Three Person Tree Game

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Alice and Bob are tired of playing 2-player games so they called their third friend Chaithanya and decide to play a 3-player game. We abbreviate their names with A, B and C respectively.

A, B and C are playing on a tree with N vertices (vertices are numbered from 1 to N). Recall that a tree is a connected graph with no cycles.

A, B and C are initially each standing on three **distinct** vertices. They take turns to play their move with A playing first, B playing second and C playing third.

When it's a players turn to move, they can do one of the following:

- Stay on the same vertex.
- Move to an adjacent vertex.

The game ends when one of the below conditions are met:

- C and A are in the same node. In this case A wins.
- A and B are in the same node. In this case B wins.
- B and C are in the same node. In this case C wins.

The **primary** objective of each player is to win the game. If that is not possible then their **secondary** objective is to not let anybody else win. All players play optimally.

Given the tree and the initial position of A, B and C, you have to decide if the game will continue forever or if there will be a winner. If there will be a winner then output the name of the winner, else output `DRAW`.

Input

The first line contains a single integer T denoting the number of test cases.

For each test case:

- The first line contains a single integer N denoting the number of people.
- The next line contains three space separated integers a, b, c denoting the vertex number of A, B and C respectively.
- The next $N-1$ lines contains two space separated integers u, v denoting that there is an edge between vertex u and v. It is guaranteed that the edges form a valid tree.

- $1 \le T \le 3 \cdot 10^4$
- $3 \le N \le 2 \cdot 10^5$
- $1 \le u, v \le N$
- $1 \le a, b, c \le N$
- $a \ne b$ and $a \ne c$ and $b \ne c$ ($\{a, b, c\}$ are pairwise distinct)

- The edges form a valid tree.
- Sum of N over all test cases in a test file does not exceed $2 \cdot 10^5$

Output

For every test case:

- If A wins then output `A`.
- If B wins then output `B`.
- If C wins then output `C`.
- If there is no winner then output `DRAW`.

Note that the output is **case sensitive**.

Example

standard input	standard output
2 3 1 2 3 2 1 3 1 4 1 2 3 1 4 2 4 3 4	A DRAW

Note

- For the first test case, A is at vertex 1, B is at vertex 2 and C is at vertex 3. There is an edge between vertex 1 and 3, so for the first move A will move to vertex 3 where C is located and win the game.
- For the second test case, again A is at vertex 1, B is at vertex 2 and C is at vertex 3. In this case every person has two options for the first turn: 1) either stay at the same vertex or 2) move to vertex 4. For the second option, if anyone moves to vertex 4 then in the next turn one of the other people will move to vertex 4 and win the game. Therfore no one will move to vertex 4 and the game will never end.
  - For example let's say A andB stay in the same vertex for their turns. C decides to move to vertex 4 on his turn. In the next turn it's A's move to play. A will definitely move to vertex 4 and win the game. According to the objective of every player, they don't want anyone else to win. So C will not move to vertex 4. Similar argument can be made for players A and B.