

**2021/2022 SOUTHERN CALIFORNIA REGIONAL
INTERNATIONAL COLLEGIATE PROGRAMMING CONTEST**

**Problem ?
Subprime**

An open math problem: is every non-negative integer a substring of at least one prime number when expressed in base ten?

Integer a is a substring of integer b if it is equal to an integer derived from b by deleting zero or more consecutive digits of the most and least significant digits of b . For example, 123 is a substring of: 123, 56123, 123789, 50182312365, 41237912123.

Your team's job is to see how many primes, in a given range, contain a substring of a given integer. We are interested in substrings that may include significant leading zeroes.

The input is a series of 1 to 25 lines containing test cases. Each test case line contains two positive integers i, j in base ten and a string k separated by spaces. i and j are indexes into the list of primes in ascending order, with 2 being the first prime, and k is a string of at most six digits which is the integer substring to be searched for. k may be zero or have significant leading zeroes. The last test case line is followed by a line with i, j , and k equal to zero.

$$i \leq j$$

$$1 \leq i, j \leq 100000$$

For example, consider the input 1 10 9. This is a search from the first (2) through the tenth (29) primes for any containing the substring 9. The answer is 2 (19 and 29).

A given integer substring may occur more than once in a prime, but just count that as one match.

For each test case print on one line the count of the number of primes containing the substring.

Sample Input

```
1 10 9
1 10000 389
500 1000 43
1 100 8
8000 9000 395
50000 80000 572
90000 100000 9999
1 100000 37502
1 1000 000
1 1000 00
4509 12345 9999
0 0 0
```

Problem ?
Subprime (continued)

Output for the Sample Input

2
45
26
8
0
63
5
1
0
10
4