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| Group 1 |
| Alloy Project |
| CS4710 |
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1.0 - Problem Description

Our goal is to model a Sudoku program. Our program will take in number in a square and determine if the number in that square is valid. A square is defined by its specific row and column coordinate pair. Users will enter one number at a time, and that number will be verified before the user is allowed to make another move. Our model will be based off of a 9 row by 9 column board.

1.1 - Functionalities Provided

1. 9x9 board
   1. board cannot be bigger or smaller
   2. Valid values will be pre-generated at random to create a semi unique puzzle each time the user plays.
2. Valid Value Caluclation
   1. The value that the user is entering into the current row cannot already be present in that row.
   2. The value that the user is entering into the current column cannot already be present in that column.
   3. The value that the user is entering into the current 3x3 square cannot already be present in that 3x3 square.
   4. a, b, and c must all be true in order for the user to make their next move
3. The following events will be reported to a user
   1. Invalid move
   2. Other errors

1.2 - Functionalities Excluded

1. Solving of the puzzle
   1. If users fills all squares puzzle will be correct since all moves are valid
   2. If user is unable to solve the puzzle a solution will not be provided to them.
2. Time limit
   1. users have unlimited time to solve the puzzle
3. Points system
   1. Points will not be tallied based on time or other criteria.