LRU:-

import java.io.\*;

import java.util.\*;

public class LRU {

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

{

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

int frames,pointer = 0, hit = 0, fault = 0,ref\_len;

Boolean isFull = false;

int buffer[];

ArrayList<Integer> stack = new ArrayList<Integer>();

int reference[];

int mem\_layout[][];

System.out.println("Please enter the number of Frames: ");

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

System.out.println("Please enter the length of the Reference string: ");

ref\_len = Integer.parseInt(br.readLine());

reference = new int[ref\_len];

mem\_layout = new int[ref\_len][frames];

buffer = new int[frames];

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

buffer[j] = -1;

System.out.println("Please enter the reference string: ");

for(int i = 0; i < ref\_len; i++)

{

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

}

System.out.println();

for(int i = 0; i < ref\_len; i++)

{

if(stack.contains(reference[i]))

{

stack.remove(stack.indexOf(reference[i]));

}

stack.add(reference[i]);

int search = -1;

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

{

if(buffer[j] == reference[i])

{

search = j;

hit++;

break;

}

}

if(search == -1)

{

if(isFull)

{

int min\_loc = ref\_len;

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

{

if(stack.contains(buffer[j]))

{

int temp = stack.indexOf(buffer[j]);

if(temp < min\_loc)

{

min\_loc = temp;

pointer = j;

}

}

}

}

buffer[pointer] = reference[i];

fault++;

pointer++;

if(pointer == frames)

{

pointer = 0;

isFull = true;

}

}

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

mem\_layout[i][j] = buffer[j];

}

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

{

for(int j = 0; j < ref\_len; j++)

System.out.printf("%3d ",mem\_layout[j][i]);

System.out.println();

}

System.out.println("The number of Hits: " + hit);

System.out.println("Hit Ratio: " + (float)((float)hit/ref\_len));

System.out.println("The number of Faults: " + fault);

}

}