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Introduction to competitive Programming

1]

A) Finding the number of Bits present in a Binary Sequence.

Source Code:

```
# Input binary sequence as string
binary_sequence = input("Enter the binary sequence: ")

# Count number of bits
number_of_bits = len(binary_sequence)

print("Number of bits in the binary sequence:", number_of_bits)
```

output:

```
Enter the binary sequence: 101101
Number of bits in the binary sequence: 6
```

I chose this simple algorithm using len() because of these reasons:

1. **Direct Approach:**
   A binary sequence (like '1011') is just a string of '0' and '1'. Counting bits directly means counting how many characters are present. Using len() is the simplest and most direct way.
2. **No Conversion Needed:**
   Since the input is already a binary string, there's no need to convert it into integers or process it bit-by-bit.

Here are possible constraints for the problem of finding the number of bits in a binary sequence:

1. Input Constraints

- The sequence should contain only '0' and '1'.
- Length of the sequence:
  - Minimum length: 1 (at least one bit).