

Programming Contest Problem

Long multiplication is a simple method that is used to multiply any given pair of numbers. Recall that it works by multiplying the first number by all the digits of the second number, one digit at a time. Here's how 28 will multiply the number 923:

```
      9 2 3
      2 8
-----
    7 3 8 4
    1 8 4 6
-----
  2 5 8 4 4
```

Please note the following observations about the above example:

- The numbers 7348 and 1846 were obtained by multiplying the first number 923 by the digits 8 and 2 respectively
- The number 1846 is “left shifted” by one place.
- The number 25844 is the sum of the numbers 7384 and 1846 (left shifted by one place).

Write a program that performs long multiplication. Your program should output the two numbers being multiplied, the intermediate results obtained in the digit by digit multiplication and finally, the answer. The output should be formatted like the example above where each number is printed with a space in between its digits. The lines containing dashes are optional. However, the digits of all the numbers (intermediate results and final answer) *must* be correctly aligned.

You must show the output of your program on the following input pairs.

```
13 10
295 925
999999 999999
12345678901234567 78901234567890123
90123456789012345 45678901234567890
```