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| --- | --- | --- | --- | --- |
| Scenario | Row | Column | Value | Expected Result |
| All valid inputs | 1 | 9 | 8 | Update the puzzle board and keeps looping |
| Empty position |  |  | Doesn’t get here | Ask user to enter a position |
| Invalid type for position | East | North | Doesn’t get here | Ask user to input valid position and give example |
| Valid position, but invalid type for value | 3 | 7 | Three | Ask user to input a numeric value between 1 and 9 |
| Position out of range | 10 | 21 | Doesn’t get here | Ask user to input position values between 1 and 9 |
| Value out of range and valid position | 5 | 8 | 13 | Ask user to input value between 1 and 9 |
| Position entered already has a value | 1 | 1 | Doesn’t get here | Ask user to input an empty position |
| Value same as other value in row | 1 | 2 | 7 | Already a 7 in this row/column/square, try again |
| Value same as other value in column | 1 | 3 | 3 | Already a 3 in this row/column/square, try again |
| Value same as other value in square | 4 | 4 | 9 | Already a 9 in this row/column/square, try again |
| Position under 1 | -4 | 0 | Doesn’t get here | Ask user to input position value between 1 and 9 |

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| --- | --- | --- |
| Scenario | Input | Expected Result |
| Entered “q” at any time | q | Quits the game without saving and displays a thank you for playing message |
| Entered “s” at any time | s | Saves the game and keep playing. Display a message saying the game has been saved |
| Entered “u” at any time | u | Undo the last move and keeps looping game |
| Entered a “u” a second time in a row | u | Display message saying that you cannot undo 2 moves in a row |
| No filename entered |  | Load a default puzzle board (sudoku.txt) |
| Entered filename doesn’t exist | frog.txt | Frog.txt does not exist |
| Data inside selected file has wrong format | corruptedFile.txt | corruptedFile.txt doesn’t have the correct file format |
| File entered is all correct | sudokuGame1.txt | Explain how to quit, save, undo |
| Puzzle board full/complete |  | Display whether user has won or lost the game |
| After game is finished ask to replay | yes | Ask user for another file and play another game |
| After game is finished ask to replay | no | End game and exit |
| User opens instructions/how to play/help (Frame) | Opens in menu bar | Display game rules |
| User opens the about page | Opens in menu bar | Display title of my program, my name, year, and Heritage College |