

Primedigital Numbers

Filename: primedigital

Lior likes showing off to Danny how well he can calculate numbers in his head. But one day as they were exploring the ruins of an ancient castle they discovered a new mathematical concept that they have never seen before. They have deemed this mathematical concept super important, because it dealt with numbers that only include prime digits, and they already know that prime numbers are important. Therefore, they have named all numbers that only include prime digits “Primedigital” numbers. For example, “3”, “27” and “333” are primedigital numbers, while “6”, “413”, and “520” are not. In order to properly master this knowledge, they must become good at counting the number of primedigital numbers in any range. Your task is at follows: given an integer l and an integer r such that $l < r$, find the number of primedigital numbers that are greater than or equal to l and less than or equal to r .

The Problem:

Determine the number of primedigital numbers in between l and r .

The Input:

The first line of the input file begins with a single, positive integer, t , representing the number of test cases. Then, t lines follow, each with two integers $1 \leq l, r \leq 10^{18}$, representing the range of numbers as stated above.

The Output:

For each paper, output a single line saying “Range # i : c ” without the quotes, where i is the number of the range and c is the number of primedigital numbers in the range, respectively.

Sample Input:

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3
1 4
1 10
222 235
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Sample Output:

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Range #1: 2
Range #2: 4
Range #3: 7
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