Topics to discuss

Bit manipulation Problem - 8

Reverse Bits

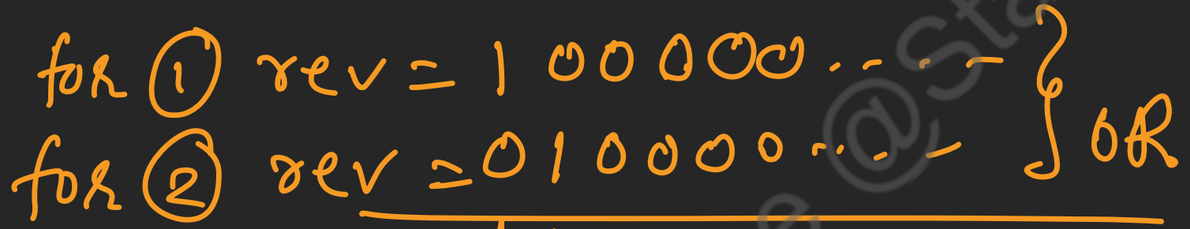
190. Reverse Bits

Easy | Topics | Companies

Reverse bits of a given 32 bits unsigned integer.

Note:

- Note that in some languages, such as Java, there is no unsigned integer type. In this case, both input and output will be given as a signed integer type. They should not affect your implementation, as the integer's internal binary representation is the same, whether it is signed or unsigned.
- In Java, the compiler represents the signed integers using 2's complement notation. Therefore, in **Example 2** above, the input represents the signed integer `-3` and the output represents the signed integer `-1073741825`.



Example 1:

```
Input: n = 00000010100101000001111010011100
Output:    964176192 (00111001011110000010100101000000)
Explanation: The input binary string 00000010100101000001111010011100 represents the unsigned integer 43261596, so return
964176192 which its binary representation is 00111001011110000010100101000000.
```

```
Public class solution {
    public int reverseBits (int n) {
        int result = 0;
        for (int i=0 ; i<32 ; i++) {
            int lsb = n & 1;
            int rev = lsb << (31-i);
            result = result | rev ;
            n = n >> 1;
        }
        return result;
    }
}
```

n = 1100

res = 0

for(i=0 ; i<4 ; i++)

loop① i=0
lsb = 0
rev = 0<<3 = 0000
res = 0|0000 = 0000
n = 110

loop② i=1
lsb = 0
rev = 0<<2 = 000
res = 0000|000 = 0000
n = 11

loop③ i=2
lsb = 1
rev = 1<<1 = 10
res = 0000|10 = 0010
n = 1

④ i=3
lsb = 1
rev = 1<<0 = 1
res = 0010|1 = 0011
n = 1>>1 = 0

⑤ i=4 stop

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