Course Project No. 10
Обектно Ориентирано Програмиране

Play Sudoku

Acceptable Programming Languages:	**C#.NET**
Deadline:	**February For the final exam**
Instructor	**Dr. Evgeny Krustev**

Problem Statement:

Write a **C#.NET WPF** application that **plays the popular Japanese game SUDOKU.** Sudoku puzzles are **9 x 9** grids, and **each square in the grid** consists of a **3 x 3 subgrid** called a **minigrid**. Your goal is to fill in the squares so that each column, row, and minigrid contains the **numbers 1 through 9 exactly once.**

Implement the **Sudoku** game using ***WPF*** components allowing the following features in a menu:

- **Load** and **save** Sudoku puzzles in **XML** format (always provide different versions of the puzzle)
- **Provide a menu option to solve the current** Sudoku puzzle
- **Don't allow invalid numbers** to be placed in a cell
- Check whether **any loaded** Sudoku puzzle has been solved
- Keep **track of the time** needed to solve a Sudoku puzzle
- **Undo** and **redo** unlimited previous moves
- Allow **different modes of difficulty** for playing the game (start the game with a different number of predefined numbers randomly positioned on the SUDOKU table)

Note: There should be a User control (WPF) for representing the interactive GUI.

Evaluation:

Your project will be evaluated on the following **general points**:

- **Sophistication/complexity/originality** of the problem being solved/investigated and of the **solution(s)/approaches** considered.
- **Demonstrated ability to extract/analyze** concurrency-related problems/issues from a general problem/area of interest.
- **Clarity of explanations, and for implementations programming skill/quality**. Your report **(in Bulgarian!)** should be well written and free of grammatical and spelling errors. **Programs** must be **well-commented and in a professional style**.
- **Awareness of related work.** Others have considered the same or similar problems before you. Your work does not have to be novel, but you should be able to contextualize your approach. Be sure to explain how each referenced work is *related* to your work.

Note that a 5-minute *Google* search will not be adequate; if you are unfamiliar with the required textbooks for the course:

- **Completeness** of the project.

Deliverables: *The files with* :

1. the source code
2. the executable code
3. the instructions for compiling your source code
4. the report explaining the data structures and the algorithm implementation, describe things such as how your code has been tested, limitations of your code, problems encountered, and problems remaining
5. any files used to test the implementation of the program with an explanation about it included in the report.

References:

[1] Литература, използване в лекциите и практическите занятия от курса
[2] Wei-Meng Leel "Programming Sudoku", APress , ISBN1-59059-662-5 **2006**