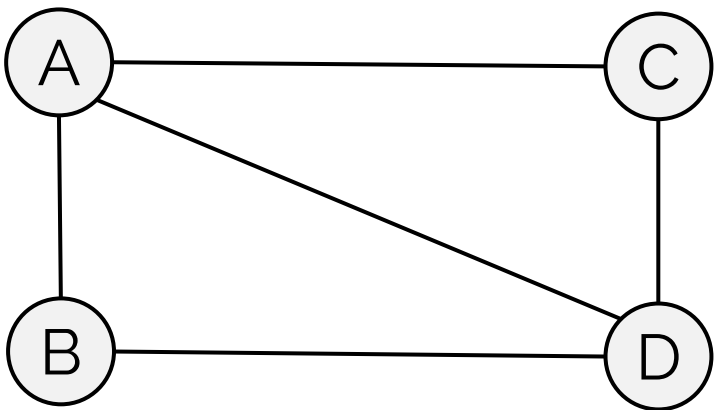


Given the pairs of vertices associated with the edges of a non-directed graph, determine whether the graph is bipartite or not. The graph shown is not bipartite, throwing a 0 value as the output. No more than one edge connecting the same vertices with the same direction is presented. No loops are presented.



Input

The first line of the input indicates the amount of test cases. Following that line, the input consists of several lines of strings that represent the adjacency list of each graph.

Sample input

```
2
A:BCD;B:AD;C:AD;D:ABC
A:B;B:AC;C:B
```

Output

The output must be a single bool value indicating whether the graph is bipartite (1) or not (0).

Sample output

```
0
1
```