Functions	#	Description	Sample Input Data	Expected Output	Actual Output	P/F
SearchLetter	1	Key is found in the middle of the row	row = "ABCDE", size = 5, key = 'C'	2	2	P
	2	Key is not found in the row	row = "XYZPQ", size = 5, key = 'A'	-1	-1	P
	3	Key is found at the beginning of the row	row = "MNOPQ", size = 5, key = 'M'	0	0	P
GenerateUniqueRandomLetter	1	All letters except one are used	usedLetters = "ABCDEFGHIJKLMNOPQRSTUVWXYZ"	Z'	Z'	P
	2	No letters are used	usedLetters = {}	any letter from A to Z	any letter from A to Z	P
	3	Some letters are used, but the random letter is not one of them	usedLetters = "FGHIJ"	any letter from A to E, or from K to Z	any letter from A to E, or from K to Z	P
CreateBoard	1	Create a 3x3 board	row = 3, col = 3	3x3 board (with unique letters per row)	3x3 board (with unique letters per row)	P
	2	Create a large board with maximum dimensions	row = 15, col = 15	15x15 board (with unique letters per row)	15x15 board (with unique letters per row)	P
	3	Create a board with non-square dimensions	row = 4, col = 6	4x6 board (with unique letters per row)	4x6 board (with unique letters per row)	P
QuestionAnswerPhase	1	Correctly answer the trivia	wordsDatabase has apple, banana numWords = 2 usedWordTracker = {} numUsedWords = 0 board = {{'a', 'b'}, {'c', 'd'}} letterIndex = 1 currentRow = 0 Kind of: it is a fruit, red	Display trivia: "It is a fruit." User enters "apple" Function returns 1, indicating correct answer, and letter in board is now ""	Display trivia: "It is a fruit." User enters "apple" Function returns 1, indicating correct answer, and letter in board is now ""	P
	2	Wrong answer to the trivia	Same as Sample Input Data 1, but the user enters "banana" instead of "apple"	Display trivia: "It is a fruit." User enters "banana" Function returns 0, indicating incorrect answer, and letter in board is now '-'	Display trivia: "It is a fruit." User enters "banana" Function returns 0, indicating incorrect answer, and letter in board is now '-'	P
	3	Choose to exit the game	Same as Sample Input Data 1, but the user enters "0" to exit the game	Function returns -1, indicating the user wants to exit the game without answering the trivia	Function returns -1, indicating the user wants to exit the game without answering the trivia	P
isWin	1	Player wins with at least one correct answer in each row	board = {{'', '-', '-'}, {'-', '-', ''}} row = 2 col = 4	1 (Player wins)	1 (Player wins)	P
	2	Player does not win because one row has no correct answers	board = {{'', '-', '-'}, {'-', '-', '-', ''}} row = 2 col = 4	0 (Player does not win)	0 (Player does not win)	P
	3	Player does not win because not all rows have been answered	board = {{'', '-', '-'}, {'-', '', '-', '-'}} row = 2 col = 4	0 (Player does not win)	0 (Player does not win)	P
CheckRowStatus	1	Row has at least one ""	currentRow = {'-', '', '-', '-', '-'} col = 5	1	1	P
	2	Row does not have any ""	currentRow = {'-', '-', '-', '-', '-'} col = 5	0	0	P
	3	Row has only one letter and it is ""	currentRow = {''} col = 1	1	1	P
GamePhase	1	Player wins the game	Assuming the user correctly answers all questions and chooses not to play again.	"You WIN" then display "Do you want to play again?"	"You WIN" then display "Do you want to play again?"	P
	2	Player loses the game	Assuming the user incorrectly answers all questions and chooses not to play again.	"You LOSE" then display "Do you want to play again?"	"You LOSE" then display "Do you want to play again?"	P
	3	Play exits the game	Assuming the user chooses to exit the game during gameplay.	"You LOSE" then display "Do you want to play again?"	"You LOSE" then display "Do you want to play again?"	P
SortEntriesAlphabetically	1	Words in the database are already sorted alphabetically	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}} numWords = 3	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}}	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}}	P
	2	Words in the database are not sorted alphabetically	wordsDatabase = {{"banana", {"It is yellow."}}, {"apple", {"It is a fruit."}}, {"cherry", {"It is red."}}} numWords = 3	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}}	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}}	P
	3	Only one word in the database	wordsDatabase = {{"apple", {"It is a fruit."}}} numWords = 1	wordsDatabase = {{"apple", {"It is a fruit."}}}	wordsDatabase = {{"apple", {"It is a fruit."}}}	P
SearchWordIndex	1	Word exists in the database	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}} numWords = 3 key = "banana"	1 (banana)	1 (banana)	P
	2	Word does not exist in the database	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}} numWords = 3 key = "grape"	-1	-1	P
	3	Database is empty	wordsDatabase = {} numWords = 0 key = "apple"	-1	-1	P
OverwriteWord	1	Overwrite with a unique word	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}} numWords = 3 origWord = "banana" newWord = "grape"	wordsDatabase = {{"apple", {"It is a fruit."}}, {"grape", {"It is yellow."}}, {"cherry", {"It is red."}}}	wordsDatabase = {{"apple", {"It is a fruit."}}, {"grape", {"It is yellow."}}, {"cherry", {"It is red."}}}	P
	2	Overwrite with a non-unique word	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}} numWords = 3 origWord = "banana" newWord = "apple"	"Word already exists in the database. Exiting..."	"Word already exists in the database. Exiting..."	P
	3	Overwrite when database is empty	wordsDatabase = {} numWords = 0 origWord = "apple" newWord = "grape"	wordsDatabase = {}	wordsDatabase = {}	P
AddCluesAction	1	Add clues to a word with space for more clues	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}} wordIndex = 0 Adding two clues: "It is sweet" and "It grows on trees"	Two clues ("It is sweet" and "It grows on trees") are added to the word "apple".	Two clues ("It is sweet" and "It grows on trees") are added to the word "apple".	P
	2	Add clues to a word when maximum limit is reached	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}} wordIndex = 0 Adding 11 clues	"Clues maximum limit (10) reached."	"Clues maximum limit (10) reached."	P
	3	Add clues to a word without adding more clues	wordsDatabase = {{"apple", {"It is a fruit."}}, {"banana", {"It is yellow."}}, {"cherry", {"It is red."}}} wordIndex = 1 Adding one clue: "It is a berry" Choosing not to add more clues	One clue ("It is a berry") is added to the word "banana".	One clue ("It is a berry") is added to the word "banana".	P
ViewClues	1	View clues of an existing word	wordsDatabase = {{"apple", {"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is yellow.", "It is long."}, 2}}, {"cherry", {{"It is red.", "It is small."}, 2}}} numWords = 3 Viewing clues for the word "apple"	Clues for the word "apple" are displayed: "It is a fruit." and "It is sweet."	Clues for the word "apple" are displayed: "It is a fruit." and "It is sweet."	P
	2	View clues but database is empty	wordsDatabase = {} numWords = 0	"No words in the database. Please add words first."	"No words in the database. Please add words first."	P
	3	Go back to the menu	wordsDatabase = {{"apple", {"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is yellow.", "It is long."}, 2}}, {"cherry", {{"It is red.", "It is small."}, 2}}} numWords = 3 Choosing to go back to the menu (enter "0")	Function returns without displaying any clues.	Function returns without displaying any clues.	P
ViewWords	1	View words and clues, navigate through entries	wordsDatabase = {{"apple", {"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is yellow.", "It is long."}, 2}}, {"cherry", {{"It is red.", "It is small."}, 2}}} numWords = 3 User chooses to navigate through entries by selecting 'N' for next and 'P' for previous, then exits by selecting 'X'.	Words and their corresponding clues are displayed in alphabetical order. The user can navigate through entries using 'N' and 'P', and exit using 'X'.	Words and their corresponding clues are displayed in alphabetical order. The user can navigate through entries using 'N' and 'P', and exit using 'X'.	P
	2	View words and clues when database is empty	wordsDatabase = {} numWords = 0	"No words in the database. Please add words first."	"No words in the database. Please add words first."	P
	3	View words and clues, navigate through entries, then reach the end of the list	wordsDatabase = {{"apple", {"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is yellow.", "It is long."}, 2}}, {"cherry", {{"It is red.", "It is small."}, 2}}} numWords = 3 User navigates through entries until reaching the last entry.	"End of the list." and still display the same current word entry	"End of the list." and still display the same current word entry	P
AddWord	1	Add a new word to the database	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is yellow.", "It is long."}, 2}}} numWords = 2 Adding a new word "grape" with clues.	Word "grape" is successfully added to the database with its corresponding clues.	Word "grape" is successfully added to the database with its corresponding clues.	P
	2	Attempt to add an existing word	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is yellow.", "It is long."}, 2}}} numWords = 2 Attempting to add an existing word "banana".	"Word already exists in the database. Exiting..."	"Word already exists in the database. Exiting..."	P
	3	Attempt to add a word when the database is full	wordsDatabase = {...***<150th word entry here>***} numWords = 150 Attempting to add an existing word "banana".	"Database is full. Cannot add more words."	"Database is full. Cannot add more words."	P
ModifyEntry	1	Modify the word of an entry in the database	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is yellow.", "It is long."}, 2}}} numWords = 2 Modifying the word "apple" to "avt".	Word "apple" is successfully modified to "avt" in the database.	Word "apple" is successfully modified to "avt" in the database.	P
	2	Modify a clue of an entry in the database	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is yellow.", "It is long."}, 2}}} numWords = 2 Modifying the second clue of the word "banana".	Clue "It is long." of the word "banana" is successfully modified to a new clue.	Clue "It is long." of the word "banana" is successfully modified to a new clue.	P
	3	Attempt to modify a non-existent word	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is yellow.", "It is long."}, 2}}} numWords = 2 Attempting to modify the word "orange" which does not exist in the database.	"Word does not exist in the database."	"Word does not exist in the database."	P
DeleteWord	1	Delete an existing word from the database	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is yellow.", "It is long."}, 2}}} numWords = 2 Deleting the word "apple".	Word "apple" is successfully deleted from the database.	Word "apple" is successfully deleted from the database.	P
	2	Attempt to delete a non-existent word from the database	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is yellow.", "It is long."}, 2}}} numWords = 2 Attempting to delete the word "orange" which does not exist in the database.	"Word does not exist in the database."	"Word does not exist in the database."	P
	3	Delete the last word from the database	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}} numWords = 1 Deleting the word "apple".	Word "apple" is successfully deleted from the database, and the database becomes empty.	Word "apple" is successfully deleted from the database, and the database becomes empty.	P
DeleteClue	1	Delete an existing clue from a word in the database	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}} numWords = 1 Deleting the clue "It is sweet." from the word "apple".	Clue "It is sweet." is successfully deleted from the word "apple" in the database.	Clue "It is sweet." is successfully deleted from the word "apple" in the database.	P
	2	Attempt to delete a clue from a non-existent word in the database	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}} numWords = 1 Attempting to delete a clue from the word "orange" which does not exist in the database.	"Word does not exist in the database."	"Word does not exist in the database."	P
	3	Attempt to delete a clue that does not exist in the word in the database	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}} numWords = 1 Attempting to delete a non-existent clue from the word "apple".	"Clue does not exist in the database."	"Clue does not exist in the database."	P
Import	1	Import a file with valid data	wordsDatabase = {} numWords = 0 Text file content: Object: apple It is a fruit: Yes It is sweet: Yes Object: banana It is a fruit: Yes It is yellow: Yes	Words "apple" and "banana" with their corresponding clues are successfully imported into the wordsDatabase.	Words "apple" and "banana" with their corresponding clues are successfully imported into the wordsDatabase.	P
	2	Attempt to import a non-existent file	wordsDatabase = {} numWords = 0 Text file name: non_existent_file.txt	File does not exist."	File does not exist."	P
	3	Import a file with duplicate words	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}} numWords = 1 Text file content: Object: apple It is a fruit: Yes It is sour: Yes	Prompt "apple already exists in the database. Overwrite Entry? [y/n]: " is displayed, and upon entering "y", the word "apple" is successfully overwritten with the new data.	Prompt "apple already exists in the database. Overwrite Entry? [y/n]: " is displayed, and upon entering "y", the word "apple" is successfully overwritten with the new data.	P
Export	1	Export data to a valid file	wordsDatabase = {{"apple", {{"It is a fruit.", "It is sweet."}, 2}}, {"banana", {{"It is a fruit.", "It is yellow."}, 2}}} numWords = 2 File name: export_test.txt	The content of the file "export_test.txt" should be: Object: apple It is a fruit: It is sweet. Object: banana It is a fruit: It is yellow.	The content of the file "export_test.txt" should be: Object: apple It is a fruit: It is sweet. Object: banana It is a fruit: It is yellow.	P
	2	Attempt to export data when no words are in the database	wordsDatabase = {} numWords = 0 File name: export_empty_test.txt	"No words in the database. Please add words first."	"No words in the database. Please add words first."	P

	3 Attempt to export more than 150 data entries	wordsDatabase contains 151 entries numWords = 151 File name: export_large_test.txt	"Error: Cannot export data entries greater than 150."	"Error: Cannot export data entries greater than 150."	P