Problem Set-1

This problem set is to boost your reading skill while dealing with programming problems along with the formatting of I/O. Try to consider as many test cases that you could.

1. Your program is to use the brute-force approach in order to *find the Answer to Life, the Universe, and Everything.* More precisely... rewrite small numbers from input to output. Stop processing input after reading in the number 42. All numbers at input are integers of one or two digits.

   Input:
   1
   2
   88
   42
   99
   Output:
   1
   2
   88

2. Onotole has a lot of pyani. Each pyani has a number, writing on it. Pyanis with equal numbers are indistinguishable. Onotole knows everything, so, he knows that each pyani appeared twice, and only one pyani is unique. He wants to get vzdrzhni effect, and he needs the unique pyani. Given the list of pyanis denote which one of them appeared once (it is guaranteed that other pyanis appeared twice).

Note: Your solution must be of O(n)

Input

First line of input contains number of pyanis N <= 500 000. Next N lines contain a single positive integer 1 <= Pi <= 10^9.

Output

Output one positive integer on pyani, which appeared once.

Input:
3
1
8

1

Output:
8

3. After duelling in quake (a multiplayer game), Airborne and Pagfloyd decide do test themselves out in another game called Hubululu. The rules of the game are as follows: N wooden pieces (marked with numbers 1 to N) are placed in a transparent bottle. On his turn the first player takes out some piece (numbered x) and all the pieces numbered by divisors of x that are present in the transparent bottle. The second player picks another number and removes it and its divisors as well. Play continues in an alternating fashion until all pieces have been removed from the bottle. The player who removes the last piece from the bottle wins the game.
Both players play optimally. Given N (the number of wooden pieces in the transparent bottle initially) and the name of the player who starts the game, determine the winner.

Input

The first line of the input contains an integer t, the number of test cases. t test cases follow.
Each test case consists of a single line containing two integers separated by a single space. The first integer is N (1 <= N <= 2000000000), indicating the number of pieces, and the second integer indicates the player who starts - "0" means Airborne starts the game and "1" means Pagfloyd starts the game (quotes for clarity).

Output

For each test case output one line containing either "Airborne wins." or "Pagfloyd wins." For each N, it's possible to determine a winner if both players play optimally.

Example

Input:
1
1 0

Output:
Airborne wins.

4. Since very long time shaktiman and kilwish have been fighting with each other but the fight never came to end . So finally I came to rescue . I decided that the result of the fight will be decided by a mathematical game, in which I will write a number (N) . Kilwish and shaktiman will play the game alternatively and each of them would subtract a number(n) [n is less than N] such that N modulo n gives zero. The game is repeted turn by turn until the one, who now cannot make a further move looses the game

Shaktiman being weak at mathematics asks you for help, whether or not he can win in that particular case. If Shaktimaan wins that game then print "Thankyou Shaktiman" otherwise print "Sorry Shaktiman".The game begins with shaktimaan playing first move.It is well understood that both of them will make moves in optimal way.

INPUT

Input contains test cases t (< 10^5) and followed by t numbers (1 <= N <= 10^6).

OUTPUT

If Shaktimaan wins that game then print "Thankyou Shaktiman" otherwise print "Sorry Shaktiman".

Sample Input:
2
212
424

Sample Output:
Thankyou Shaktiman
Thankyou Shaktiman

5. WAP to do a binary search on an array using recursion, it length could be upto 10^6.