**U19EC046 | OS | LAB 7**

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**//LRU.java**

**package OS.lab7;**

**import java.util.\*;**

**class LRU {**

**Set<Integer> memory;**

**int maxFrames;**

**int hit;**

**int miss;**

**public LRU(int maxFrames) {**

**this.memory = new LinkedHashSet<Integer>(maxFrames);**

**this.maxFrames = maxFrames;**

**this.hit = 0;**

**this.miss = 0;**

**}**

**public boolean get(int key) {**

**if (!memory.contains(key)){**

**miss++;**

**return false;**

**}**

**hit++;**

**memory.remove(key);**

**memory.add(key);**

**return true;**

**}**

**public void refer(int key) {**

**if (get(key) == false)**

**put(key);**

**}**

**public void put(int key) {**

**if (memory.size() == maxFrames) {**

**int firstKey = memory.iterator().next();**

**memory.remove(firstKey);**

**}**

**memory.add(key);**

**}**

**public void display() {**

**LinkedList<Integer> list = new LinkedList<>(memory);**

**Iterator<Integer> itr = list.descendingIterator();**

**System.out.format("+-Memory-+%n");**

**while (itr.hasNext()) {**

**System.out.format("| %-5d  |%n+--------+%n", itr.next());**

**}**

**}**

**public static void main(String[] args) {**

**Scanner s = new Scanner(System.in);**

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

**int n = Integer.parseInt(s.nextLine());**

**System.out.println("Enter elements : ");**

**String[] els = s.nextLine().split(" ");**

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

**int f = Integer.parseInt(s.nextLine());**

**LRU mem = new LRU(f);**

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

**mem.refer( Integer.parseInt(els[i]) );**

**System.out.println("\nAfter refering " + els[i]);**

**mem.display();**

**}**

**System.out.println("\nHits : " + mem.hit + "\nMiss : " + mem.miss + "\nHit ratio : " + (double)mem.hit/(mem.miss+mem.hit));**

**}**

**}**

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**OUTPUT**

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