Ex. No.: 11b)
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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>
main()
{
    int q[20],p[50],c=0,c1,d,f,i,j,k=0,n,d1,t,b[20],
                                                c2[20];

    printf("Enter the no. of pages ");
    scanf("%d",&n);
    printf("Enter the reference string ");
    for(int i=0;i<n;i++).
        scanf("%d",&p[i]);
    }
    printf("Enter the no. of frames");
    scanf("%d",&f);
    q[k]=p[k];
    printf("\n\t%d\n",q[k]);
    c++;
    k++;
```

```
for (i=1;i<n;i++)
{
    c=0;
    for(j=0;j<f;j++)
    {  if (p[i]!=q[j])
       c++;
    }
    if (c==f)
    {  c++;
       if (k<f)
       {   q[k]=p[i];
           k++;
           for(j=0;j<k;j++)
           {   printf("%d",q[i]);
               printf("\n");
           }
    }
    else
    {   for(n=0;n<f;n++)
        {   c2[n]=0;
            for(j=i-1;j<n;j--)
            {  if(q[n]!=p[j])
               {   c2[n]++;
               }
               else
               {
                   break;
               }
            }
    }
}
```

```
for(i=0;i<f;i++)
b[i]=c2[i];
for(i=0;i<f;i++)
{
    for(j=i;j<f;j++)
    {
        if(b[i]<b[j])
        {
            t=b[i];
            b[i]=b[j];
            b[j]=t;
        }
    }
}
for(i=0;i<f;i++)
{
    if(c2[i]==b[0])
    q[i]=p[i];
    printf("%d",q[i]);
}
printf("\n");
}
}
printf("%d",c);
}
```

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
```

10

7 5 9 4 3 7 9 6 2 1

7		
7	5	
7	5	9
4	5	9
4	3	9
4	3	7
9	3	7
9	6	7
9	6	2
1	6	2

The page fault = 10

Result:

Thus the code for LRU page replacement algorithm is executed successfully