**Problem #1**

**Binary String**

In this problem, you are given a binary string (a string of bits) in a single line. You need to output the corresponding decimal value. The decimal value is guaranteed to be less than 2^31. (Hint: You can read the input line character by character in a loop until you reach ‘\n’).

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| --- | --- |
| **Sample Input(s)** | **Corresponding Output(s)** |
| 1111111111111111111111111111111  101101011 | 2147483647  363 |

**Problem #2**

**Prime Factorization**

The prime factorization of a positive integer is a list of the integer's prime factors, together with their multiplicities. The fundamental theorem of arithmetic says that every positive integer has a single unique prime factorization. In this problem, your input will be an integer *n* such than 1 < *n* < 100001. You need to output the prime factorization of the integer. See the samples for exact formatting

|  |  |
| --- | --- |
| **Sample Input(s)** | **Corresponding Output(s)** |
| 85000  234  7 | 2^3 X 5^4 X 17^1  2^1 X 3^2 X 13^1  7^1 |