You're given a rooted tree with n vertices. **A** and **B** are playing with the tree. in each turn (starting with **A**), each player can choose a vertex v which it has no parent and delete a path with at least two vertices starting from v.

A player loses if he cannot move, for each test say who will win.

Input

First line contains t, number of testcases.

Each test's first line contains only n, number of tree's vertices.

Each test's following $n - 1$ lines contains p_i which means the $i + 1$th vertex's parent is p_i.

$1 \leq n \leq 5 \times 10^4$

$1 \leq p_i \leq i$

$1 \leq t \leq 10$

Output

For each test print a **A** if **A** wins, otherwise print **B**.