

## 191. Number of 1 Bits

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Write a function that takes the binary representation of an unsigned integer and returns the number of '1' bits it has (also known as the [Hamming weight](#)).

**Note:**

- Note that in some languages, such as Java, there is no unsigned integer type. In this case, the input will be given as a signed integer type
- In Java, the compiler represents the signed integers using [2's complement notation](#). Therefore, in **Example 3**, the input represents the signed integer -1.

### Example 1:

[illegible]

### Example 2:

[illegible]

### Example 3:

**Input:** n = 1111111111111111111111111111101  
**Output:** 31  
**Explanation:** The input binary string 1111111111111111111111111111101 has a total of thirty one '1'

### 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?

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Yes      No

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