Problem I

Stone Steps

It is no surprise that many Filipinos are addicted to the brand new *animé* horse-racing game that has taken the world by storm. The name "Philippines", after all, could be translated to "land of the lovers of horses".[citation needed]

Many people can get quite obnoxious about new fandoms that they get into. Even if it's something completely unrelated, they'll find a way to make the conversation about horses. The worst part is, you know that this person didn't care at all about horse racing just a few months ago, and now they purport to be an expert!

For example, suppose you're in a brainstorming session for ICPC Manila 2025 problems, and then one guy randomly goes:

"Did you know that the Philippines' 2012 Triple Crown winner Hagdang Bato *is a descendant of* Northern Dancer*, the sire of the influential Japanese racehorse* Northern Taste*, who is widely theorized to be the inspiration behind-"*

And even after you shut them up and tell them to focus, they'll say:

"Well, Hagdang Bato can literally be translated to "stone steps". So, if n is a positive integer which doesn't have `0` as a digit*, we can define $H(n)$ to be the number you would get by "sorting" the digits of n in non-decreasing order. Like a staircase!"*

So, for example, $H(1971) = 1179$ and $H(3) = 3$. Hm, wait, this could be interesting...

Let s be a string of nonzero digits. Please compute the sum of $H(\text{int}(s[i...j]))$ across all contiguous non-empty *substrings* of s. Report the value of this sum (modulo 1000696967).

Do it for Hagdang Bato.

Let s be 1-indexed. If $1 \le i \le j \le |s|$, then the substring $s[i...j]$ corresponds to the contiguous segment of characters $s_i s_{i+1} \dots s_j$. The string s has $|s|(|s|+1)/2$ non-empty substrings.

Also, int(...) is just a function which takes a string as argument, and converts it to an integer (using the decimal system).

Input Format

Input consists of a single line containing the string s.

Output Format

Output a line containing a single integer, the desired sum (modulo 1000696967).

Constraints

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$1 \leq \lvert s \rvert \leq 5 \times 10^5$ s consists only of nonzero digits.

Sample I/O

Input	Output
3141	1432

Input	Output
1	1

Input	Output
11234567891234567891	43138332

Explanation

If $s =$ 3141, then it has 10 non-empty substrings:

- s[1...1] is 3, and $H(3) = 3$.
- s[2...2] is 1, and $H(1) = 1$.
- s[3...3] is 4, and $H(4) = 4$.
- s[4...4] is 1, and $H(1) = 1$.
- s[1...2] is 31, and $H(31) = 13$.
- s[2...3] is 14, and $H(14) = 14$.
- s[3...4] is 41, and $H(41) = 14$.
- s[1...3] is 314, and $H(314) = 134$.
- s[2...4] is 141, and $H(141) = 114$.
- s[1...4] is 3141, and $H(3141) = 1134$.

Adding them together,

$$3 + 1 + 4 + 1 + 13 + 14 + 14 + 134 + 114 + 1134 = 1432.$$