Operating System – CS23431

Ex 11b)	Least recently Used Page Replacement
Name: B M Madhumitha	
Reg No: 230701168	

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 search(int frames[],int p,int key){
   for (int i=0;i<p;i++){
      if(frames[i]==key)
        return i;
   }
   return -1;
}
int findmin(int p, int count[]){

      int min = count[0];
      int min_index = 0;
      for(int j=1;j<p;j++){
         if(min > count[j]){
            min = count[j] ;
            min_index = j;
         }
      }
   return min_index;
}
void display(int frames[],int p){
   for(int i=0;i<p;i++){
      printf("%d ",frames[i]);
   }
   printf("\n");
}
```

```
void pagefault(int frames[],int mem[], int p, int n,int count[]){
 int found ,index =0,page_fault = 0;

 for(int i=0;i<n;i++){

    found = search(frames,p,mem[i]);
    if(i<p){

        if(found==-1){
              count[index] =i;
              frames[index] = mem[i];
              index++;
              page_fault++;

        }

        else{
        count[found] = i;
        }
    }
    //Perform LRU
    else{

          if(found==-1){
              int min_index = findmin(p,count);
              frames[min_index] = mem[i];
              count[min_index] = i;
              page_fault++;
          }
          else{
           count[found] = i;
          }

    }

    display(frames,p);
 }
 printf("The Total page fault:%d",page_fault);
}
int main(){
    int n,p;
    printf("Enter the no. of page frames:");
    scanf("%d",&p);
    printf("Enter the no. of pages:");
    scanf("%d",&n);
    int frames[p],mem[n],count[p];
    printf("Enter the reference Strings:");
    for(int i=0;i<n;i++){
       scanf("%d",&mem[i]);
    }
    for(int i=0;i<p;i++){
```

```
    count[i]=-1;
    frames[i]=-1;
  }
  pagefault(frames,mem,p,n,count);

}
```

Output:

```
C:\Users\kambm\OneDrive\Desktop\Madhumitha\sem IV\OS Assignment\Final version>gcc LRU_FINAL.c -o lru.exe

C:\Users\kambm\OneDrive\Desktop\Madhumitha\sem IV\OS Assignment\Final version>lru.exe
Enter the no. of page frames:3
Enter the no. of pages:6
Enter the reference Strings:5 7 5 6 7 3
5 -1 -1
5 7 -1
5 7 -1
5 7 6
5 7 6
3 7 6
The Total page fault:4
C:\Users\kambm\OneDrive\Desktop\Madhumitha\sem IV\OS Assignment\Final version>
```

Result : Thus the Program was executed successfully.