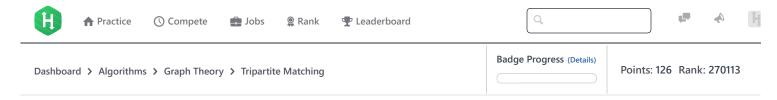
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# Tripartite Matching



You are given  ${\bf 3}$  unweighted, undirected graphs,  $G_1$ ,  $G_2$ , and  $G_3$ , with  ${\bf n}$  vertices each, where the  ${\bf k}^{th}$  graph has  $m_k$  edges and the vertices in each graph are numbered from  ${\bf 1}$  through  ${\bf n}$ . Find the number of ordered triples (a,b,c), where  ${\bf 1} \le a,b,c \le n$ ,  $a \ne b,b \ne c,c \ne a$ , such that there is an edge (a,b) in  $G_1$ , an edge (b,c) in  $G_2$ , and an edge (c,a) in  $G_3$ .

# **Input Format**

The first line contains single integer, n, denoting the number of vertices in the graphs. The subsequent lines define  $G_1$ ,  $G_2$ , and  $G_3$ . Each graph is defined as follows:

- 1. The first line contains an integer,  $m_0$ , describing the number of edges in the graph being defined.
- 2. Each line i of the m subsequent lines (where  $1 \le i \le m$ ) contains 2 space-separated integers describing the respective nodes,  $u_i$  and  $v_i$  connected by edge i.

#### **Constraints**

- $n \le 10^5$
- $m_k \leq 10^5$ , and  $k \in \{1,2,3\}$
- Each graph contains no cycles and any pair of directly connected nodes is connected by a maximum of 1 edge.

## **Output Format**

Print a single integer denoting the number of distinct (a,b,c) triples as described in the *Problem Statement* above.

#### **Sample Input**

2

2

2 :

2 :

1 2

J 2

2

1 3

2 -

# **Sample Output**

3

### **Explanation**

There are three possible triples in our Sample Input:

1. (1, 2, 3)

15/11/2017 HackerRank

2. **(2, 1, 3)** 

3. **(3, 2, 1)** 

Thus, we print 3 as our output.

f in Submissions:<u>147</u> Max Score:80 Difficulty: Hard Rate This Challenge: ☆☆☆☆☆



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