 2
2	3 2

Total Page Fawlts = 3

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 the LRU Page replacement Algorithm is Implemented and executed