# **Recursive Digit Sum**



We define super digit of an integer  $m{x}$  using the following rules:

Given an integer, we need to find the *super digit* of the integer.

- If x has only 1 digit, then its super digit is x.
- ullet Otherwise, the super digit of  $oldsymbol{x}$  is equal to the super digit of the sum of the digits of  $oldsymbol{x}$ .

For example, the super digit of 9875 will be calculated as:

## Example

```
n = '9875'
```

k = 4

The number p is created by concatenating the string n k times so the initial p = 9875987598759875.

All of the digits of p sum to 116. The digits of 116 sum to 8.8 is only one digit, so it is the super digit.

#### **Function Description**

Complete the function *superDigit* in the editor below. It must return the calculated super digit as an integer.

superDigit has the following parameter(s):

- string n: a string representation of an integer
- int k: the times to concatenate n to make p

#### Returns

• *int:* the super digit of n repeated k times

#### Input Format

The first line contains two space separated integers, n and k.

### **Constraints**

•  $1 \le n < 10^{100000}$