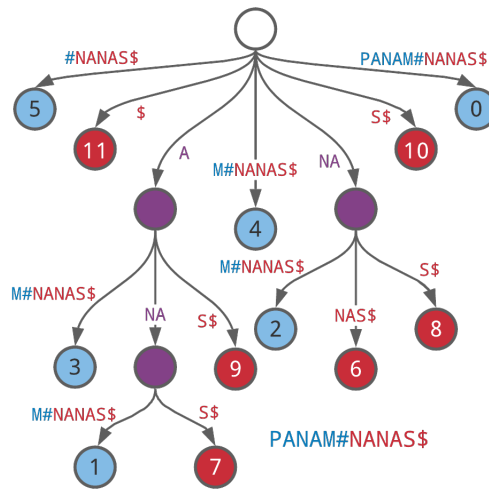# 9P Implement TreeColoring

Tree Coloring Problem
Color the internal nodes of a suffix tree given colors of the leaves.

Input: A tree with leaves colored red or blue.
Output: Coloring of all internal nodes of the tree such that a node is colored red if all of its descendants are red, blue if all of its descendants are blue, and purple if it has both red and blue descendants.

Formatting

Input: An newline-separated adjacency list, a delimiting character "-", and a newline-separated list of color labels for leaf nodes.
Output: A newline-separated list of nodes and their color labels in the following form: *node label color label*.

Constraints

- The number of nodes in the adjacency list will be between 1 and 10^2.

- The number of edges in the adjacency list will be between 1 and 10^2.

Test Cases

Case 1

Description: The sample dataset is not actually run on your code.

Input:
```
0:
1:
2:  0 1
3:
4:
5:  2 3
6:
7:  4 5 6
_
0 red
1 red
3 blue
4 blue
6 red
```

Output:
```
0 red
1 red
2 red
3 blue
4 blue
5 purple
6 red
7 purple
```

Case 2

Description: A larger dataset of the same size as that provided by the randomized autograder. Check input/output folders for this dataset.