Home

Scoreboard

Ends in 1 day 12h 16m 33s

Score: 50 / 100 points
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PROBLEMS

A: Second Hands 9 pt

B1: Second Friend 9 pt

B2: Second Second Friend 17 pt

C1: Second Meaning 14 pt

C2: Second Second Meaning 18 pt

D: Second Flight 33 pt

FAQ

My Clarifications

Problem D: Second Flight

33 points

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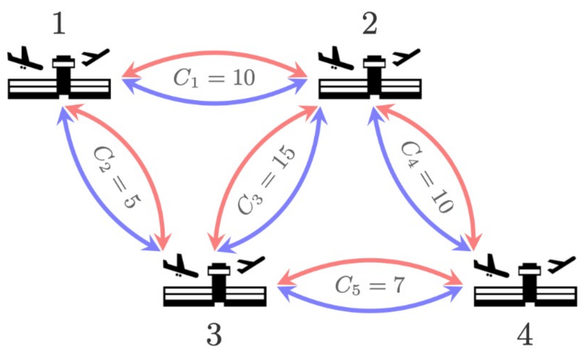
Problem | My Submissions

Note: This problem has large input, so we recommend pre-downloading the compressed zip file.

Meta Getaways is a travel agency that deals with N airports numbered $1 \ldots N$, and M flight paths. Flight path i connects airports A_i and B_i in both directions, with two direct flights operating every morning (one in each direction), and another two every evening (also one in each direction). Each of these four direct flights can carry up to C_i tourists.



The first sample case is depicted above, with morning and evening flights in red and blue.

Peak travel season is here, and will last Q days. For each day i, determine F_i, the maximum number of tourists who could possibly fly from airport X_i to Y_i. Each tourist may either fly directly or take one morning and one evening flight which share an intermediate airport.

Constraints

$1 \leq T \leq 70$
$1 \leq N, M, Q \leq 200{,}000$
$1 \leq C_i \leq 10^9$
$1 \leq A_i, B_i \leq N; A_i \neq B_i$
$1 \leq X_i, Y_i \leq N; X_i \neq Y_i$
All unordered pairs (A_i, B_i) within a given test case are distinct.

The sum of Q across all test cases is at most $5{,}000{,}000$.

Input Format

Input begins with a single integer T, the number of test cases. For each case, there is first a line containing three space-separated integers N, M, and Q. Then, M lines follow, the ith of which contains three space-separated integers A_i, B_i, and C_i. Then, Q lines follow, the ith of which contains two space-separated integers X_i and Y_i.

Output Format

For the ith case, print a line containing "`Case #i: `" followed by Q space-separated integers $F_1, \ldots, F_Q$.

Sample Explanation

In the first case:

- On day 1, we must send as many tourists from airport 1 to airport 2. We can fly 10 tourists direct in the morning and 10 more at night. Only 5 tourists can be flown from $1 \rightarrow 3$ in the morning and $3 \rightarrow 2$ in the evening (despite the evening flight capacity being 15). Therefore, $F_1 = 10 \cdot 2 + 5 = 25$.
- On day 2, we can fly 5 tourists direct in the morning and evening, then fly 10 tourists through airports $1 \rightarrow 2 \rightarrow 3$. Therefore, $F_2 = 5 \cdot 2 + 10 = 20$.
- $F_3 = 15 \cdot 2 + 5 + 7 = 42$
- $F_4 = 10 \cdot 2 + 7 = 27$
- $F_5 = 7 \cdot 2 + 10 = 24$
- On day 6, there are no direct flights. We can fly 10 tourists through airports $4 \rightarrow 2 \rightarrow 1$, and 5 tourists through airports $4 \rightarrow 3 \rightarrow 1$ for a total of $F_6 = 10 + 5 = 15$ tourists.

In the second case:

- $F_1 = 10 \cdot 2 + 20 = 40$
- $F_2 = 30 \cdot 2 + 10 = 70$
- $F_3 = 0$
- $F_4 = 20 \cdot 2 + 10 = 50$
- $F_5 = 0$
- $F_6 = 0$

Sample Input

```
3
4 5 6
1 2 10
1 3 5
2 3 15
2 4 10
3 4 7
1 2
1 3
2 3
2 4
3 4
4 1
4 3 6
1 2 10
2 3 20
3 1 30
1 2
1 3
1 4
2 3
2 4
3 4
4 3 6
1 2 20
2 3 10
3 4 30
1 2
1 3
1 4
2 3
2 4
3 4
```

Sample Output

```
Case #1: 25 20 42 27 24 15
Case #2: 40 70 0 50 0 0
Case #3: 40 10 0 20 10 60
```

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