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CSC 278

18 January 2022

1. Assuming that “sets the least significant bit of an unsigned integer” strictly means turning a 0 to a 1, the result will always be odd. This is because when converting a binary number to its decimal form, the least significant bit will always represent the one’s place. Every bit’s place in an increasing order after it is a multiple of 2. Therefore, when converting a binary number with its LSB set, you will always be adding one to a series of even numbers, resulting in an odd number.
2. The maximum number of elements this array can hold is 2^{32} elements.