**Sudoku Game Project**

**Introduction**

Sudoku is a mathematical game that originated in Switzerland in the 18th century. It is a logic game that uses paper and pencil to perform calculations. Players need to reason out the numbers of all the remaining spaces based on the known numbers on a 9×9 board, and satisfy that the numbers in each row, column, and thick-line palace (3\*3) contain 1-9 and are not repeated.

-choose level

-generate sudoku

-user solve process (same number/user input)

-is success

-finish

**Package**

**Main.py** (Main module, start game)

**Sub-package1-Sudoku\_solve**

**Module1-config**

**(A configuration file where some parameters can be changed.)**

Function1-Main window parameters

Function2-Selected window parameters

Function3-level and block parameters

**Module2-sudoku process**

**(User input settings and determining whether user input matches the rules)**

Function1-main and select window setting (user input)

Function2-user actions (main and select window)

Function3- Determine if the numbers filled in match the game requirements

Function4- Determine if the game is successful

**Sub-package2-Sudoku\_show**

**Module1-paint class** (Mainly brush functions to paint the interface of the window)

Function1-The selected window

Function2-The main window

**Module2-sudoku generate** (Mainly generates random Sudoku puzzles that conform to the rules of the game, and guarantees unique solutions)

Function1-build matrix

Function2-LasVegas algorithm to build sudoku

Function3-solve sudoku

Function4-Determine if there is only one answer