Counter Reset Problem

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Mechanical counters are a common auxiliary tool. A classic counter typically includes a display area indicating the current count, a counting button, and a reset button. In a traditional N-digit decimal mechanical counter, a complex internal mechanical structure ensures that pressing the counting button exactly increases the original count by 1 modulo 10^N; rotating a reset knob on the side drives some digits to rotate by 1 position, and rotating the reset knob enough times can reset any initial state back to all zeros.

The internal contacts of the counter might be poor, affecting the specific behavior of the count change when rotating the reset knob. In this problem, assume that for an ideal counter, the count change pattern when rotating the reset knob once is as follows:

- (Considering leading zeros, the same below) The highest digit will always rotate by 1 position, meaning this digit increases by 1 modulo 10;
- If the highest digit and the i-th digit from the top $(2 \le i \le N)$ are both d, and the digits from the second to the $(i-1)$-th positions are not greater than d, then the i-th digit rotates by 1 position, the same as the highest digit;
- Other digits not meeting the above conditions remain unchanged.

For example, when the count is "1151", rotating the reset knob once will change the count to "2251"; when the count is "9791", rotating the reset knob once will change the count to "0701".

For a given integer X (possibly with leading zeros), the minimum number of rotations of the reset knob required to rotate the counter from the initial count of X to an all-zero state is defined as the reset rotation count of X. For an N-digit decimal mechanical counter, calculate the sum of the reset rotation counts for all $X \in [L, R]$.

Input

The first line of the input contains a single integer N $(1 \le N \le 5\,000)$.

The next line of the input contains two integers L and R (with exactly N digits; possibly with leading zeros; $0 \le L \le R < 10^N$).

Output

Output the sum of the reset rotation counts for all integers in $[L, R]$. Since the total sum may be large, please output a non-negative integer representing the result of the sum modulo $1,000,000,009$.

Examples

standard input	standard output
2 19 23	51
6 100084 518118	9159739
12 040139021316 234700825190	771011551