Practical.no.10

Aim: Implement LRU page replacement algorithm in java

Code:

import java.util.\*;

class LRU

{

Scanner sc=new Scanner(System.in);

int[] frame,page,present;

int size,pages,pf=0,flag=0,flag1=0;

LRU(int size,int pages)

{

this.size=size;

this.pages=pages;

frame=new int[size];

present=new int[size];

page=new int[pages];}

void get()

{

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

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

page[i]=sc.nextInt();

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

frame[i]=-1;}

int check(int x)

{

flag=-1;

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

if(frame[i]==x)

{

flag=i;

break;}

return flag;}

int replace(int x)

{

int i;

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

present[i]=0;

flag1=0;

for(i=x-1;i>=0;i--)

{

if(check(page[i])>=0)

{

flag1++;

present[check(page[i])]=1;}

if(flag1==(size-1)) break;

}

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

if(present[i]==0)

{

flag1=i;

break;}

return i;

}

void lru()

{

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

{

if(i<size)

{

frame[i]=page[i];

pf++;

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

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

System.out.println();}

else

{

if(check(page[i])==-1)

{

int r=replace(i);

frame[r]=page[i];

pf++;

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

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

System.out.println();}

else

{

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

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

System.out.println();}}}

System.out.println("PAGE FAULT: "+pf);}}

class LRU1

{

public static void main(String arg[])

{

Scanner s=new Scanner(System.in);

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

int n=s.nextInt();

System.out.print("Enter no of pages:");

int p=s.nextInt();

LRU obj=new LRU(n,p);

obj.get();

obj.lru();

}

}

Output:

