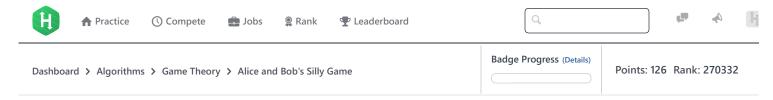
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# Alice and Bob's Silly Game ■



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Alice and Bob invented the following silly game:

- The game starts with an integer, n, that's used to build a **set** of n distinct integers in the inclusive range from 1 to n (i.e.,  $set = \{1, 2, 3, ..., n 1, n\}$ ).
- Alice always plays first, and the two players move in alternating turns.
- During each move, the current player chooses a prime number, p, from set. The player then removes p and all of its multiples from set.
- The first player to be unable to make a move loses the game.

Alice and Bob play g games. Given the value of n for each game, print the name of the game's winner on a new line. If Alice wins, print Alice; otherwise, print Bob.

Note: Each player always plays optimally, meaning they will not make a move that causes them to lose the game if some better, winning move exists.

## **Input Format**

The first line contains an integer, g, denoting the number of games Alice and Bob play. Each line i of the g subsequent lines contains a single integer, n, describing a game.

#### **Constraints**

- $1 \le g \le 1000$
- $1 \le n \le 10^5$

#### **Subtasks**

•  $1 \le n \le 1000$  for 50% of the maximum score

# **Output Format**

For each game, print the name of the winner on a new line. If Alice wins, print Alice; otherwise, print Bob.

## Sample Input 0

3

1

5

# Sample Output 0

Bob

Alice

Alice

### **Explanation 0**

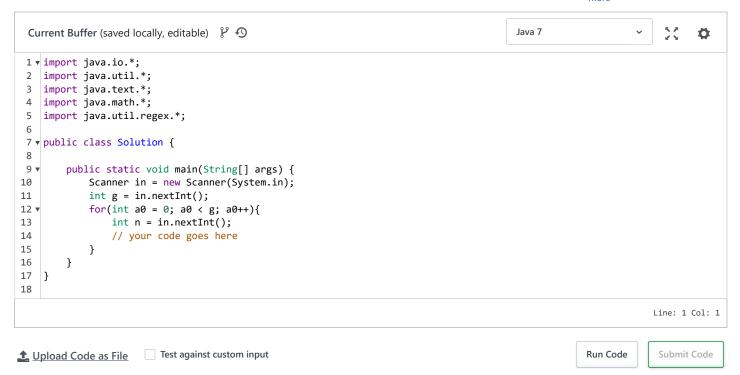
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Alice and Bob play the following g = 3 games:

- 1. We are given n = 1, so  $set = \{1\}$ . Because Alice has no valid moves (there are no prime numbers in the set), she loses the game. Thus, we print Bob on a new line.
- 2. We are given n = 2, so  $set = \{1, 2\}$ . Alice chooses the prime number p = 2 and deletes it from the set, which becomes  $set = \{1\}$ . Because Bob has no valid moves (there are no prime numbers in the set), he loses the game. Thus, we print Alice on a new line.
- 3. We are given n = 5, so  $set = \{1, 2, 3, 4, 5\}$ . Alice chooses the prime number p = 2 and deletes the numbers 2 and 4 from the set, which becomes  $set = \{1, 3, 5\}$ . Now there are two primes left, 3 and 5. Bob can remove either prime from the set, and then Alice can remove the remaining prime. Because Bob is left without a final move, Alice will always win. Thus, we print Alice on a new line.

Submissions:<u>1633</u>
Max Score:30
Difficulty: Medium
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