191. Number of 1 Bits

Write a function that takes the binary representation of a positive integer and returns the number of set bits it has (also known as the Hamming weight).

Example 1:

- **Input:** n = 11
- **Output:** 3
- **Explanation:** The input binary string 1011 has a total of three set bits.

Example 2:

- **Input:** n = 128
- **Output:** 1
- **Explanation:** The input binary string 10000000 has a total of one set bit.

Example 3:

- **Input:** n = 2147483645
- **Output:** 30
- **Explanation:** The input binary string 11111111111111111111111111111101 has a total of thirty set bits.

Constraints:

- $1 <= n <= 2^{31} - 1$

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