

Wesley's Anger Contest 4 Problem 4 - The Almighty Acorn

Time limit: 1.5s **Memory limit:** 256M
Java: 5.0s
Python: 5.0s

The squirrels have invented a new way to communicate with each other! The process of sending and receiving messages requires the almighty acorn, which is said to have a string of infinite length written on its surface (don't question how it works, they don't know either). Interestingly, the almighty acorn's string consists of the concatenation of all positive integers in base 10. The string begins as follows:

```
123456789101112131415...
```

Sending messages is straightforward, but the squirrels haven't set up the decoder yet! Decoding the message is simple: it is the 1-based position of the message's leftmost occurrence in the string, modulo 998 244 353.

You have been tasked by the squirrels to be their decoder. Given a message S , please determine and output the position.

For this problem, Python users are recommended to use PyPy over CPython.

Constraints

For this problem, you will NOT be required to pass all the samples in order to receive points. In addition, you must pass all previous subtasks to earn points for a specific subtask.

For all subtasks:

$$1 \leq |S| \leq 10\,000$$

Subtask 1 [6%]

$$1 \leq |S| \leq 3$$

Subtask 2 [23%]

$$1 \leq |S| \leq 300$$

Subtask 3 [71%]

No additional constraints.

Input Specification

The first and only line contains a string S consisting of only characters from 0 to 9.

Output Specification

This problem is graded with an `identical` checker. This includes whitespace characters. Ensure that every line of output is terminated with a `\n` character and that there are no trailing spaces.

Output an integer representing the leftmost position of the string S in the almighty acorn's string, modulo 998 244 353.

Sample Input 1

45

Sample Output 1

4

Sample Explanation 1

As denoted by the string, `45` first appears at `123[45]678...`, making the position 4.

Sample Input 2

0111

Sample Output 2

11

Sample Explanation 2

S can have leading zeroes. In the string, it is located at `1234567891[0111]2...`, making the position 11.