Given A and B, $1 \leq A \leq B \leq 10^{18}$, find the result of $A|(A+1)|(A+2)|\ldots|B$ and $A\&(A+1)\&(A+2)\&\ldots\&B$.

| operator represents bitwise OR (inclusive)
& operator represents bitwise AND

Input

The first line of the input contains an integer T ($T \leq 100000$) denoting the number of test cases. Each of the following T lines has two space separated integers A and B, $1 \leq A \leq B \leq 10^{18}$.

Output

For each input, print the output in the format, 'Case C: X Y' (quote for clarity). here C is the case number starting from 1, X is the result of bitwise (inclusive) **OR** of numbers from A to B inclusive and Y is the result of bitwise **AND** of numbers from A to B, inclusive.
    For the exact input/output format please check the sample input/output section.

Note:
| operator represents **bitwise OR**. A **bitwise OR** takes two bit patterns of equal length and performs the logical inclusive **OR** operation on each pair of corresponding bits. The result in each position is **1** if the first bit is **1** *or* the second bit is **1** *or* both bits are 1; otherwise, the result is **0**. [Source: Wikipedia]

& operator represents **bitwise AND**. A **bitwise AND** takes two equal-length binary representations and performs the logical **AND** operation on each pair of the corresponding bits, by multiplying them. Thus, if both bits in the compared position are 1, the bit in the resulting binary representation is 1 ($1 \times 1 = 1$); otherwise, the result is 0 ($1 \times 0 = 0$). [Source: Wikipedia]

Sample Input

```
2
1 1
1 2
```

Sample Output

```
Case 1: 1 1
Case 2: 3 0
```