Final Report - French Wordle

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1. Summary/Abstract

French Wordle is an Android-based word game where players have a limited amount of time to guess a four-letter word. Feedback is given for each guess in the form of colored tiles on both the keyboard and text boxes. These colored tiles indicate which letters match or occupy the correct position. The amount of time you have to guess the four-letter word varies based on the difficulty that the user selects. Users are also able to register and login when using our application so that we can save some key game statistics to a Firebase database. To branch away from the traditional *Wordle* application and its oversaturated market, we decided to make our own French version. This was not too difficult because we have some team members who speak French and they were able to help with the language barrier. To further differentiate our application, we decided to base difficulty off of time limits rather than word length. These unique features will allow us to reach a new audience and allow them to take advantage of the many cognitive benefits of word games.

2. Introduction

There are many sections that will be covered in our final report as can be seen in the table of contents on page 2 of our final report. We have already touched on the summary and abstract of *French Wordle* in Section 1. We will continue in section 3 by going over some of our applications main features. After that, in section 4, we will touch on some of the challenges that we encountered, how we innovated and got past these challenges, and then finally cover some of our proudest achievements. In section 5 we will briefly touch on some of the limitations of our project, whether that be errors that still exist in our application or functionalities that we did not finish due to time constraints. Next, in section 6, we will discuss some of the Android concepts that we implemented and how we chose to incorporate them into our application. Then we will conclude our report with a table of our contributions to the project, a works cited page, and finally an appendix which will hold all of *French Wordle's* screenshots.

3. App Description

Different features:

❖ Allow users to use hints if they are struggling to complete the daily Wordle challenge.
❖ Allow users to navigate to different screens using a bottom navigation.
❖ Allow users to reference a help page if they need clarification on how the application works.
❖ The system sends out notifications to subscribers when the new daily word becomes available.
❖ Allows users to select from different difficulties when playing to solve a four-letter word.
❖ A timer within each mode allows users to see when their time to solve the word problem is up and displays a message once their time is up.
❖ Login and register pages allow users to have their progress saved in a Firebase database.

4. Discussion

4.1. Challenges

There were a number of challenges that we encountered in the development of our application. One of the first challenges that we knew we would have to overcome was the time constraints of our Kotlin application. The project timeline was narrow mainly because we also had to fit in learning Kotlin, various Android concepts, and homework assignments into a single semester. This becomes even more challenging when we combine other class workloads. Many of our team members are taking more than four classes at the same time as this course which only further adds to the difficulty of this project. For those of us who were unfamiliar with version control tools like GIT and SVN, we were tasked with quickly learning the basics through homework assignments and then applying what we learned there to our main project repository which was hosted on the GitHub version control platform.

As a result of the challenges that we just touched on, it made it difficult to meet regularly as a team. This was one of our biggest challenges because communication is such an important part of every successful project. If we add the fact that we also have to begin studying for our final that's next week, the challenges that we have faced in this project were substantial. In section 4.2 we will touch on some of the unique ways we were able to overcome some of these challenges.

4.2. Innovation

There were various challenges that we addressed in section 4.2. Now we will touch on some of the novel ways we were able to overcome some of them. To tackle the issue of time constraints we decided as a team that we would finish our homework assignments for this class early so that we could spend more time as a team working on *French Wordle*. This allowed us to work early and often, putting out quality work at a much faster pace. To tackle the issue of other class workloads we collectively decided that we would have to manage our time well. This meant making sure that we were able to stay focused on our project by completing other class assignments and work as soon as possible.

To address some of the issues stemming from lack of knowledge of version control, we were able to find online resources and cheat sheets that highlight a lot of the most common commands in GIT. Additionally, some were able to guide those unfamiliar with GIT and GitHub so that they were able to have their contributions viewed and edited by everyone. To address the issue of meeting regularly we instead opted to set up a Discord server so that we were always in constant communication with each other. This was one of the most important tools that we used because we were not only able to communicate but also share resources and documents whenever we needed. In terms of studying for our final for this class we

quickly realized that it would be easier if we asked questions and sort of studied as a group rather than as individuals since it would save time.

4.3. Merit

The long list of challenges that we faced only make our accomplishments all the more impressive. We were able to not only have a working application at the end of our short project timeline, but we were able to implement many of our initial features as well. This was due to the innovation that our team members had when tackling difficult issues and coming up with unique solutions to solve them. This can be seen in our levels of difficulty which implements a time that will direct users back to the homescreen if they aren't able to solve the four-letter word problem in a given amount of time.

5. Limitations

There were a number of different nice-to-have features that we ultimately did not get to implement in *French Wordle* due to time constraints. These features include the ability for users to see how their statistics compare to other users around the world. This is mainly because we were not able to keep track of user progress, win percentage, current win streak, max streak, and guess distribution in a Firebase database. After the initial proposal, we also decided that we would be implementing difficulty for users in a different way. Instead of having the length of words increase as difficulty increased, we decided to shorten the time that the user had to solve the four-letter word problem given to them.

6. Implemented Android Concepts

- ❖ API
- ❖ Navigation
- ❖ Fragments
- ❖ WorkManager
- ❖ Firebase
- ❖ Room
- ❖ Unit Testing
- ❖ Permission
- ❖ Material Design
- ❖ Notifications

7. Contributions Table

	Thomas Benmabrouk	Lilian Brun	Louis Girard	Dylan Kral	Marcos Lopez	Jacob Tep	Christian Tobin
Project Proposal	x	x	x	x	x	x	x
Checking Documentation	x	x	x	x	x	x	x
Presentation			x	x	x	x	x
Testing	x	x	x	x	x	x	x
UI Design				x			x
Writing Report	x	x	x	x	x	x	x
API Implementation				x			x
Bar Navigation Implementation					x	x	
Levels of Difficulty		x					
Login/Register			x				

Figure 1: a Table of Group Members and Their Contributions to the Project

8. Conclusion

Sections 1 through 7 have hopefully allowed everyone to see the work and the journey that it has taken us to get to this point. Although our system is far from optimized, we have still learned a lot about not only Kotlin, but also concepts related to Android and agile development. We have also learned how to communicate in a team environment and work together to accomplish a common goal. There are some improvements that could be made throughout our application like the use of Google and Facebook APIs to allow users to log in and sign up for *French Wordle*. This would allow us to then improve our leaderboard feature which we did not have time to fully implement due to time constraints.

9. References

Culbertson, Joy. "10 Popular APIs for Words." 12 March 2021. https://www.programmableweb.com/news/10-popular-apis-words/brief/2021/03/12

Haripriya. "Average Wordle Score and Stats: What Are They and How to Find Some." 21 February 2022. https://nerdschalk.com/average-wordle-score-and-stats-what-are-they-and-how-to-find-some/

https://ohshitgit.com/
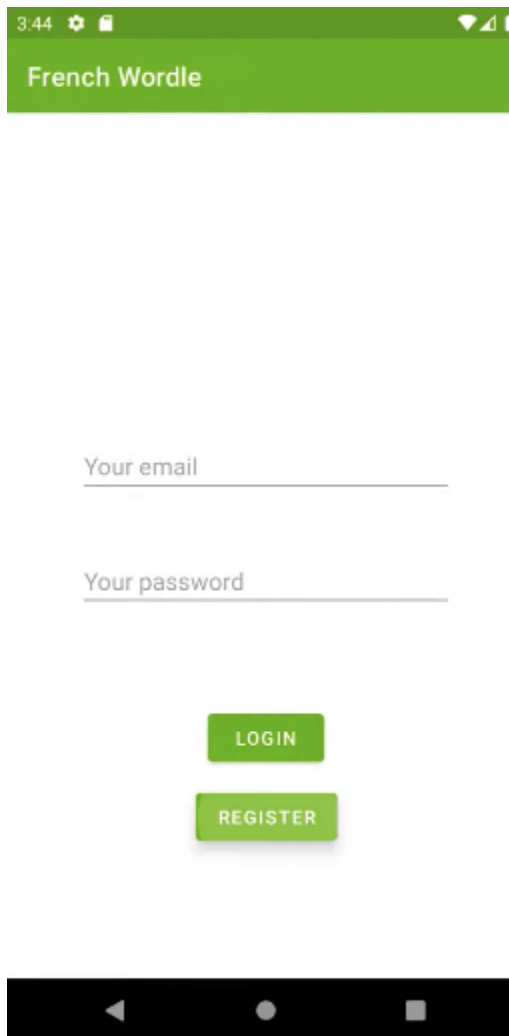
10. Appendix

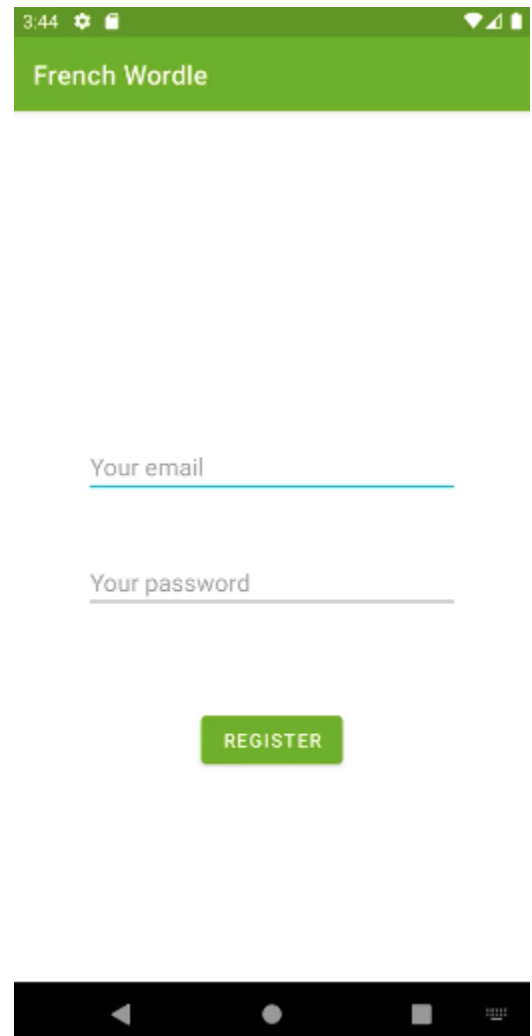**Figure 2: Login Page**

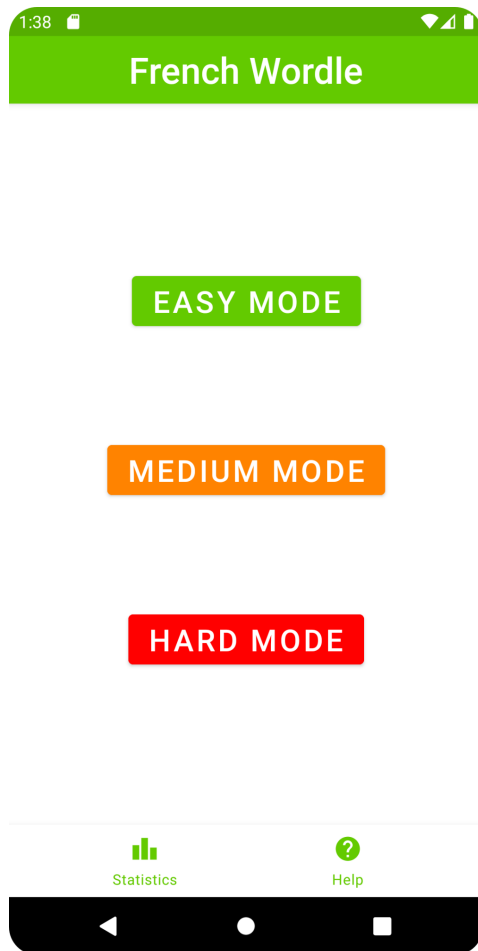**Figure 3: Registration Page**

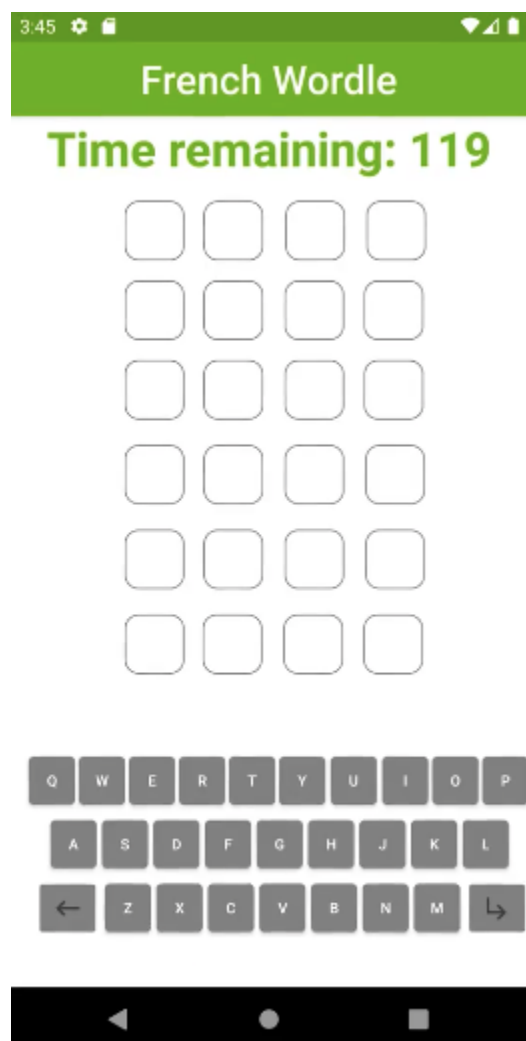Figure 4: Home Page

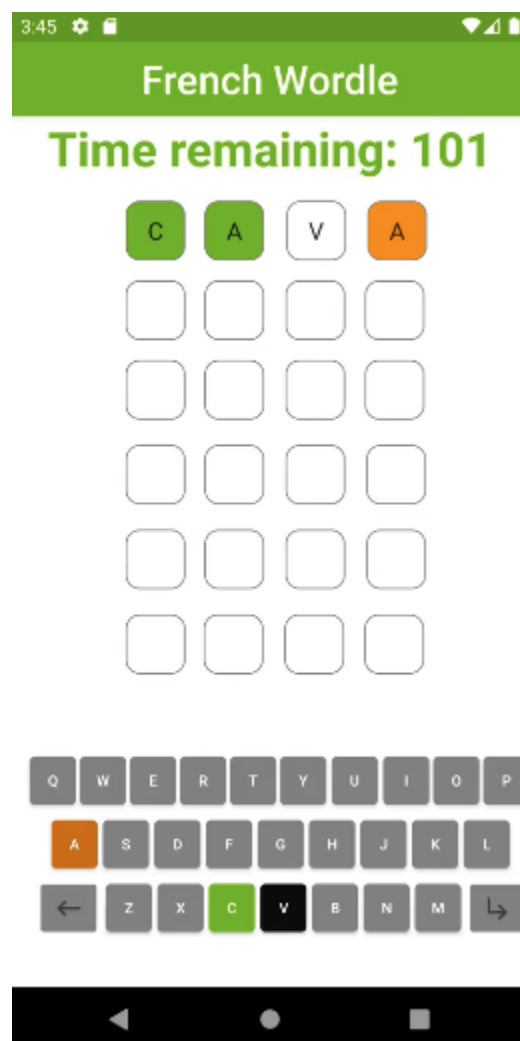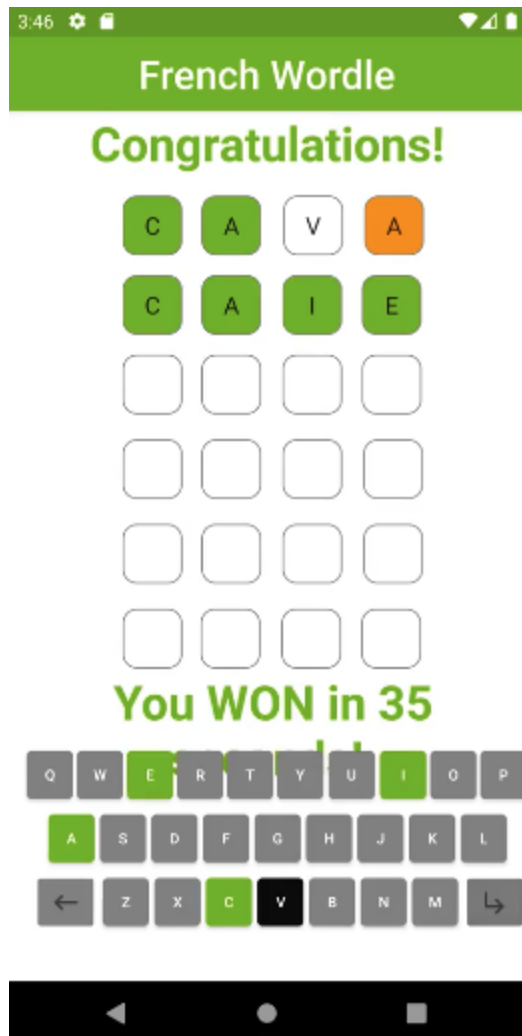Figure 5: Instructions Page

Figure 6: Before Guesses
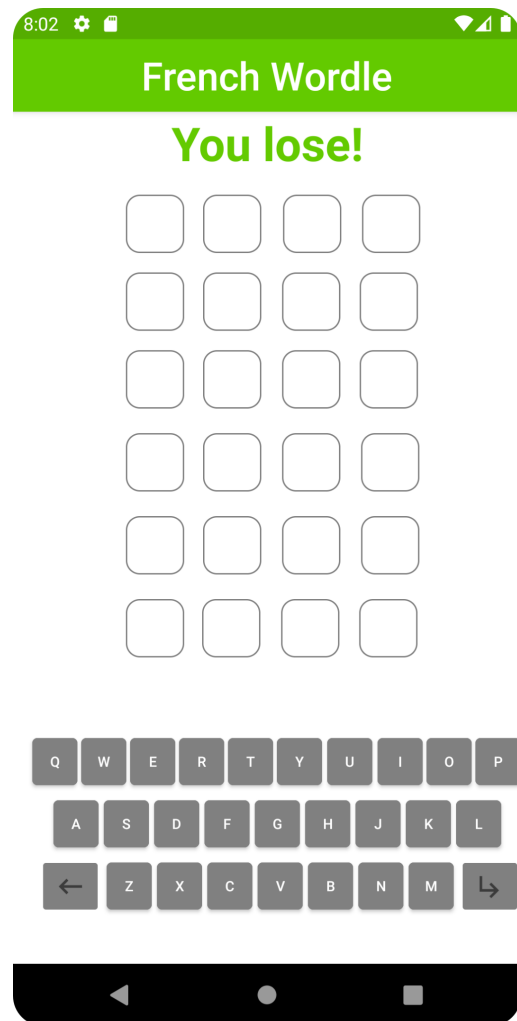

Figure 7: After Guesses

Figure 8: Success Screen

Figure 9: Failure Screen