

# Problem B

## IGOR'S ANTS

File name: B.{java,c,cpp}

$N$  ants are placed on a circular track of length  $N$  units at  $0, 1, \dots, N-1$  units clockwise from an arbitrary spot. At the same time, all ants start moving in either direction at the speed of one unit per second. When two ants bump into each other, they both change direction and continue moving.



Where is each ant and what direction is it facing after  $N$  seconds?

### Program Input

Input starts with a single integer  $C$  ( $1 \leq C \leq 100$ ) on a line, which denotes the number of test cases to follow. Each test case consists of two lines. The first line contains a positive integer  $N$  ( $1 \leq N \leq 100$ ). The integer  $N$  denotes the number of ants and it also denotes the length of the circular track. The second line contains  $N$  integers separated by spaces. The  $i$ th integer on this line determines the initial direction of the  $i$ th ant,  $0$  denoting clockwise and  $1$  denoting the counterclockwise direction.

### Program Output

For each test case print a single line containing  $N$  pairs of integers separated by spaces. The  $j$ th pair of integers will denote the current position of the  $j$ th ant and the direction it is facing.

### Sample Input & Output

INPUT	OUTPUT
2	0 0 1 1
2	1 1 2 0 0 0
0 1	
3	
0 1 0	