Daniel & Ana 2/16/2018

Requirements for Project 2 Logic puzzle

**FUNCTIONALITY**

**1) W**h**at will the system do?**

1. Provide the user with a logic puzzle. The puzzle is grid based where the user must fill in the correct grid values based on the provided clues.
2. The grid displays a relationship between 3 data types with 4 values each. For example, data types could be: Climbers, Mountains, Heights. Each would have 4 values; for example  
   Climbers: Dan Spataru, Ion Suruceanu, Vasile Popa, Gita Munteanu; Mountains: Mt. Moldoveanu, Mt. Negoiu, Mt. Pietrosu, Mt. Tampa; Heights: 14,210; 14,340; 14,470; 14,600
3. The grid will be composed of 3 squares each square with 4 rows and 4 columns like so:

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d) There will be 3 additional buttons one when clicked will clear all the wrong answers; the other when clicked will display one of 4 hints for explicitly true answers; and the third one will restart the puzzle.

**2) When will it do it?**

1. On startup the system will load a set of 3 data types along with the correct solution for the puzzle and hints
2. When the user clicks on the grid the system will mark the grid cell as False with a cross ’X’.
3. When the user clicks a cell marked as False the cell will be marked as True and display a ‘O’; and mark the other cells in the group in the same row and column as False.
4. When the user clicks a cell for the third time the cell value will clear and be in the default state

**3) What kind of computation or data transmission will be performed?**

1. Logical computation; the system will compare user’s solution with the correct solution loaded from file
2. Math computation will be used to display the grid and grid’s elements

**DATA**

**1) Input & output: form of data?**

* The program will load the puzzles from a file.
* Each file has a specific format, and it must hold only one puzzle data.
* Puzzles will contain 3 data types with 4 values, clues and the solution and hints.

**2) Must any data be retained?**

No user data will be retained

**3) Can this system transfer to cloud or on the web?**

The system is a desktop only application no communication with the cloud or web in general

**USABILITY**

**1) How easy must it be for the user to understand and use the system?**

* Clear and easy GUI.
* Backstory and hints.

**2) Can the user easily misuse the system?**

No.

**3) Can the user undo?**

No, the system will not keep track of previous operations.

**4) What happens when user clicks start, hint or clear button?**

1. **Clicks the Restart button**:
   1. The logic puzzle and its hints will be loaded from data file.  
      The GUI will be clear to initial state
2. **Clicks the hint button**:
   1. Clears all wrong answers then display a hint
3. **Clicks the clear button**:
   1. The system will clear all the wrong answers.

**5) Can the program support multipliers?**

No, but it could be added later as a future feature.

**RELIABILITY AND AVAILABILITY**

**1) Must the system detect errors? Which kind?**

Yes, invalid input from data file that contains the logic puzzle data.

**2) What should be saved and backed up?**

Puzzle’s data file, which contains all the information needed to construct the puzzle game.

**PERFORMANCE**

**1) Constraints on execution speed, response time, or throughput?**

The system should provide real time feed back to the user for each click. In other words, the status of a grid cell must immediately reflect the user’s choice.

**2) How much data will flow through the system?**

The data flow would be as follow:

* Reading the puzzle data file.
* User input(click).

**3) How often will data be received and sent?**

On startup the system reads the puzzle file; then the system waits for user input.

**SUPPORTABILITY**

**1) When and in what ways might the system be changed in the future?**

The system might be changed upon user request.

**2) How easy should it be to add features to the system?**

Depends on the feature.

**FURPS(PLUS)**

**1) Interface requirements:**

The GUI interface will display a grid of 3 main square each square is a 4x4 grid of clickable buttons.   
 i) If the user clicks once a button it will display a cross sign representing the "false" value of the puzzle.

ii) A second click on the same square will display a ‘O’ that represents a value of "true" for that square, and all other square in this square’s row and column will be marked with an “X”.

iii) If the user clicks again the same square, it will be cleared.

There are no true values allowed on the same row or column. The system will check for that and prompt the user in case of this condition violation, and not allow this condition to occur.

**2) Does the system allow the user to customize?**

Yes, the user can swap the puzzle file with another one.