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Exclusive OR

Maximum XOR Subset

Given a set of integers, find a subset whose XOR is maximum.

See [Gaussian Elimination](#) for more details.

XOR from 1 to N

Cumulative XOR from 1 to N follows pattern.

Let $A[i] = 1 \oplus 2 \oplus 3 \oplus \dots \oplus N$. Then:

```
int r = i % 4;
if ( r == 0 ) A[i] = i;
else if ( r == 1 ) A[i] = 1;
else if ( r == 2 ) A[i] = i + 1;
else A[i] = 0;
```

Problem: [HR Xor Sequence](#)

Useful Properties

Assume, $a \leq b$, unless explicitly mentioned.

- $a \oplus b \geq b - a$: xor value is always greater than or equal to the difference of the two numbers.

Problem: [UVa 12716 - GCD XOR](#)