

Artificial Intelligence

MOD004553

Word Families

School of Computing and Information Technology

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# Reflective Report

This has been a very interactive and challenging project; my reflexions are towards how I could improve this application in the future. I have not attempted the HARD difficulty just yet but will try to implement it soon.

## Issues

I have had many issues with countable variables, such as how many tries the user has left as these get lost in loops and get deducted or added when it shouldn’t. This has been since resolved, the application is now correctly counting and not taking tried out even when exemption was thrown and successfully caught.

Many days were lost on resolving the best way to ask for a new game (call the main method and start fresh), but every time a second iteration begins the word families don’t engage and this is still a weakness for this application. I have been successful at generating the path to the executable file and starting a new application then exiting the old one after each game. But I had issues with this as the assignment file submitted would not allow for this path to be found and started rendering the function useless. For this purpose, I have remained at the simple call of the main menu method ones the game has ended.

## Limitations

This project has required a lot of research as well as trial and error cases for different design attempts. This is the version I feel most confident in as the older versions are not as highly functional. I have asked friends to try and play it as I’ve taken notes of errors and exceptions thrown as they played, it has been great fun for them to participate and it has helped in patching most of the wholes that could break the application mid-game.

The algorithm I’ve used (adaptation of a min-max algorithm) will fulfil the requirements for the EASY game. This comes with some limitations, when user inputs a letter that the hidden word does not contain it will not currently go back and remove the words that contain this letter. I still have not found a perfect way to manage the word families created.

## Strengths

I am happy with the display of the game, as well as the flow from one page to the other. The game feels more real since I have added some phrases to make the user think the computer is actively thinking and actioning the game such as “.... Please wait while I think about this.”.

After many tests I am confident this application is very hard to break by simple user input. I have made every attempt at not allowing exceptions to be thrown where the user pressed the wrong key or had used a capitalised letter rather than lower case or was just impatient and pressed to many keys while the application only expected one character.

## Improvements

I would like to re-think the way the word family is generated in this application and create a set of rules so that the word selected as hidden is not random but will contain wither a lower number of vowels, preferably has only one type of vowel and not more than two instances of this vowel and has a list of rarely used consonants and will choose a word containing as many of these consonants as possible. These are a lot of very different rules, as such this will take a while to implement. These rules would be applied only onto the HARD option of the game.

The EASY option would remain much of the same but would like to explore better display options as currently there are no spaces between the hyphens that hide the hidden word. I would like to make the visuals of the game more comfortable and easier on the eyes.

# Appendix

How to Play

Start Game

Run .exe file.

Menu

You will e prompted with a menu of 3 options:

1. Easy
2. Hard (not working/implemented)
3. Exit

Text

Description automatically generated

The first option will start a new word guessing game.

The second option as displayed will not be available, you will be prompted again that this is not yet available, and after 3 second the menu will reiterate.

The last option will exit the console.

If any other keys are pressed the menu will not take them in consideration and will refresh waiting for a new key to be pressed.

Easy

You will be prompted the length of the word ( it will be anything between 4 to 12 letters long) you have to guess and how many chances to guess it. Then you will be asked to press any key to get started.

Graphical user interface, text, application

Description automatically generated

Once a key is pressed, the hidden word will be displayed as “------” and you will have a list of possible letters to try, a list of letters you have already tried and a counter for how many guesses you have left.

Text

Description automatically generated

From time to time the game might prompt you that it is thinking about this, and you should wait while it decides where the letters should go.



If you have typed a letter, you have already tried you will b e prompted for roughly 3 seconds that you have tried this letter already.

Text

Description automatically generated

And sometimes if you’ve typed too many letters or typed the same letter you’ve already tried a couple of times, you will get this prompt that means the game got confused and will ask you to try again from the last try.

Text

Description automatically generated

There are three possible outcomes of this game:

* You win. You will be prompted that you won, the hidden word will be revealed, and you will be taken back to the main menu.
* You lose. You will be prompted that you lost, the hidden word will be revealed, and you will be taken back to the main menu.
* You ran out of guesses which will do the same scenarios as it you lost.

Hard

If this option will be selected, you will be prompted that this option is still in work and not yet available. You will be re-directed back to the main menu after a short three second wait.

Text

Description automatically generated

Exit

This option will close the application.

# References

For the mentioned opening executable file by generating the path followed by last application being exited.

<https://itecnote.com/tecnote/c-how-restart-the-console-app/>

<https://iq.direct/blog/51-how-to-get-the-current-executable-s-path-in-csharp.html#:~:text=Sometimes%20you%20may%20want%20to,executable%20file%20of%20your%20program.&text=%2F%2FC%3A%5CProgram%20Files%5CMyApplication%5CSettings>.