

[1, 2, 1, 3, 2, 5]

② group numbers by value at i th bit.

$x \rightarrow$
 $\begin{array}{ccc} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 1 \\ 0 & 1 & 0 \end{array}$

$y \rightarrow$
 $\begin{array}{ccc} 1 & 0 & 1 \\ \hline 1 & 1 & 0 \end{array}$

$x \rightarrow$
 $\begin{array}{ccc} 0 & 0 & 1 \\ 0 & 0 & 1 \\ \hline 1 & 0 & 1 \\ 0 & 1 & 0 \\ y \rightarrow 0 & 1 & 1 \\ 0 & 1 & 0 \end{array}$

since except for x, y ,
 other elements appear
 twice. So the XOR
 result of each group
 will be x and y .

← result of XOR

↑ i th

①

since result of XOR at
 this bit is '1', x and y
 must differ at here.