190. Reverse Bits

Difficulty : Easy

https://leetcode.com/problems/reverse-bits

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 00111001011110000
```

Example 2:

```
Input: n = 11111111111111111111111111111101
Output:   3221225471 (10111111111111111111111111111111)
Explanation: The input binary string 11111111111111111111111111111101 represents the unsigned integer 4294967293, so return 3221225471 which its binary representation is 10111111111111
```

Constraints:

- The input must be a **binary string** of length `32`

Follow up: If this function is called many times, how would you optimize it?