CMPUT 275 - Tangible Computing II **Winter 2020**
Morning Problem: Arbitrary Precision Multiplication

Description I have two *really* big, non-negative numbers - one is m digits long and the other is n digits long. Can you help me compute their product?

Input

The first line will consist of two integers $1 \leq m, n \leq 100$. The next line will consist of m space-separated digits, denoting the first number. The final line will consist of n space-separated digits, denoting the second number.

Output

You must output a single line consisting of $m+n$ space-separated digits, denoting the product of the two numbers. Always output this many digits, even if there are leading 0s.

Sample Input 1

```
3 1
9 0 0
9
```

Sample Output 1

```
8 1 0 0
```

Explanation: $900 \times 9 = 8100$

Sample Input 2

```
2 2
1 1
1 1
```

Sample Output 2

```
0 1 2 1
```

Explanation: $11 \times 11 = 121$

Sample Input 3

```
4 7
4 0 9 6
1 0 4 8 5 7 6
```

Sample Output 3

```
0 4 2 9 4 9 6 7 2 9 6
```

Explanation: $4,096 \times 1,048,576 = 4,294,967,296$