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1  //=====
2  // Name      : Sudoku.cpp
3  // Version   : 1.0
4  // Copyright :
5  // Description : Solver of SUDOKU game
6  //=====
7  /*****
8  Programmed by: Luis Barquero
9  Purpose: Program will read in a text file containing an unsolved Sudoku problem and it will
   recursively solve it.
10 *****/
11
12 #include <iostream>
13 #include <string>
14 #include "RecursiveSolver.h"
15 #include "StackSolver.h"
16 #include <omp.h>
17 // #include "Solver.h"
18
19 using namespace std;
20
21 int main() {
22     string filename;
23     cout << "Please type in the problem file name: ";
24     cin >> filename;
25     cout << endl;
26
27     cout << "Please select a solver:" << endl;
28     cout << "\t1. Recursive Solver" << endl;
29     cout << "\t2. Stack Solver" << endl;
30     cout << "What is your choice? (1/2):";
31     int choice;
32     cin >> choice;
33     int tn = 2; //the number of threads
34     omp_set_num_threads(tn);
35     if (choice == 1) {
36         // Create a recursive solver
37         RecursiveSolver rSolver;
38         int empty_slot_number = rSolver.read_problem(filename);
39
40         // Solve the game. If solved, print the answer
41         if (empty_slot_number <= 0)
42             cout << "No empty slot to be filled in!" << endl;
43         else
44             {
45                 #pragma omp critical
46                 for(int i = 0; i < tn; i++)
47                 {
48                     clock_t start = clock();
49                     rSolver.solve(0);
50                     cout << "\nThread " << i + 1 << " Elapsed time: " << ((double)clock() - start) /
51                        CLOCKS_PER_SEC << endl;
52                     cout << "\n" << endl;
53                 }
54
55                 // No answer
56                 if (!rSolver.solved)
57                     cout << "There is no answer for this problem!" << endl;
58             }
59     } else if (choice == 2) {
60         // Create a stack solver
61         StackSolver sSolver;

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```
62     int empty_slot_number = sSolver.read_problem(filename);
63
64     // Solve the game. If solved, print the answer
65     if (empty_slot_number <= 0)
66         cout << "No empty slot to be filled in!" << endl;
67     else
68         sSolver.solve();
69
70     // No answer
71     if (!sSolver.solved)
72         cout << "There is no answer for this problem!" << endl;
73 }
74 else
75     cout << "Invalid choice! Please input 1 or 2!" << endl;
76
77 return 0;
78 }
79
```