package com.company;

//Problem 1 Assignment2

//Task 1-

//Time complexity – O(n+k), here k is 100 since range is from 10^5 – 10^7 ->10^5 factor common

//Task2 time complexity – O(nk)

import java.io.BufferedReader;

import java.io.IOException;

import java.io.InputStreamReader;

import java.util.Scanner;

public class Main {

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

// write your code here

Scanner scan = new Scanner(System.in);

int n = scan.nextInt();

int[] B = new int[101];

Data[] data = new Data[n];

Data[] res = new Data[n];

//Taking input in array of class data

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

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

data[i] = new Data(br.readLine().split(" "));

}

int bucketno = scan.nextInt();

Bucketno[] bucket = new Bucketno[bucketno];

for (int i = 0; i < bucketno; i++) {

bucket[i] = new Bucketno();

bucket[i].bucketvvalue = scan.nextInt();

}

//Code for counting sort on data[i].salary

for (int i = 0; i <= 100; i++) {

B[i] = 0; //bucket to all 0s

}

for (int i = 0; i < n; i++) { //incrementing bucket counts

B[data[i].sal\_in\_bucket] = B[data[i].sal\_in\_bucket]+1;

}

for (int i = 1; i <=100; i++) { //counting previous elements present

B[i] = B[i] + B[i-1];

}

for (int i = n-1; i >= 0; i--) { //new sorted array

res[i] = new Data(data[i].rollno,data[i].name, data[i].salary);

B[data[i].sal\_in\_bucket]--;

System.out.println(res[i].rollno+" "+res[i].name+" "+res[i].salary);

}

//Task 2 – counting no. of entries in bucket asked

for (int i = 0; i < bucketno; i++) {

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

if(bucket[i].bucketvvalue == res[j].salary){

bucket[i].count++;

}

}

}

for (int i = 0; i < bucketno; i++) {

System.out.println(bucket[i].count);

}

}

public static class Data{ //Class to store data

public String rollno;

public String name;

public int salary;

public int sal\_in\_bucket;

Data(String[] s){ //Constructors

rollno = s[0];

name = s[1];

salary = Integer.parseInt(s[2]);

sal\_in\_bucket = salary/100000;

}

public Data(String roll, String nm, int sal) {

rollno = roll;

name = nm;

salary = sal;

sal\_in\_bucket = salary/100000;

}

}

public static class Bucketno{

int bucketvvalue;

int count;

}

}

Approach – Made use of Counting sort in sorting the elements that are stored in an array of Data class objects. The sorting is done on sal\_in\_bucket field in data which ranges from 0 to 100. As the salary range constraints were mentioned. Similarly for task2 the required bucket is found in bucket array and the count in it given as output.