**Input**

The single line contains the integers n ( 1 ≤ n ≤ 1000 ) — the number of hospitals or med students.  
The following 2\*n lines contain the preference list of each hospital and student.

**Output**

Print pairs of the stable matching.

def stable\_matching(n, preferences,student\_str,hospital\_str):  
 matches = {}  
  
 # 将每个学生标记为未匹配  
 unmatched\_students = set(range(n))  
  
 while unmatched\_students:  
 student = student\_str[unmatched\_students.pop()]  
 student\_preferences = preferences[student\_str.index(student)]  
  
 for hospital in student\_preferences:  
 # 如果医院未被匹配，则将学生与医院匹配  
 if hospital not in matches:  
 matches[hospital] = student  
 break  
 else:  
 # 检查学生与当前医院和已匹配学生的偏好关系  
 current\_student = matches[hospital]  
 hospital\_preferences = preferences[n+hospital\_str.index(hospital)]  
  
 if hospital\_preferences.index(student) < hospital\_preferences.index(current\_student):  
 # 如果当前学生在偏好列表中排名更高，则替换匹配  
 unmatched\_students.add(current\_student)  
 matches[hospital] = student  
 break  
 for ans in matches:  
 print('(', matches[ans], ',', ans, ')', sep='')  
 return  
  
  
n = int(input())  
preferences = []  
student\_str = []  
hospital\_str = []  
  
  
for \_ in range(n):  
 temp=input()  
 student\_str.append(temp.split(":")[0])  
 preferences.append(temp.split(":")[1].split(">"))  
for \_ in range(n):  
 temp=input()  
 hospital\_str.append(temp.split(":")[0])  
 preferences.append(temp.split(":")[1].split(">"))  
  
stable\_matching(n, preferences,student\_str,hospital\_str)



