The Virtual Learning Environment for Computer Programming

ITERATIVE Write each digit of a number as many times as the digit value plus 1 X11093_en

You have to write an **ITERATIVE** procedure write_digit(d,x) that receives a digit d and a natural number x, and writes x times the digit d in the standard output (cout). For example, the call write_digit(3,5) writes 33333, whereas the call write_digit(5,3) writes 555.

You have also to write an **ITERATIVE** procedure write_expanded(n) that receives a natural number n > 0, and writes in the standard output (cout) each digit of n as many times as the digit value plus 1. For instance, write_expanded(315) writes 3333115555555 in the cout, whereas write_expanded(204) writes 222044444. Your implementation of write_expanded(n) must conveniently use the function write_digit(d,x).

Your implementation of both procedures must be **ITERATIVE** and use the following C++ code, modifying only the parts that are indicated. Notice that the main procedure below writes an end-of-line after each call to write_expanded. Thus, the procedures must not write the end-of-line.

```
#include <iostream>
using namespace std;
// define here additional functions and/or procedures
// if you need them
// Pre: 0<=d<=9 and 0<=x.
void write_digit(int d,int x) {
    // insert here your (ITERATIVE) code
}
// Pre: 0<n.
void write_expanded(int n) {
    // insert here your (ITERATIVE) code
int main() {
    int n;
    while (cin >> n) {
        write_expanded(n);
        cout << endl;</pre>
    }
}
```

CATALÀ

Escriu un procediment **ITERATIU** write_digit(d,x) que rep un dígit d i un número natural x, i escriu x vegades el dígit d en la sortida estàndard (cout). Per exemple, la crida write_digit(3,5) escriu 33333, mentres que la crida write_digit(5,3) escriu 555.

Escriu també un procediment **ITERATIU** write_expanded(n) que rep un número natural n > 0, i escriu a la sortida estàndar (cout) cada dígit d'n tantes vegades com el valor del dígit més 1. Per exemple, write_expanded(315) escriu 333311555555 en el cout, mentre que write_expanded(204) escriu 222044444. La teva implementació de write_expanded ha de fer un ús convenient de la funció write_digit(d,x).

La teva implementació dels dos procediments ha de ser **ITERATIVA** i utilitzar el codi C++ donat més amunt, modificant exclusivament les parts indicades. Fixa't que la funció main escriu un salt de línia després de cada crida a write_expanded, i per tant els teus procediments no han d'escriure salts de línia.

Exam score: 2.5 Automatic part: 50%

Input

The input is a sequence of strictly positive integers without leading zeros.

CATALÀ

L'entrada és una sequència de enters estrictament positius sense zeros a l'esquerra.

Output

For each positive integer n in the input, the program writes the digits of n, each digit as many times as its value indicates plus 1, using the procedure write_expanded, followed by an end-of-line.

Sample input

315	
204	
112233	
332211	
200000	
456789	
999999	
100000	

Sample output

Problem information

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