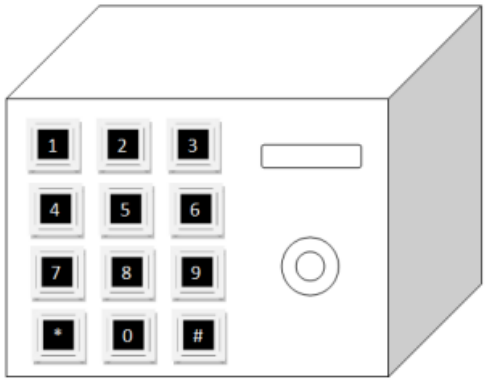
UNLOCK MY SAFE

I forgot the password to my safe. There is a lot of money in it! Please help me unlock the safe. The keypad looks like this.



I do not remember how long my password is. Hence, you need to try a different length of the password. However, there are some hints that I can recall.

- I never use characters *, #, 0 and 9 in my password.
- Each digit in the password is distinct. That is, they never appear more than once.
- My password is at most 8 digits (1 <= ***N*** <= 8, where ***N*** is a number of digits in the password).
- Each digit *i* in the password always has the value less than or equal to ***N*** (that is, a password 132 is valid for ***N*** = 3 but a password such as 124 is invalid because the 3rd digit exceeds 3).

Use the information above and generate all possible permutations. One permutation corresponds to one guess of a password to unlock my safe. Importantly, the correct password is deliberately fixed at position ***L***\3 in the sorted array of permutations, where ***L*** is a number of all possible permutations and '\' is an *integer division*. The sorted array of permutations is in ascending order and the starting index in the sorted array begins at 0 (not 1).

Write a program to find a correct password for a given length (a number of digits in the password).

Input

The first line of the input contains an integer ***T*** (1 <= ***T*** <= 6) denoting the number of test cases. After that ***T*** test cases follow. Each test case contains an integer ***N*** (1 <= ***N*** <= 8) denoting a number of digits in a password.

Output

Your program should output the *N*-digit password for each corresponding test case, one password per line.

Examples

№	stdin	stdout
1	3 2 3 1	12 213 1