








































Practice Arena

Practice problems aimed to improve your coding skills.

-  PRACTICE-02_SCAN-PRINT
-  PRACTICE-03_TYPES
-  LAB-PRAC-02_SCAN-PRINT
-  LAB-PRAC-01
-  PRACTICE-04_COND
-  BONUS-PRAC-02
-  LAB-PRAC-03_TYPES
-  PRACTICE-05_COND-LOOPS
-  LAB-PRAC-04_COND
-  LAB-PRAC-05_CONDLLOOPS
-  PRACTICE-07_LOOPS-ARR
-  LAB-PRAC-06_LOOPS
-  LAB-PRAC-07_LOOPS-ARR
-  LABEXAM-PRAC-01_MIDSEM
-  PRACTICE-09_PTR-MAT
-  LAB-PRAC-08_ARR-STR
-  PRACTICE-10_MAT-FUN
-  LAB-PRAC-09_PTR-MAT
-  LAB-PRAC-10_MAT-FUN
-  PRACTICE-11_FUN-PTR
-  LAB-PRAC-11_FUN-PTR
-  LAB-PRAC-12_FUN-STRUC
 -  Point Pairing Party
 -  Verify the family tree of Mr C
 -  Simple Sudoku
 -  The Family Tree of Mr C Part Three
 -  The Post offices of KRville
 -  Matrix Mandala
 -  Mango Mania
 -  Recover the Rectangle
 -  Crazy for Candy
 -  A Brutal Cipher Called Brutus
 -  Triangle Tangle
 -  Basic Balanced Bracketing
-  LABEXAM-PRAC-02_ENDSEM
-  LAB-PRAC-13_STRUC-NUM
-  LAB-PRAC-14_SORT-MISC

Mango Mania

LAB-PRAC-12_FUN-STRUC

Mango Mania [20 marks]

Problem Statement

Before IITK was built, large swathes of this campus used to be mango orchards. In fact the Hall-I grounds still contain several mango trees. In the first line of the input, we will give you a strictly positive number n , the number of trees in the orchard. Each tree has been given a number by the gardener. The trees will be numbered 1, 2 ... n . In the next n lines, we will give you details about n trees in the following format - there will be two numbers in each line separated by a space

P M

P will denote the number (from 1 to n) assigned to the tree by the gardener. M will be a non-negative number which will denote the number of mangoes on that tree. Each tree in the orchard has a unique number P i.e. no two trees have the same number.

After this we will give you a non-negative number k which denotes the number of students lined up to eat mangoes. In the next k lines we will give you the roll numbers of the k students. We assure you that k will be less than or equal to n i.e. there will never be more students than mango trees.

The first student in the line will choose the mango tree with the largest number of mangoes (for obvious reasons) and go and occupy that tree. If there is more than one tree with the largest number of mangoes, the student will choose the tree with the smallest tree number P. The second student in the line will similarly go and occupy an unoccupied tree with the largest number of mangoes and if there is more than one of those, choose the one with the smallest tree number P.

In your output, print for every tree in the orchard, what is the roll number of the student occupying that tree in the format given below. If there is no student occupying that tree, print a message as indicated below. Note that you have to print this information about the trees in increasing order of the number assigned to the trees i.e. print the information about tree numbered 1 first then tree number 2 and so on.

Caution

1. Observe the output format carefully. Do not make mistakes in spaces, capitalization, or spelling.
2. Two trees may have the same number of mangoes. Some trees may have zero mangoes.
3. No tree will have more than one student occupying it since students always choose among unoccupied trees.
4. There may be no students lined up to eat mangoes, i.e. k may be zero. This may happen, for instance, if the mess is serving mango ice-cream that day.
5. The trees need not be given to you in increasing order of the tree number P. The trees may be given to you in any order. However, your output must be in increasing order of the tree number P.
6. The students are listed in the order they arrive in the orchard. They are not necessarily listed in increasing or decreasing order of their roll numbers.
7. Be careful about extra/missing lines and extra/missing spaces in your output.

HINTS: You may want to store the information about each tree in a structure.

```
struct Tree{
```

```
int treeNum;  
int numMangoes;  
int rollNo;  
};  
and use an array of Tree variables declared as follows  
struct Tree trees[n];  
to solve the problem. Using structures is not compulsory though.
```

EXAMPLE:**INPUT**

```
5  
1 2  
2 4  
3 2  
4 5  
5 8  
3  
12  
10  
7
```

OUTPUT:

```
TREE 1 IS NOT OCCUPIED  
STUDENT AT TREE 2 IS 7  
TREE 3 IS NOT OCCUPIED  
STUDENT AT TREE 4 IS 10  
STUDENT AT TREE 5 IS 12
```

Explanation: The first student (roll number 12) heads for tree number 5 with 8 mangoes which is the highest. The second student (roll number 10) goes for tree number 4 since it is the unoccupied tree with largest number of mangoes ((5 mangoes). The third student (roll number 7) heads for tree number 2 with the next largest number of mangoes i.e. 4 mangoes. Tree numbers 1 and 3 are unoccupied.

Note that tree information in output is printed for tree 1 first then tree 2 and so on.

Grading Scheme:

Total marks: **[20 Points]**

There will be partial grading in this question. There are several lines in your output. Printing each line correctly, in the correct order, carries equal weightage. Each visible test case is worth 2 points and each hidden test case is worth 4 points. There are 2 visible and 4 hidden test cases.

Please remember, however, that when you press Submit/Evaluate, you will get a green bar only if all parts of your answer are correct. Thus, if your answer is only partly correct, Prutor will say that you have not passed that test case completely, but when we do autograding afterwards, you will get partial marks.

 **Start Solving!** (/editor/practice/6236)

