

# DMOPC '19 Contest 5 P2 - Charlie's Crazy Conquest

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**Time limit:** 2.0s    **Memory limit:** 128M

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Charlie just downloaded the new free-to-play game ~~Raid: Shadow Legends~~ Conquest. Just what he wanted! In this game, he must defeat enemies, all of which are bots, and restore power to his clan. Both Charlie and the enemy before him start with  $H$  health points. Then, the two take turns performing actions, with Charlie going first. On each turn, one can perform one of two actions:

- $A$   $d$  Attack your opponent, dealing  $d$  damage.
- $D$   $d$  Dodge your opponent if they attack on the next turn. If they do not attack on the next turn, take  $d$  damage from self-humility.

Because he is such a computer genius, Charlie has hacked the game and created two lists of  $N$  actions each representing what the opponent will do and what he will do. Your job is to simulate his battle and find out who wins. If any person's health reaches 0 or below, your program is to output the correct answer and terminate.

**Note:** Dodging at the end of the list of actions counts as a failed dodge. (i.e. if the enemy prepares a dodge as their last move, they will inflict self-harm.)

## Input Specification

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The first line of input contains two space separated positive integers  $N$  and  $H$ .

The next  $N$  lines contain an uppercase Latin letter and a non-negative integer  $d$  representing Charlie's actions.

The next  $N$  lines contain an uppercase Latin letter and a non-negative integer  $d$  representing his opponent's actions.

## Output Specification

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Output  **VICTORY** if Charlie wins or  **DEFEAT** if he loses or  **TIE** if none of them die.

## Constraints

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$$1 \leq N, H \leq 1000$$

$$0 \leq d \leq 1000$$

## Sample Input 1

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```
3 100
A 50
D 10
A 100
A 90
D 0
A 0
```

## Sample Output 1

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```
DEFEAT
```

## Sample Explanation 1

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After the first turn, the bot's health is at 50. After the second turn, Charlie's health is at 10. After the third turn, Charlie attempts to dodge the next attack but his opponent also dodges causing Charlie's health to drop to 0. The remaining commands are ignored due to Charlie losing.

## Sample Input 2

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```
4 100
D 10
D 20
D 30
D 30
D 10
D 20
D 30
D 40
```

## Sample Output 2

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```
VICTORY
```

## Sample Explanation 2

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After the second last turn, Charlie's health is at 10 and his opponent's is at 40. Then, his opponent tries to dodge but Charlie does not attack (because the list of actions has been completed) and his opponent takes 40 damage reducing their health to 0.

### Sample Input 3

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```
2 100  
A 99  
A 99  
D 1  
A 1
```

### Sample Output 3

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```
TIE
```