4877 - Non-Decreasing Digits

North America - Greater New York - 2010/2011

A number is said to be made up of non-decreasing digits if all the digits to the left of any digit is less than or equal to that digit. For example, the four-digit number 1234 is composed of digits that are non-decreasing. Some other four-digit numbers that are composed of non-decreasing digits are 0011, 1111, 1112, 1122, 2223. As it turns out, there are exactly 715 four-digit numbers composed of non-decreasing digits.

Notice that leading zeroes are required: 0000, 0001, 0002 are all valid four-digit numbers with non-decreasing digits.

For this problem, you will write a program that determines how many such numbers there are with a specified number of digits.

Input

The first line of input contains a single integer P, ($1 \leq P \leq 1000$), which is the number of data sets that follow.

Each data set is a single line that contains the data set number, followed by a space, followed by a decimal integer giving the number of digits N, ($1 \leq N \leq 64$).

Output

For each data set there is one line of output. It contains the data set number followed by a single space, followed by the number of N digit values that are composed entirely of non-decreasing digits.

Sample Input

```
3
1 2
2 3
3 4
```

Sample Output

```
1 55
2 220
3 715
```

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