

SWE2004: Principles in Programming(Spring 2014)

Assignment #2

Due-date: May 15, 23:59 PM

Q&A: hhkim at csl.skku.edu

Description

Do you ever become frustrated with television because you keep seeing the same things, circled over and over again? Well I personally don't care about television, but I do sometimes feel that way about numbers.

Let's say a pair of distinct positive integers (n, m) is *circled* if you can obtain m by moving some digits from the back of n to the front without changing their order. For example, $(12345, 34512)$ is a circled pair since you can obtain 34512 by moving 345 from the end of 12345 to the front. Note that n and m must have the same number of digits in order to be a circled pair. Neither n nor m can have leading zeros.

Given integers **A** and **B** with the same number of digits and no leading zeros, how many distinct circled pairs (n, m) are there with $\mathbf{A} \leq n < m \leq \mathbf{B}$?

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each test case consists of a single line containing the integers **A** and **B**.

Output

For each test case, output one line containing "Case #x: y", where x is the case number (starting from 1), and y is the number of recycled pairs (n, m) with $\mathbf{A} \leq n < m \leq \mathbf{B}$

Sample Input

```
4
1 9
10 40
100 500
1111 2222
```

Sample Output

```
Case #1: 0
Case #2: 3
Case #3: 156
Case #4: 287
```