Sudoku

Group 7 Project Requirement, Rev 11

CMSC 495 (6380) Current Trends and Projects in Computer Science (2205)

University of Maryland Global Campus

Summer 2020 – Professor Hung Dao

July 2, 2020

Group 7

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Revision	Date	Description	Contributor
1	5/15/2020	Cover page and revision table added	Chris Breen
2	5/22/2020	Rough draft created	Ben Brandhorst
3	5/22/2020	Added project plan and project schedule formats	Hanan Abdo
4	5/22/2020	Refinement to purpose, intended audience, scope, nonfunctional requirements. Added product perspective, functional requirements, standards compliance.	Chris Breen
5	5/26/2020	Separated Software Requirements Specification (SRS) document into project requirements and project plan per the provided templates. Removed superfluous information.	Chris Breen
6	5/26/2020	Added database, unit testing, and penetration testing requirements.	Chris Smith
7	5/26/2020	Converted MS Word table of requirements to Jira Cloud screenshots	Chris Breen
8	6/10/2020	Updated Requirements: - Puzzles shall be generated by the application for storage in a database versus just-in-time. This saves AWS compute resources and presents the user with puzzles much faster. - Index.html and about.html content shall be merged into one page and displayed on index.html. About.html requirement deleted.	Chris Breen
9	6/16/2020	Topic verbiage updated in response to Zachary Finnegan peer review.	Chris Breen
10	6/28/2020	Updated Project Requirements from Sprint 1 results.	Chris Breen
11	7/2/2020	Updated Project Requirements from Sprint 2 results.	Chris Breen

Topic

This web application allows users to play Sudoku in any of the leading[*] desktop and mobile web browsers of their choice. While the name Sudoku, meaning "single number," comes from the Japanese language, the game originated in Switzerland before traveling to Japan by way of America. Sudoku has been extremely successful in newspapers and puzzle books. It lends well to a web application due to the relative ease in the automation of puzzle creation across a wide range of difficulty levels. Games are randomly generated by the application and stored in a database for later retrieval, customized to the desired difficulty level of the individual user. Techniques employed by avid Sudoku players, such as "pencil marks" (described later in detail), are incorporated into the web app functionality to retain users as long-time customers. "Assist" features aim to teach progressive solution techniques to encourage growth and learning. Leader boards drive competition by displaying game statistics and promoting advancement into more challenging difficulty levels and goals of shorter solution times.

Leading browsers as defined by netmarketshare.com (as of April 2020) are Chrome (68.06%), Firefox (8.21%), Internet Explorer (6.68%), Edge (6.44%), and Safari (3.66%).

Requirements

Jira Software
Filter for SUD board (Jira)
Displaying **59** issues at **02/Jul/20 12:37 PM**.

Issue Type	Key	Summary	Assignee	Reporter	Priority	Status	Resolution	Created	Updated	Due date
Story	SUD-1	Setup Git Repo	Christopher Breen	Christopher Breen	Medium	Done	Done	21/May/20 12:31 PM	28/May/20 9:38 PM	
Story	SUD-2	Ben Clones Repo	Ben Brandhorst	Christopher Breen	Medium	Done	Done	21/May/20 12:31 PM	28/May/20 9:39 PM	
Story	SUD-3	Hanan Clones Repo	Hanan Abdo	Christopher Breen	Medium	Done	Done	21/May/20 12:31 PM	28/May/20 9:39 PM	
Story	SUD-4	Chris S Clones Repo	Christopher Smith	Christopher Breen	Medium	Done	Done	21/May/20 12:31 PM	28/May/20 9:42 PM	
Story	SUD-5	This web app shall greet the player with a landing page named index.html	Ben Brandhorst	Christopher Breen	Medium	Done	Done	21/May/20 12:31 PM	28/Jun/20 9:13 AM	
Story	SUD-6	Index.html shall include a link to a webpage describing how to play the game, named howtoplay.html	Ben Brandhorst	Christopher Breen	Medium	Done	Done	21/May/20 12:31 PM	28/Jun/20 9:13 AM	
Story	SUD-7	Index.html shall include a link to a webpage allowing the player to create a new game, named newgame.html	Ben Brandhorst	Christopher Breen	Medium	Done	Done	21/May/20 12:31 PM	28/Jun/20 9:13 AM	
Story	SUD-8	Index.html shall include a link to a webpage displaying statistics on game play history, named leaderboard.html	Ben Brandhorst	Christopher Breen	Medium	Done	Done	21/May/20 12:32 PM	28/Jun/20 9:13 AM	
Story	SUD-9	This web app shall display a webpage, named play.html, after the desired game has been retrieved from the database	Ben Brandhorst	Christopher Breen	Medium	Done	Done	21/May/20 12:32 PM	28/Jun/20 9:13 AM	
Story	SUD-19	Index.html shall display information about the development team and class project	Ben Brandhorst	Ben Brandhorst	Medium	Done	Done	26/May/20 6:32 AM	28/Jun/20 9:15 AM	
Story	SUD-13	This web app shall be capable of solving puzzles using the technique: hidden single	Christopher Breen	Christopher Breen	Medium	Done	Done	21/May/20 12:32 PM	24/Jun/20 12:24 PM	
Story	SUD-35	play.html shall provide the user an option to enable or disable "pencil marks" by means of a checkbox the user can click on to check (enable) or uncheck (disable)	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:31 PM	24/Jun/20 12:25 PM	
Story	SUD-14	This web app shall be capable of solving puzzles using the technique: naked pair	Christopher Breen	Christopher Breen	Medium	Done	Done	21/May/20 12:32 PM	24/Jun/20 12:24 PM	
Story	SUD-15	This web app shall be capable of solving puzzles using the technique: naked triplet	Christopher Breen	Christopher Breen	Medium	Done	Done	21/May/20 12:33 PM	24/Jun/20 12:24 PM	
Story	SUD-39	play.html shall re-populate the scratch pad with the appropriate numbers if the user clicks on a new cell while the scratch pad is already open	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:33 PM	24/Jun/20 12:26 PM	
Story	SUD-42	play.html shall cause the results of a solved puzzle to be saved to the database, including the player's name if one was provided, or "Anonymous" if one was not	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:34 PM	24/Jun/20 12:27 PM	
Story	SUD-40	play.html shall cause the current state of the board to be saved whenever the scratch pad is closed by the user	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:33 PM	24/Jun/20 12:26 PM	
Story	SUD-54	This web app shall classify puzzles requiring Naked Pair, Omission, or Naked Triplet techniques as difficulty level 2	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:43 PM	24/Jun/20 12:24 PM	
Story	SUD-16	This web app shall be capable of solving puzzles using the technique: omission	Christopher Breen	Christopher Breen	Medium	Done	Done	21/May/20 12:33 PM	24/Jun/20 12:24 PM	
Story	SUD-34	play.html shall display the retrieved game, prominently centered in the screen	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:31 PM	24/Jun/20 12:25 PM	
Story	SUD-57	This web app shall implement input validation/sanitation of the player name to prevent against SQL Injection, log injection, and Cross-Site Scripting (XSS)	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:44 PM	24/Jun/20 12:27 PM	
Story	SUD-58	This web app shall store puzzle board information in local session data and be validated prior to any processing of the data to ensure it has not been tampered with by the user	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:44 PM	24/Jun/20 12:27 PM	
Story	SUD-11	This web app shall be capable of solving puzzles using the technique: naked single	Christopher Breen	Christopher Breen	Medium	Done	Done	21/May/20 12:32 PM	24/Jun/20 12:23 PM	
Story	SUD-60	play.html shall highlight the cell associated with the scratch pad when open	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 11:32 PM	24/Jun/20 12:26 PM	
Story	SUD-53	This web app shall classify puzzles solved only with the naked single and hidden single techniques as difficulty level 1	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:43 PM	24/Jun/20 12:24 PM	
Story	SUD-36	play.html shall display a "Scratch pad" containing the numbers one through nine when the user mouse clicks on an individual cell within the puzzle	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:32 PM	24/Jun/20 12:25 PM	
Story	SUD-38	play.html shall hide an open scratch pad when the user clicks the cell that opened the scratch pad	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:32 PM	24/Jun/20 12:26 PM	
Story	SUD-37	play.html shall allow the user to select or deselect each individual number from the scratch pad	Christopher Breen	Christopher Breen	Medium	Done	Done	28/May/20 10:32 PM	24/Jun/20 12:25 PM	
Story	SUD-61	Store solutions in Django Session data IOT verify user solved puzzle matches	Christopher Breen	Christopher Breen	Medium	Done	Done	01/Jun/20 8:10 PM	24/Jun/20 12:28 PM	
Story	SUD-10	This web app shall create and store its own puzzles of varying difficulty based on techniques utilized	Christopher Breen	Christopher Breen	Medium	Done	Done	21/May/20 12:32 PM	24/Jun/20 12:23 PM	

Story	SUD-22	This web app shall use a database to store both pertinent user data and saved game information for both leaderboard and game continuation functionalities	Christopher Smith	Christopher Smith	Lowest	Done	Done	26/May/20 7:01 AM	27/Jun/20 6:09 PM	
Story	SUD-44	This web app shall NOT display games on leaderboard.html that utilized the hints feature	Christopher Smith	Christopher Breen	Medium	Done	Done	28/May/20 10:34 PM	27/Jun/20 6:09 PM	
Story	SUD-55	This web app shall classify puzzles requiring Hidden Pairs, Naked Quad, or Hidden Triplet techniques as difficulty level 3	Christopher Breen	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:44 PM	27/Jun/20 3:56 PM	
Story	SUD-18	This web app shall be capable of solving puzzles using the technique: hidden triplet	Christopher Breen	Christopher Breen	Medium	To Do	Unresolved	21/May/20 12:33 PM	27/Jun/20 3:56 PM	
Story	SUD-49	This web app shall be capable of solving puzzles using the technique: naked quad	Christopher Breen	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:39 PM	27/Jun/20 3:56 PM	
Story	SUD-17	This web app shall be capable of solving puzzles using the technique: hidden pairs	Christopher Breen	Christopher Breen	Medium	To Do	Unresolved	21/May/20 12:33 PM	27/Jun/20 3:56 PM	
Story	SUD-32	leaderboard.html shall display the player name (if provided by the user), difficulty level, and completion time for each of the fastest five puzzles solved for each difficulty level	Christopher Smith	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:30 PM	27/Jun/20 6:08 PM	
Story	SUD-59	This web app shall undergo routine penetration testing using automated programs	Christopher Smith	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:46 PM	27/Jun/20 6:09 PM	
Story	SUD-64	newgame.html shall provide a button to 'Restore Previous' game if one is detected in the client-side session data	Ben Brandhorst	Christopher Breen	Medium	To Do	Unresolved	24/Jun/20 2:34 PM	28/Jun/20 9:16 AM	
Story	SUD-26	Newgame.html shall ask the user to choose between four difficulty levels	Ben Brandhorst	Christopher Breen	Medium	In Progress	Unresolved	28/May/20 10:26 PM	28/Jun/20 9:18 AM	
Story	SUD-56	This web app shall classify puzzles requiring Hidden Quad, X-Wing, Swordfish, XY-Wing, or Unique Rectangle as difficulty level 4	Christopher Breen	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:44 PM	27/Jun/20 3:57 PM	
Story	SUD-52	This web app shall be capable of solving puzzles using the technique: swordfish	Christopher Breen	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:42 PM	27/Jun/20 3:58 PM	
Story	SUD-50	This web app shall be capable of solving puzzles using the technique: hidden quad	Christopher Breen	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:39 PM	27/Jun/20 3:58 PM	
Story	SUD-25	This web app shall be capable of solving puzzles using the technique: unique rectangle	Christopher Breen	Hanan Abdo	Medium	To Do	Unresolved	28/May/20 2:52 AM	27/Jun/20 3:57 PM	
Story	SUD-62	This web app shall be capable of solving puzzles using the technique: xwing	Christopher Breen	Christopher Breen	Medium	To Do	Unresolved	23/Jun/20 2:41 PM	27/Jun/20 3:58 PM	

Story	SUD-24	This web app shall be capable of solving puzzles using the technique: xy-wing	Christopher Breen	Hanan Abdo	High	To Do	Unresolved	27/May/20 2:45 AM	27/Jun/20 3:57 PM	
Story	SUD-33	leaderboard.html shall allow players to (re)play the exact puzzle from any of the top five games displayed for each difficulty level	Christopher Smith	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:30 PM	27/Jun/20 6:10 PM	
Story	SUD-28	howtoplay.html shall include a brief history of Sudoku	Ben Brandhorst	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:26 PM	28/Jun/20 9:15 AM	
Story	SUD-29	howtoplay.html shall include an overview of basic gameplay	Ben Brandhorst	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:27 PM	28/Jun/20 9:15 AM	
Story	SUD-31	howtoplay.html shall include an explanation for using the beginner technique, hidden single	Ben Brandhorst	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:29 PM	28/Jun/20 9:15 AM	
Story	SUD-30	howtoplay.html shall include an explanation for using the beginner technique, naked single	Ben Brandhorst	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:29 PM	28/Jun/20 9:15 AM	
Story	SUD-45	newgame.html shall provide the user an option to create their own puzzle and redirect the user to customgame.html upon selecting this option	Ben Brandhorst	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:34 PM	28/Jun/20 9:15 AM	
Story	SUD-20	database setup	Christopher Smith	Christopher Smith	Low	Done	Done	26/May/20 6:57 AM	26/May/20 6:58 AM	
Story	SUD-23	This web app shall be capable of solving puzzles using the technique: x-wing	Hanan Abdo	Hanan Abdo	High	Done	Done	27/May/20 2:43 AM	01/Jun/20 7:42 PM	
Story	SUD-46	customgame.html shall provide the user the ability to manually enter numbers of their choice to create a custom puzzle	Unassigned	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:35 PM	28/May/20 10:35 PM	
Story	SUD-47	customgame.html shall attempt to solve user created puzzle's and display the calculated difficulty level or "unsolvable" before sending the user and puzzle to play.html	Unassigned	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:35 PM	28/May/20 10:35 PM	
Story	SUD-48	customgame.html shall require the user to certify they have permission (if required) to copy the puzzle (copyright infringement)	Unassigned	Christopher Breen	Medium	To Do	Unresolved	28/May/20 10:36 PM	28/May/20 10:36 PM	
Story	SUD-63	upload.html shall accept puzzle file uploads via web form, extract the puzzles, and insert into the DB	Christopher Breen	Christopher Breen	Medium	Done	Done	23/Jun/20 11:04 PM	24/Jun/20 12:25 PM	
Story	SUD-65	play.html shall offer a button to "Get Hint" that provides the player with the technique and general location of a potential next move	Christopher Breen	Christopher Breen	Medium	To Do	Unresolved	02/Jul/20 10:22 AM	02/Jul/20 10:22 AM	