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On a hot day in Surabaya, Puguh is bored. He then declares himself as "the bestest player in teh world", challenging his friend named Joke to play a game. Here is the description of the game:

- There are N piles of coins and each pile contains X_i coins ($i=1$ to N).
- Each player alternately takes turn.
- On each turn, a player must take a number of coin from any pile. The number of coin taken must be a divisor of the current pile size and must be less than the current pile size. For example, if Puguh chooses a pile with 6 coins, then he may take 1, 2, or 3 coins from that pile.
- The first player that can't take any coin on his turn loses.

Puguh and Joke will play optimally. If Puguh is the first player to move, predict the winner of this game.

Input

Input starts with a number T , the number of test cases. For each test case, the first line contains a number N . The next line contains N numbers X_i , number of coins on the i -th pile.

Output

For each case, output a line. If Puguh won the game, output "Puguh is the bestest player in teh world" and if Joke won the game, output "Joke is the bestest player in teh world".

Sample Input

```
1
1
6
```

Sample Output

```
Puguh is the bestest player in teh world
```

Constraint

- $1 \leq T \leq 50$
- $0 \leq N \leq 100000$
- $0 \leq X_i \leq 1000000000$

Input file is huge, use faster I/O (scanf for C)