1586. Threeprime Numbers

Time limit: 1.0 second
Memory limit: 64 MB

Rest at the sea is wonderful! However, programmer Pasha became awfully bored of lying on a beach in Turkey; so bored that he decided to count the quantity of three-digit prime numbers. This turned out to be so interesting that he then started to study threeprime numbers. Pasha calls an integer a threeprime number if any three consecutive digits of this integer form a three-digit prime number. Pasha had already started working on the theory of the divine origin of such numbers when some vandals poured water on Pasha and cried some incomprehensible words like “Sonnenstich!”, “Colpo di sole!”, and “Coup de soleil!”

You are to continue Pasha’s work and find out how often (or rare) threeprime numbers are.

Input

The input contains an integer n ($3 \le n \le 10000$).

Output

Output the quantity of n-digit threeprime numbers calculated modulo $10^9 + 9$.

Sample

input	output
4	204

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