PROGRAM-9

TITLE

Design, develop and implement a C/C++/Java program to implement page replacement algorithms LRU and FIFO. Assume suitable input required to demonstrate the results.

PROGRAM

```
import java.util.Scanner;

import java.util.*;

class FL1

{

	Scanner scan=new Scanner(System.in);

	void Fifo()

	{

		int f,p,num=0,PageHit=0;

		int pages[],frame[];

		boolean flag=true;

		System.out.println("Enter the frame size :");

		f=scan.nextInt();

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

		p=scan.nextInt();

		pages=new int[p];

		frame=new int[f];

		System.out.println("Enter the page number of "+p+" pages :");

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

			pages[i]=scan.nextInt();

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

			frame[i]=-1;

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

		{
```

```
                flag=true;
                int page=pages[i];
            for(int j=0;j<f;j++)
            {
                if(frame[j]==page)
                {
                        flag=false;
                        PageHit++;
                        break;
                }
            }
            if(num==f)
                num=0;
            if(flag)
            {
                frame[num]=page;
                num++;
            }
            System.out.print("\nFrame :");
            for(int k=0;k<f;k++)
                System.out.print(frame[k]+" ");
        }
        System.out.println("\nNumber of page faults = "+(p-PageHit));
        System.out.println("Number of page hits = "+PageHit);

}
void Lru()
{
```

```
int f,p,num=0,pageHit=0,page,count=0,pointPage=0,pg=0;
int pages[];
int frame[];
int recent[];
boolean flag=true;

boolean flag2=true;
System.out.println("Enter the number of frames:");
f=scan.nextInt();
System.out.println("Enter the number of pages:");
p=scan.nextInt();
frame=new int[f];
pages=new int[p];
recent=new int[f];
for(int i=0;i<f;i++)
        recent[i]=frame[i]=-1;

System.out.println("Enter the page number of "+p+" pages :");
for(int i=0;i<p;i++)
        pages[i]=scan.nextInt();

for(int i=0;i<p;i++)
{
        flag=true;
        page=pages[i];
        for(int j=0;j<f;j++)
          recent[j]=-1;
        for(int j=0;j<f;j++)
```

```
{

        if(frame[j]==page)
        {
                flag=false;
                pageHit++;
                break;
        }
}/////////////////for  j ends//////////////////


if(flag)
{
        count=0;
        if(i>=f)
        {
                pointPage=i-1;
        while(count<f)
        {
                if(pointPage==-1)
                        break;
                pg=pages[pointPage];
                flag2=true;
                for(int j=0;j<f;j++)

                        if(pg==recent[j])
                        {
                                flag2=false;
```

```
                                        break;
                                }

        if(flag2)
        {
                recent[count]=pg;
                count++;
                pointPage--;
        }
        else
                pointPage--;
 }//////////////////////////while//////////////////////
        System.out.print("Recent:");
        for(int j=0;j<f;j++)
          System.out.print(recent[j]+" ");
        System.out.println();

        int replace=recent.length-1;
        int pg_to_replace=recent[replace];
        int k=0;
        while(frame[k]!=pg_to_replace)
                k++;
        frame[k]=page;
}//////////////////////i>=f////////////////////////////
else
        frame[i]=page;
}
System.out.println("\nFrame:");
```

```
                    for(int k=0;k<f;k++)
                        System.out.print(frame[k]+" ");
                    System.out.println();

            }//////////////////////////for i/////////////////////////
                System.out.println("\nNumber of pagehits: "+pageHit);
                System.out.println("Number of page faults: "+(p-pageHit));

        }
}

public class FifoLru1{

        /**
         * @param args
         */
        public static void main(String[] args) {
                // TODO Auto-generated method stub
                Scanner scan=new Scanner(System.in);
                FL1 flr=new FL1();
                while(true)
                {
                System.out.println("\n1:FIFO(First In First Out)\n2:LRU(Least Recently
Used)\n3:Exit\n");
                System.out.println("Enter your choice : ");
                int choice=scan.nextInt();
                switch(choice)
                {
```

```
                case 1:flr.Fifo();
                                break;
                case 2:flr.Lru();
                     break;
                case 3:System.exit(0);
                }
          }
}
}
```