



COEN 160
Final Project
Spelling Bee

BY KOBE TRAN

(INDIVIDUAL PROJECT)

- ❖ Spelling Bee Game Rules / Parameters
- ❖ How to Win?
- ❖ Design Ideas
- ❖ UML Diagram
- ❖ Activity Diagram
- ❖ Technologies Used
- ❖ Code Overview
- ❖ Demo Time
- ❖ Output Samples 1-5
- ❖ Conclusions
- ❖ References

Table of Contents

Spelling Bee Game Rules/Parameters

- **One Essential Letter:** This letter must be included in the word guessed by the player. The letter can be placed anywhere in the word but must appear at least once.
- **Six random jumble letters:** To form a word, other letters need to go along with the essential letter. These jumble letters can appear any number of times or none at all to create a word.
- Word Size must be larger than *three letters*.
 - Score is determined by word size

How to Win?

- If rules are met, find every word that matches in the game's dictionary using the provided letters presented to you.
- Once you matched all the words, you win!

Design Ideas

- 7 buttons
 - Essential letter button will be different (shaded orange)
 - Six regular buttons for the jumble letters
- Display field of the word player is trying to guess
- Clear Button to clear display field if player made a mistake
- Enter Button to submit guessed word for game to check
- Message field to notify player of word match found or invalid words

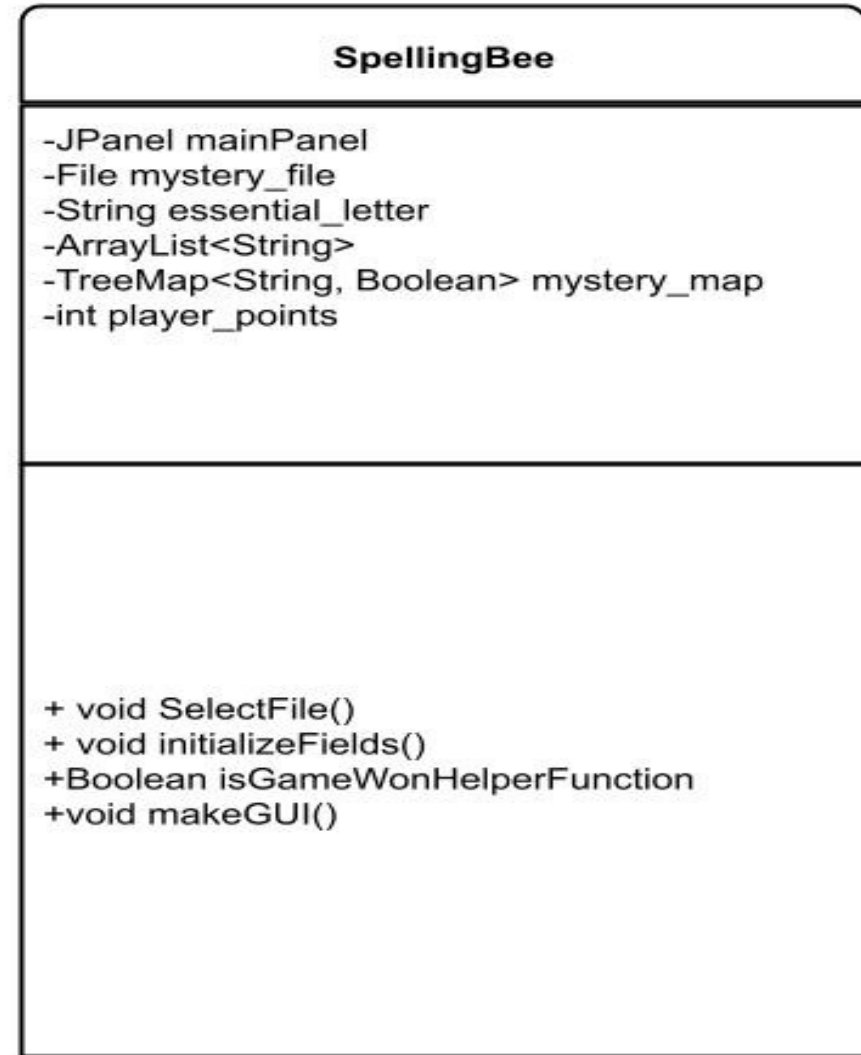
Design Ideas (con.)

- Message field will also alert user when player won
- Score field to track the points earned
- Exit button for user to exit game if a winner
- Two Text Areas
 - List of matched words player already found
 - How to play message at top of GUI

UML Diagram

COEN 160 Final Project UML

Kobe Tran

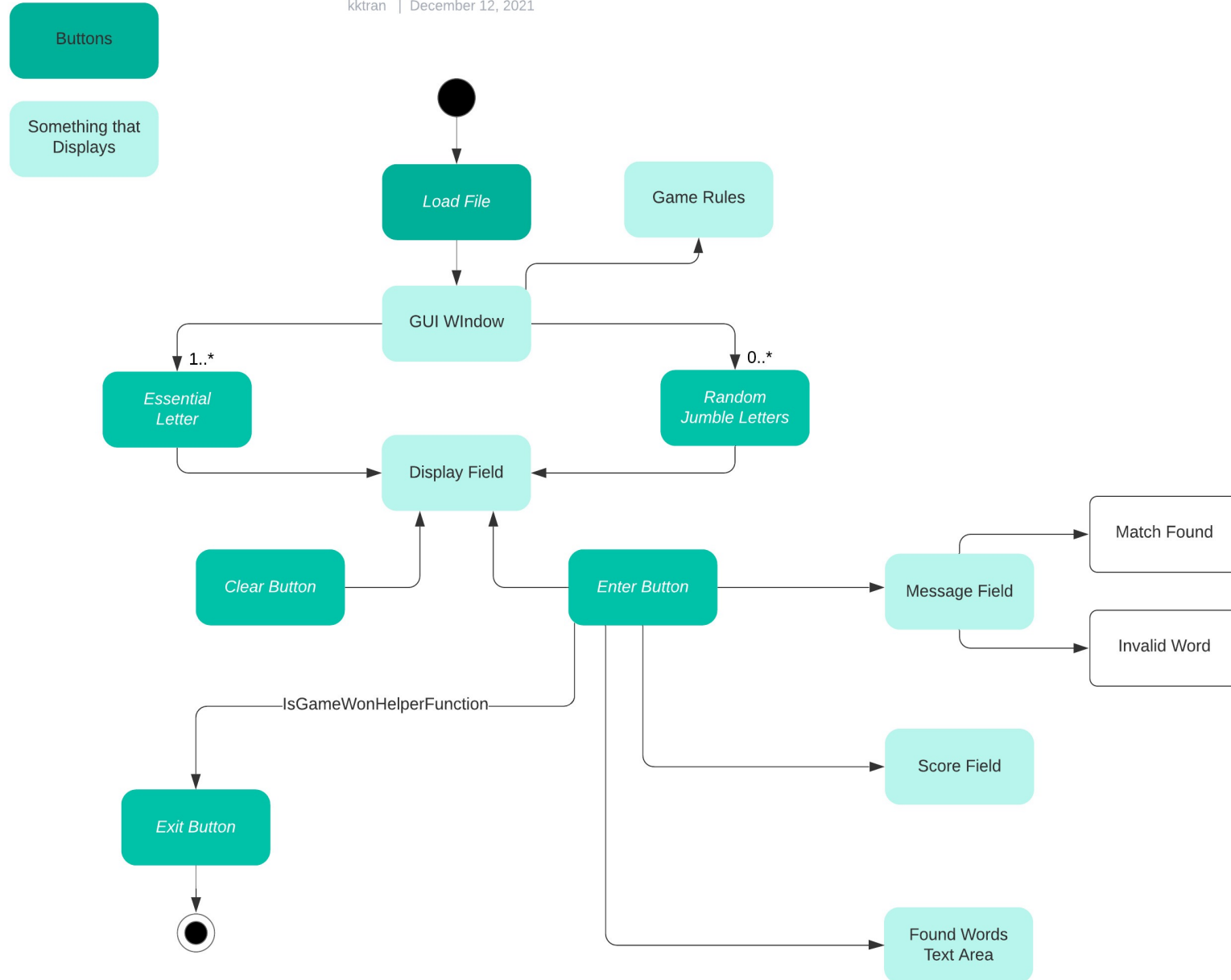


Activity Diagram

KEY

COEN160_ActivityDiagram_FinalProject_KobeTran

kktran | December 12, 2021



Technologies Used

All In Java OO Design And Programming Techniques

No Database (used files instead)

Code Overview

- User select a game text file, which outlines letters and word bank in a specific way.
- Create a class with fields for the:
 - Essential Letter
 - Jumble Letters (stored in ArrayList)
 - Word Bank (stored in TreeMap)
- Object reads file and stores contents in the object's data structure fields above
- GUI uses the data stored in the fields to make the game function properly

Demo Time

[Go To Code](#)

Output Sample 1 (just loaded text file)

Spelling Bee GUI

Play? (1) Essential Letter Button (highlighted in orange) requires its letter to be included anywhere in the word at least once. (2) Other letter buttons can be used any number of times or none at all to create a word. (3) Enter the word to see if it's in the dictionary. (4) To Win: Find all the words in the dictionary. Additional Rules (a) Word size must be greater than 3 letters. (b) The essential letter is required at least once to create a word.

r c l o b a n

CLEAR

ENTER

Output Sample 2 (words added)

Spelling Bee GUI

Essential Letter Button (highlighted in orange) requires its letter to be included anywhere in the word. (3) Enter the word to see if it is in the dictionary. To Win: Find all the words in the dictionary. Additional Rules (a) Word size must be greater than 3 letters. (b) Essential letter required at least once to create a word.

r

c

l

o

b

a

n

CLEAR

ENTER

SUCCESS! Points Earned: 5

9 total points

arco narco

Output Sample 3 (invalid messages)

Spelling Bee GUI

(1) Essential Letter Button (highlighted in orange) requires its letter to be included anywhere in the word at least once. (2) Letter buttons can be used any number of times or none at all to create a word. (3) Enter the word to see if it's in the dictionary. (4) To Win: Find all the words in the dictionary. Additional Rules (a) Word size must be greater than 3 letters. (b) The word must contain at least one letter that is required at least once to create a word.

r c l o b a n

CLEAR ENTER

WORD ALREADY FOUND. TRY AGAIN. 9 total points

arco narco

Output

Sample 4

(more invalid messages)

Spelling Bee GUI

essential Letter Button (highlighted in orange) requires its letter to be included anywhere in the word. Buttons can be used any number of times or none at all to create a word. (3) Enter the word to see if it is in the dictionary. Win: Find all the words in the dictionary. Additional Rules (a) Word size must be greater than 3 letters. (b) Each letter must be required at least once to create a word.

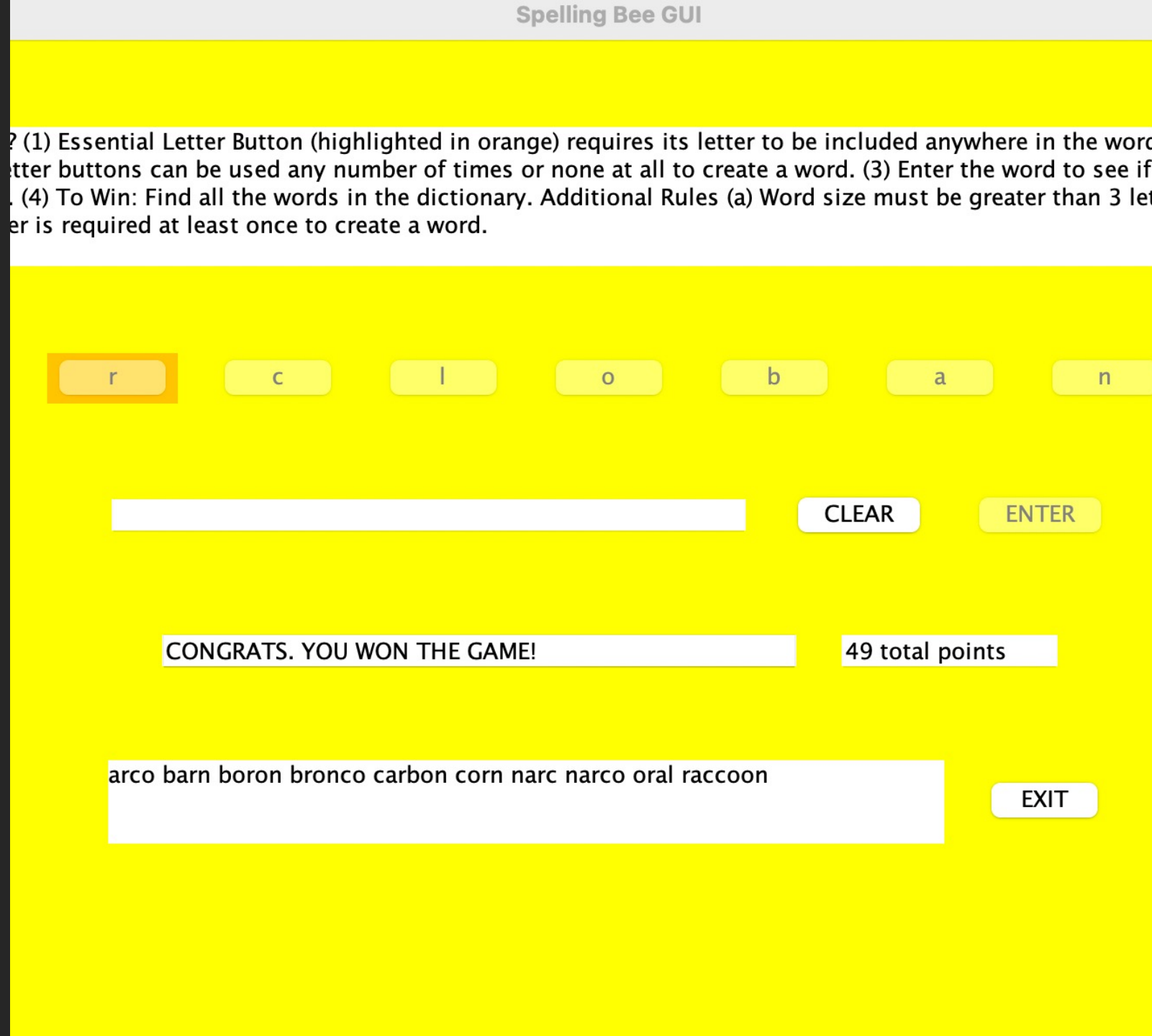
r c l o b a n

CLEAR ENTER

WORD IS TOO SHORT. TRY AGAIN. 9 total points

arco narco

Output Sample 5 (Winner Screen)



Conclusions

- Spelling Bee can be easily implemented in Java using
 - OO design
 - Files
 - ArrayList
 - TreeMap
 - GUI interfaces
- Java is a versatile language that can create a good GUI interfaces for real word applications.
- Debugging in Java is easier thanks to both the GUI and terminal to see where errors can arise.

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References