

Gultane and Gifts

Assignment 2

Computer Programming

Due date: 10th October, 2019

Description: Gultane likes set bits (1 bits). His friend Sana gave him n gifts, each consisting of 2 numbers l, r . For each gift Gultane wants to find a number x , such that $l \leq x \leq r$ and the number of set bits in x is maximum possible. If there are multiple possible values of x , Gultane wants to find the minimum. Since Gultane is lazy he wants your help in finding x .

Input

The first line contains integer n - the number of gifts(or queries)

Each of the following n lines contain two integers l_i, r_i - the values contained in the i th gift .

Output

For each query print x in a separate line.

Constraints

$1 \leq n \leq 10^4$

$0 \leq l_i \leq r_i \leq 10^{18}$

Sample Test Case

Input	Output
4	1
1 2	3
2 4	7
1 10	0
0 0	