Technical assignment

**1. Name application under development**

*Sudoku*

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**2. Purpose application under development**

*The purpose of the Sudoku Solver game is to provide users with a graphical interface to play and solve Sudoku puzzles. The application aims to improve the user's logical thinking and problem solving skills while providing an enjoyable gaming experience.*

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3. **Goal and Objectives of the Project**

*3.1 Goal -*

*Develop a Sudoku game using PyQt5 and focusing on object-oriented programming principles and GUI design. Use a special algorithm to generate an entirely random Sudoku puzzle.*

*3.2 Tasks:*

*3.2.1 Design and implement a user-friendly graphical interface using PyQt5.*

*3.2.2 Allow users to enter numbers into the Sudoku grid and validate their moves.*

*3.2.3 Develop a scoring system and eraser mode.*

*3.2.4 Implement an algorithm that generate entirely random Sudoku puzzles of varying difficulty levels.*

*3.2.5 Test and debug the program to ensure optimal performance and user-friendliness.*

*3.2.6 Document the project, including installation and usage instructions.*

4. **Main Functionalities of the Application**

*4.1* Displaying the Sudoku Grid

*4.1.1* Create a graphical user interface using PyQt5 to display a 9x9 grid representing the Sudoku board

4.1.2 *Style the grid to provide a visually appealing and intuitive user interface*

*4.2 User Input and Validation*

*4.2.1 Users can enter numbers by clicking on the individual cells in the Sudoku grid.*

*4.2.2 Valid enter numbers must be between 1 and 9 and follow Sudoku rules.*

*4.2.3 Error messages or notifications will be displayed if users input an invalid number or make an incorrect move.*

*4.3 Sudoku Logic*

*4.3.1 Implement Sudoku logic to check for duplicate numbers in rows, columns, and boxes.*

*4.3.2 Develop a rubber mode to correct incorrectly entered numbers.*

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*Version: 1.0.2*

*Updates: 3 path splited by numbers*