Ones and zeros

Certain positive integers have their decimal representation consisting only of ones and zeros, and having at least one digit one, e.g. 101. If a positive integer does not have such a property, one can try to multiply it by some positive integer to find out whether the product has this property.

Input

Number K of test cases (K is approximately 1000); in each of the next K lines there is one integer n ($1 <= n <= 20000$)

Output

For each test case, your program should compute the smallest multiple of the number n consisting only of digits 1 and 0 (beginning with 1).

Example

Input:
3
17
11011
17

Output:
11101
11011
11101