

# PW - K // Race to Witch 231

Every math test day, a race occurs to room 231. Due to the inconsistent marks with those who come right at the bell and those who have less time, Mr. Ing decides that he needs to dock the person who enters the class first to make testing fair (Aaryan is screwed).

Each room is connected by a path to one or more other rooms (potentially including itself). Sometimes, two (potentially self-same) rooms are connected by more than one path. One or more of the rooms have a path to room 231. Thus, all students have a path to the math classroom and they always know the shortest path. Of course, students can go in either direction on a path and they all walk at the same speed of 12m/s.

The rooms are labeled 'a'..'z' and 'A'..'Y'. Exactly one student is in each room labeled with a capital letter. No student is in a room labeled with a lowercase letter. Room 231 is labeled 'Z' (the end of the line); no students are in Z, though.

## Input Format

Integer  $P$  ( $1 \leq P \leq 10,000$ ) the number of paths that interconnect the rooms. The next  $P$  lines contain two letters and an integer that are space-separated: the names of interconnected rooms and the distance between them ( $1 \leq \text{distance} \leq 1000$ ).

## Output Format

A single line containing two items: the capital letter name of the room of the student that arrives first to Room 231, the length of the path taken by that student.

## Sample Input 1:

```
5
A d 6
B d 3
C e 9
d Z 8
e Z 3
```

## Sample Output 1:

```
B 11
```