Keypad Combinations

Robert is looking to start a business, but he doesn't know what kind of business he wants yet. What he *really* wants is for his business phone number to have a catchy mnemonic. Phone dial pads associate letters with each digit, as can be seen in Figure 1 to the right.

So if he gets the phone number 758-6237, then he can make several mnemonics from these digits. His mnemonic could be "SLUNAFS", but that doesn't sound very good at all. With this same phone number he could also make the mnemonic "PLUMBER" which would be great because then his advertisements could say "Just call PLUMBER".

Robert wants to go through some phone numbers that he could acquire and, for each one, generate a list of all possible mnemonics that can be made for that phone number. Then he'll pick the best one and start a business that matches the mnemonic. Your job is to write a program that, given one phone number, prints out each possible mnemonic for it.

Because there are no letters for 0 or 1, we will simply leave those unchanged in the mnemonic. So the possible mnemonics for 50 are J0, K0, and L0.

Input

Your input will consist of one line of input, with some number of digits between 1 and 10. Robert might run the program on a 7-digit number, a 10-digit one (with area code) or a shorter piece such as a 4-digit ending (which may allow a mnemonic like 555-CORN).

Output

The output should consist of every possible mnemonic that generated from the given sequence of digits. They should be printed on separate lines, in alphabetical order.

Example Input

3128

Example Output

D1AT
D1AU
D1AV
D1BT
D1BU
D1BV
D1CT
D1CU
D1CV
E1AT
E1AU
E1AV
E1BT
E1BU
E1BV
E1CT
E1CU
E1CV
F1AT
F1AU
F1AV
F1BT
F1BU
F1BV
F1CT
F1CU
F1CV