import java.util.ArrayList;

import java.util.List;

import java.util.Scanner;

import java.util.PriorityQueue;

import java.util.Comparator;

class Student {

private int id;

private String name;

private double cgpa;

public Student(int id, String name, double cgpa) {

//super();

this.id = id;

this.name = name;

this.cgpa = cgpa;

}

public int getID() {

return id;

}

public String getName() {

return name;

}

public double getCGPA() {

return cgpa;

}

}

class Priorities {

public List getStudents(List events)

{

PriorityQueue studQue= new PriorityQueue(new Comparator(){

public int compare(Student s1, Student s2) {

if (s1.getCGPA() == s2.getCGPA())

{

if(s1.getName().equals(s2.getName()))

{

return s1.getID() > s2.getID() ? -1 : 1;

}

else

{

return s1.getName().compareTo(s2.getName());

}

}

else

{

return s1.getCGPA() > s2.getCGPA() ? -1 : 1;

}

}

});

String [] arrayStr;

for(String eventString : events)

{

arrayStr = eventString.split(" ");

if(arrayStr[0].equals("ENTER"))

{

studQue.add(new Student(Integer.parseInt(arrayStr[3]), arrayStr[1], Double.parseDouble(arrayStr[2])));

}

else

{

studQue.poll();

}

}

while(studQue.size()>1)

{

System.out.println(studQue.poll().getName());

}

return new ArrayList(studQue);

}

}

public class Solution {

private final static Scanner scan = new Scanner(System.in);

private final static Priorities priorities = new Priorities();

public static void main(String[] args) {

int totalEvents = Integer.parseInt(scan.nextLine());

List events = new ArrayList<>();

while (totalEvents-- != 0) {

String event = scan.nextLine();

events.add(event);

}

List students = priorities.getStudents(events);

if (students.isEmpty()) {

System.out.println("EMPTY");

} else {

for (Student st: students) {

System.out.println(st.getName());

}

}

}

}