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collage.cpp

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/* FILE: collage.cpp last change: 20-Sept-2012 author: Romeo Rizzi
 * a solver for problem "collage" in the 28-Sept-2012 exam in Algorithms.
 */

#define NDEBUG // NDEBUG disabilita tutte le assert se definita prima di include
re <cassert>
#include <cassert>

#ifndef NDEBUG
# include <iostream> // non voglio includerla quando Non compilo in modalita'
DEBUG
#endif

#include <fstream>

using namespace std;

const int MAX_N = 1000; int n;
int color[MAX_N];

int memo[MAX_N + 1][MAX_N + 1];

int main (int argc, char** argv) {
    ifstream in("input.txt"); assert( in );
    in >> n;
    for(int i = 0; i < n; ++i) in >> color[i];
    in.close();

    for(int i = n-1; i >= 0; --i)
        for(int j = 0; j < n; ++j)
            if( i>j ) memo[i][j] = 0;
            else {
                memo[i][j] = 1 + memo[i+1][j];
                for(int sec = 1; i + sec <= j; ++sec)
                    if( color[i+sec] == color[i] )
                        memo[i][j] = min(memo[i][j], memo[i+1][i+sec-1] + memo[
i+sec][j]);
            }

    ofstream out("output.txt"); assert( out );
    out << memo[0][n-1] << endl;
    out.close();

    return 0;
}

```