Happy Numbers

Memory Limit: 16MB
Time Limit: 1s

Just as there are happy people and unhappy people, there are also happy numbers and unhappy numbers. But, what really makes a number happy?

A number is happy when its digits are strictly non-decreasing . This means 1234, 1233 and 8 are happy, but 1232, 1221 and 91 are not.

This makes one wonder how many happy numbers there are with *N* digits (including preceding zeroes). So, write a program that calculates how many *N*-digit happy numbers there are.

Input Details

The input consists of a single line with the integer *N*.

Limits

Subtask 1 (5%): $1 \leq N \leq 5$

Subtask 2 (40%): $1 \leq N \leq 100{,}000$

Subtask 3 (54%): $1 \leq N \leq 1{,}000{,}000$

Subtask 4 (1%): $1 \leq N \leq 10{,}000{,}000$

Output Details

Output the number of *N*-digit happy numbers modulo 1,000,000,007, followed by a newline.

Sample Input 1

1

Sample Output 1

10

Explanation: The numbers are 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

Sample Input 2

2

Sample Output 2

55

Explanation: The numbers are 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 11, 12, 13, 14, 15, 16, 17, 18, 19, 22, 23, 24, 25, 26, 27, 28, 29, 33, 34, 35, 36, 37, 38, 39, 44, 45, 46, 47, 48, 49, 55, 56, 57, 58, 59, 66, 67, 68, 69, 77, 78, 79, 88, 89 and 99.