

Integration Testing Plan/Results

(Code - "Code Contributions/Sarah/IntegrationTesting.cpp")

Integration Testing Plan/Results for algorithm functions

(Note – C++ team doesn't have GetRandomHint() and LoadPuzzle() so none of game engine functions use algorithm functions. Algorithm functions tested separately.)

Test description	Setup	Expected result	Actual Result
Find all empty cells	<ul style="list-style-type: none">Create Puzzle, GameEngineRun FindAllEmpty(puzzle)Store the original empty cell sizeSet a value to one cellRun FindAllEmpty(puzzle)	<ul style="list-style-type: none">No crashOne puzzle cell filled	<ul style="list-style-type: none">No crashOne puzzle cell filled
Set solution to all non-hardwired cell	<ul style="list-style-type: none">Create Puzzle, GameEngineRun SolveBruteForce(puzzle)Check solution value of random non-hardwired cells	<ul style="list-style-type: none">No crashNo change to puzzle	<ul style="list-style-type: none">No crashNo change to puzzle
Find the size of the errors	<ul style="list-style-type: none">Create Puzzle, GameEngineRun FindAllErrors(puzzle)Set incorrect value to two cellsRun FindAllErrors(puzzle)	<ul style="list-style-type: none">No crashTwo puzzle cells filled	<ul style="list-style-type: none">No crashTwo puzzle cells filled
Find the difficulty of a puzzle	<ul style="list-style-type: none">Create Puzzle, GameEngineRun RankDifficulty(puzzle)	<ul style="list-style-type: none">No crashNo change to puzzle	<ul style="list-style-type: none">No crashNo change to puzzle

Integration Testing Plan/Results for setting a value in a puzzle cell

Test description	Setup	Expected result	Actual Result
Set an illegal value to a legal location	<ul style="list-style-type: none">Create Puzzle, GameEnginePrint out puzzleSet (illegal) value to be addedSelect (legal) location to be changedRun gameEngine.SetValue(row, col)Print out puzzle	<ul style="list-style-type: none">No crashNo change to puzzle	<ul style="list-style-type: none">No crashNo change to puzzle
Set a legal value to an illegal (out of range) location	<ul style="list-style-type: none">Create Puzzle, GameEnginePrint out puzzleSet (legal) value to be addedSelect (illegal) location to be changedRun gameEngine.SetValue(row, col)Print out puzzle	<ul style="list-style-type: none">No crashNo change to puzzle	<ul style="list-style-type: none">No crashNo change to puzzle
Set a legal value to a legal location	<ul style="list-style-type: none">Create Puzzle, GameEnginePrint out puzzle	<ul style="list-style-type: none">Value added will	<ul style="list-style-type: none">Value added

	<ul style="list-style-type: none"> Set (legal) value to be added Select (legal) location to be changed Run gameEngine.SetValue(row, col) Print out puzzle 	be shown in the selected location on puzzle	will be shown in the selected location on puzzle
Set a legal value to a hard-wired location	<ul style="list-style-type: none"> Create Puzzle, GameEngine Print out puzzle Set (legal) value to be added Select (hard-wired) location to be changed Run gameEngine.SetValue(row, col) Print out puzzle 	<ul style="list-style-type: none"> No crash No change to puzzle 	<ul style="list-style-type: none"> No crash No change to puzzle

Integration Testing Plan/Results for setting a note in a puzzle cell

Test description	Setup	Expected result	Actual Result
Set an illegal note to a legal location	<ul style="list-style-type: none"> Create Puzzle, GameEngine Select (legal) location to be changed Print out cell note Set (illegal) note to be added Run gameEngine.SetNote(row, col) Print out cell note 	<ul style="list-style-type: none"> No crash No change to puzzle 	<ul style="list-style-type: none"> No crash No change to puzzle
Set a legal note to a legal location	<ul style="list-style-type: none"> Create Puzzle, GameEngine Select (legal) location to be changed Print out cell note Set (legal) note to be added Run gameEngine.SetNote(row, col) Print out cell note 	<ul style="list-style-type: none"> Note added to the selected cell 	<ul style="list-style-type: none"> Note added to the selected cell
Set a legal note to a hard-wired location	<ul style="list-style-type: none"> Create Puzzle, GameEngine Select (hard-wired) location to be changed Print cell note Set (legal) note to be added Run gameEngine.SetNote(row, col) Print cell note 	<ul style="list-style-type: none"> No crash No change to puzzle 	<ul style="list-style-type: none"> No crash No change to puzzle
Add a note to a cell with existing note	<ul style="list-style-type: none"> Create Puzzle, GameEngine Select cell to be changed Print out cell note Set note to be added Run gameEngine.SetNote(row, col) 	<ul style="list-style-type: none"> Note added to the selected cell 	<ul style="list-style-type: none"> Note added to the selected cell

	<ul style="list-style-type: none"> • Print out cell note • Set note to be added • Run gameEngine.SetNote(row, col) • Print out cell note 		
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Integration Testing Plan/Results for undoing moves

Test description	Setup	Expected result	Actual Result
Undo when no move has been made	<ul style="list-style-type: none"> • Create Puzzle, GameEngine • Print out puzzle • Run gameEngine.Undo(row, col) • Print out puzzle 	<ul style="list-style-type: none"> • No crash • No change to puzzle 	<ul style="list-style-type: none"> • No crash • No change to puzzle
Undo setting a value in a puzzle cell	<ul style="list-style-type: none"> • Create Puzzle, GameEngine • Print out puzzle • Set value in a cell • Print out puzzle • Run gameEngine.Undo(row, col) • Print out puzzle 	<ul style="list-style-type: none"> • No change to puzzle 	<ul style="list-style-type: none"> • No change to puzzle
Undo setting a note in a puzzle cell	<ul style="list-style-type: none"> • Create Puzzle, GameEngine • Select cell location to be changed • Print out cell note • Set note to a selected cell • Print out cell note • Run gameEngine.Undo(row, col) • Print out cell note 	<ul style="list-style-type: none"> • No change to puzzle/ selected cell 	<ul style="list-style-type: none"> • No change to puzzle/ selected cell
Undo until correct with only correct moves	<ul style="list-style-type: none"> • Create Puzzle, GameEngine • Print out puzzle • Set correct values in 2 cells • Print out puzzle • Run gameEngine.UndoUntilCorrect(row, col) • Print out puzzle 	<ul style="list-style-type: none"> • 2 values added will be shown on puzzle 	<ul style="list-style-type: none"> • 2 values added will be shown on puzzle
Undo until correct with only false moves	<ul style="list-style-type: none"> • Create Puzzle, GameEngine • Print out puzzle • Set false values in 2 cells • Print out puzzle • Run gameEngine.UndoUntilCorrect(row, col) • Print out puzzle 	<ul style="list-style-type: none"> • No change to puzzle 	<ul style="list-style-type: none"> • No change to puzzle

Undo until correct with false moves and setting notes	<ul style="list-style-type: none"> • Create Puzzle, GameEngine • Print out puzzle • Set false values in 2 cells • Print out puzzle • Set a note • Print out cell note • Run gameEngine.UndoUntilCorrect(row, col) • Print out puzzle • Print out cell note 	<ul style="list-style-type: none"> • No change to puzzle/selected cells 	<ul style="list-style-type: none"> • No change to puzzle/selected cells
Undo until correct with correct and false moves	<ul style="list-style-type: none"> • Create Puzzle, GameEngine • Print out puzzle • Set correct values in 2 cells • Set false values in 2 cells • Print out puzzle • Run gameEngine.UndoUntilCorrect(row, col) • Print out puzzle 	<ul style="list-style-type: none"> • 2 correct values will be shown on puzzle 	<ul style="list-style-type: none"> • 2 correct values will be shown on puzzle
Undo until correct with false and correct moves	<ul style="list-style-type: none"> • Create Puzzle, GameEngine • Print out puzzle • Set false values in 2 cells • Set correct values in 2 cells • Print out puzzle • Run gameEngine.UndoUntilCorrect(row, col) • Print out puzzle 	<ul style="list-style-type: none"> • No change to puzzle 	<ul style="list-style-type: none"> • No change to puzzle