**Problem I. Sets**

You have a graph with N, 2 ≤ N ≤ 10 000 vertices, numbered from 1 to N. These vertices are divided into two sets А and В and are connected with M bidirectional edges. You are provided with the time necessary to move from one vertex to another – an integer, no larger than 1 000.

Write a program to calculate the minimum time required to move from each vertex from А to some vertex from B.

**Input**

The first line of input contains the number of test cases. Each of them begins with the number of the vertices N on a separate line*.* The next line contains a string consisting of N characters 'А' or 'В' denoting the set of the consecutive vertex number. The next line contains the number of edges M. M lines follow. Each line contains two vertex numbers and the time needed to move between them using that edge.

**Output**

For each test case output as many lines as the count of vertices in set A. Each of these lines should contain two numbers – the number of a vertex from set A and the minimum time required to move from it to any vertex from B or -1 in case such vertex doesn’t exists. Order vertices by their ascending numbers.

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| --- | --- |
| **Input** | **Output** |
| 1  8  BABABAAB  10  1 6 10  2 3 21  2 4 2  2 6 7  4 7 7  4 5 18  6 8 3  6 7 6  8 7 10  7 3 11 | 2 10  4 12  6 3  7 9 |