F006A. Can you add up? P55982_en

Your task is to write a program that reads pairs of natural numbers and prints their sum.

Warning: the natural numbers that we consider in this problem can be very large (thousands of digits), you must store them in variables of |string| type. The main program is already done; do not modify it:

```
int main() {
    string x, y;
    while (cin >> x >> y) cout << sum(x, y) << endl;
}
```

Implement the function

```
string sum(string x, string y);
```

that, given two strings of characters |x| and |y| that represent two natural numbers, returns a string of characters |z| that represents their sum.

To simplify the problem, suppose that neither |x| nor |y| start with '|0|'. Besides, suppose that |x| has, at least, the same number of digits than |y|. The number of digits of |z| must be equal to the number of digits of |z| plus one, although it causes that |z| starts with '|0|'.

Observations

- Remember that a string |s| with |n| characters |c| can be declared like this: |string s(n, c);|
- Remember also that the string operations like |s += '0';|, |s1 += s2;| or |s = s1 + s2;| are not allowed.

Sample input 1

```
2 2
7 8
1234 1
9999 1
100000000000000000000 100000000000000000000
99999999999999999999 99999999999999999999
100000000000000000000 1
1870 8428
100000 1010
```

Sample output 1

```
04
15
01235
10000
020000000000000000000
109999999999999999998
010000000000000000001
10298
0101010
```

Sample input 2

```
99999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999999 2
```

Sample output 2

```
100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000001
```

Problem information

Author: Professorat de P1
Translator: Carlos Molina

Generation: 2026-01-25T11:20:36.990Z