

Int pairs



SEASON 9 – SIXTH ROUND

We'll call a pair of integers “mates” if they are different and share at least one digit in their decimal notation. For example, **25** and **8159** are mates.

Given X , count the mates where both numbers are in the interval $(0, 10^X)$.

For example, the interval $(4, 18)$ has 23 mates:

5~15, 6~16, 10~11, 10~12, 10~13, 10~14, 10~15, 10~16, 11~12, 11~13, 11~14, 11~15, 11~16, 12~13, 12~14, 12~15, 12~16, 13~14, 13~15, 13~16, 14~15, 14~16, 15~16

Input

From the first and only line of the input file `intpairs.in` X is entered.

Output

In the output file `intpairs.out` print the answer **modulus 1001234567**.

Constraints

$$1 \leq X \leq 1000$$

Time limit: 0.2 seconds

Memory limit: 256 MB

Examples

Input (<code>intpairs.in</code>)	Output (<code>intpairs.out</code>)	Explanation
2	1539	The interval $(0, 100)$
3	289665	The interval $(0, 1000)$