\*\*\*\*LRU\*\*\*\*

import java.io.\*;

class lru

{

public static void main(String args[])throws IOException

{

BufferedReader obj=new BufferedReader(new InputStreamReader(System.in));

int f,page=0,ch,pgf=0,n,chn=0;

boolean flag;

int pages[]; //pgf-page fault

System.out.println("1.LRU");

int pt=0;

System.out.println("enter no. of frames: ");

f=Integer.parseInt(obj.readLine());

int frame[]=new int[f];

for(int i=0;i<f;i++)

{

frame[i]=-1;

}

System.out.println("enter the no of pages ");

n=Integer.parseInt(obj.readLine());

pages=new int[n];

System.out.println("enter the page no ");

for(int j=0;j<n;j++)

pages[j]=Integer.parseInt(obj.readLine());

int pg=0;

for(pg=0;pg<n;pg++)

{

page=pages[pg];

flag=true;

for(int j=0;j<f;j++)

{

if(page==frame[j])

{

flag=false;

break;

}

}

int temp,h=3,i;

if(flag)

{

if( frame[1]!=-1 && frame[2]!=-1 && frame[0]!=-1)

{

temp=pages[pg-3];

if(temp==pages[pg-2] || temp==pages[pg-1])

temp=pages[pg-4];

for(i=0;i<f;i++)

if(temp==frame[i])

break;

frame[i]=pages[pg];

}

else

{

if(frame[0]==-1)

frame[0]=pages[pg];

else if(frame[1]==-1)

frame[1]=pages[pg];

else if(frame[2]==-1)

frame[2]=pages[pg];

}

System.out.print("frame :");

for(int j=0;j<f;j++)

System.out.print(frame[j]+" ");

System.out.println();

pgf++;

}

else

{

System.out.print("frame :");

for(int j=0;j<f;j++)

System.out.print(frame[j]+" ");

System.out.println();

}

}//for

System.out.println("Page fault:"+pgf);

}//main

}//class

/\*

**OUTPUT:-**

enter no. of frames:

4

enter the no of pages

10

enter the page no

1

0

1

2

3

7

8

1

5

2

frame :1 -1 -1 -1

frame :1 0 -1 -1

frame :1 0 -1 -1

frame :1 0 2 -1

frame :1 3 2 -1

frame :7 3 2 -1

frame :7 3 8 -1

frame :7 1 8 -1

frame :5 1 8 -1

frame :5 1 2 -1

Page fault:9

\*/

\*\*\*\*Optimal\*\*\*\*

import java.util.\*;

import java.io.\*;

class Optimal

{

public static void main(String args[])throws IOException

{

BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

int numberOfFrames, numberOfPages, flag1, flag2, flag3, i, j, k, pos = 0, max;

int faults = 0;

int temp[] = new int[10];

System.out.println("Enter number of Frames: ");

numberOfFrames = Integer.parseInt(br.readLine());

int frame[] = new int[numberOfFrames];

System.out.println("Enter number of Pages: ");

numberOfPages = Integer.parseInt(br.readLine());

int pages[] = new int[numberOfPages];

System.out.println("Enter the pages: ");

for(i=0; i<numberOfPages; i++)

pages[i] = Integer.parseInt(br.readLine());

for(i = 0; i < numberOfFrames; i++)

frame[i] = -1;

for(i = 0; i < numberOfPages; ++i){

flag1 = flag2 = 0;

for(j = 0; j < numberOfFrames; ++j){

if(frame[j] == pages[i]){

flag1 = flag2 = 1;

break;

}

}

if(flag1 == 0){

for(j = 0; j < numberOfFrames; ++j){

if(frame[j] == -1){

faults++;

frame[j] = pages[i];

flag2 = 1;

break;

}

}

}

if(flag2 == 0){

flag3 =0;

for(j = 0; j < numberOfFrames; ++j){

temp[j] = -1;

for(k = i + 1; k < numberOfPages; ++k){

if(frame[j] == pages[k]){

temp[j] = k;

break;

}

}

}

for(j = 0; j < numberOfFrames; ++j){

if(temp[j] == -1){

pos = j;

flag3 = 1;

break;

}

}

if(flag3 ==0){

max = temp[0];

pos = 0;

for(j = 1; j < numberOfFrames; ++j){

if(temp[j] > max){

max = temp[j];

pos = j;

}

}

}

frame[pos] = pages[i];

faults++;

}

// System.out.print();

for(j = 0; j < numberOfFrames; ++j){

System.out.print("\t"+ frame[j]);

}

}

System.out.println("\n\nTotal Page Faults: "+ faults);

}

}

**Output:-**

Enter number of Pages:

10

Enter the pages:

1

0

1

2

3

7

8

1

5

2

• 1 -1 -1 -1

• 1 0 -1 -1

• 1 0 -1 -1

• 1 0 2 -1

• 1 0 2 3

• 1 7 2 3

Total Page Faults: 7