Bit Manipulation
(Assignment Questions)

Question 1 : Write a Function to clear the range of bits from i to j in a given number. (i & j are counted backwards from the right end of the number)

Examples :

Input : num = 15, i = 1, j = 3 Output : 1

Explanation :
15 in binary form is => 00001111 [i=1st & j=3rd bit underlined]
After bits are cleared, number will become 00000001

Input : num = 31, i = 1, j = 3 Output : 17

Note - Think about what type of bit mask is needed. It can also be a combination of 2 numbers.

Question 2 : Given a non-empty array of integers nums, every element appears twice except for one. Find that single one.

You must implement a solution with a linear runtime complexity and use only constant extra space. [Go to Qs]

Hint - Think XOR.

Question 3 : You are given a 0-indexed integer array nums.

The effective value of three indices i, j, and k is defined as ((nums[i] | nums[j]) & nums[k]).

The xor-beauty of the array is the XORing of the effective values of all the possible triplets of indices (i, j, k) where 0 <= i, j, k < n.

Return the xor-beauty of nums. [Go to Qs]

Extra Qs : Given two integers dividend and divisor, divide two integers without using multiplication, division, and mod operator. [Go to Qs]

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