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Even / Odd from Bit Manipulation

(1)

6 -> 110 7 -> 111
4 -> 100 9 -> 1001
8 - 1000 3 -> 11

Even : LSD is 0 in Even.
Odd : LSD is 1 in Odd.

(2) Find bit at ith Position

-> 1011001
6

i -> 6

& / And operator

1 0 -> 0
0 1 -> 0
0 0 -> 0
1 1 -> 1

If we perform And operator at 6th then

1 & 1 -> (1) -> Non Zero
0 & 1 -> (0) -> Zero.

then

1011001
1<<i & 1000000

1000000

[num & (1<<i) != 0]
6th bit is set.

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- Formula to find odd number

  add
  ↳ (num & 1) != 0 → odd

  Otherwise num is even.

(3) Print bits of a number.

85 → 1000 1 1

(4) Set the ith Bit

→ 1010 11
00 1000

(5) Toggle ith bit 4th bit.

→ 101011

Result → 100 1011

Use ^ XOR

101011
00 0000

or Operation