Project Description

Name of Project: “Let’s Learn Hiragana!”

Description: “Let’s Learn Hiragana!” is a learning tool that, by using flashcards, aims to teach users one of the Japanese writing systems, Hiragana, along with basic vocabulary based on those characters.

Competitive Analysis

Duolingo is a popular language learning platform known for implementing various strategies to improve users’ lingual abilities. Similar to Duolingo, during practice mode, my users will be given the ability to choose whether they would want to input(type) their answer to a question or select from a range of answer choices when prompted during practice mode.

Another well-known feature of Duolingo is its speech exercises, where users have to speak into their microphone and match the same pronunciation as a given audio. However, as my project will not be using speech recognition software or audio at the moment, the user will be presented instead with the phonetic equivalent of every character enabling the user to know how to pronounce each component.

Quizlet is a learning tool whose main component is its flashcard system. Like Quizlet and some other flashcard based learning tools, the flashcards in my project will be able to “flip” based on key and mouse pressed and show the front and back of it. Additionally, I would like to give users the ability to determine what characters and words to study by “starring” or “favoriting” in the learning mode.

Structural Plan

Overall my project will have 10 python files. Each “phase”/screen of my project will have its own python file (start/menu screen has its own python file, learning mode has its own python file. etc.) that will all be imported into the main python file “Learn Hiragana” along with

cmu_112_graphics. Each phase will have its own app functions from cmu_112_graphics that will be imported into the main file.

I also have a python file containing any classes that will be used throughout my project. The main classes currently include the Flashcard Class which will store any information about any flashcard and the SenseiBot class which will internally keep track and store of any information given by the user (their input, whether answer was correct or incorrect), during practice mode

2 text files will also be used and imported into my project. One text file will contain the individual hiragana characters and their associated pronunciations and the other will contain simple vocabulary words using those hiragana characters, their pronunciations, and English translation. The python file, Populate_Values will be used to import that information from the text file into the main project file.

Algorithmic Plan

Algorithmically Complexities:

1. Determining user's knowledge of a character/vocabulary word
    a. During the practice phase of my project, each question will be associated with a time limit and using the class Senseibot I will monitor and store how long it takes the user to answer the question. With these numbers (given time limit and time taken), I will find the difference and if it's within a certain threshold I will determine if a certain character or vocabulary word has been learned.

2. Choose flashcards for user to learn based on how well a user knows a character/vocab
    a. Using the times from determining a user's knowledge, I will determine a formula, 2*timetaken for correct answers, and,timetaken//2 for incorrect answers, gives a time that will be subtracted from until it reaches 0, meaning that flashcard will be reintroduced in learning mode.
3. Flip a card

a. Have the rectangle(the flashcard) quickly but smoothly become smaller until it reaches the center of the location of the flashcard and once it reaches that point quickly but smoothly grow bigger until it reaches its starting points
b. Once a flip is initiated, the timerFired function will be utilized to rapidly and automatically make the coordinates of a rectangle smaller (based on my conditions in order for the decrease in rectangle's coordinates to be proportional) until it reaches the center. This action will be reused but in the opposite way to make the rectangle bigger starting from the center until it reaches its starting points.

Timeline

November 13: Hardcoded and imported learning materials (the alphabet and vocabulary)

November 16: Ability to move between "phases"

November 17: Create a Flashcard with different front and back text (appearance of front and back text be determined by up and down arrow keys)

November 19: Give users the ability to move back and forth between different flashcards

November 20: During Practice, users are able select/input a character/word and determine if a user's answer choice/input is correct or incorrect.

November 21: Map time to correct and incorrect characters/words then have those correct and incorrect flashcards appear for the user based on that.

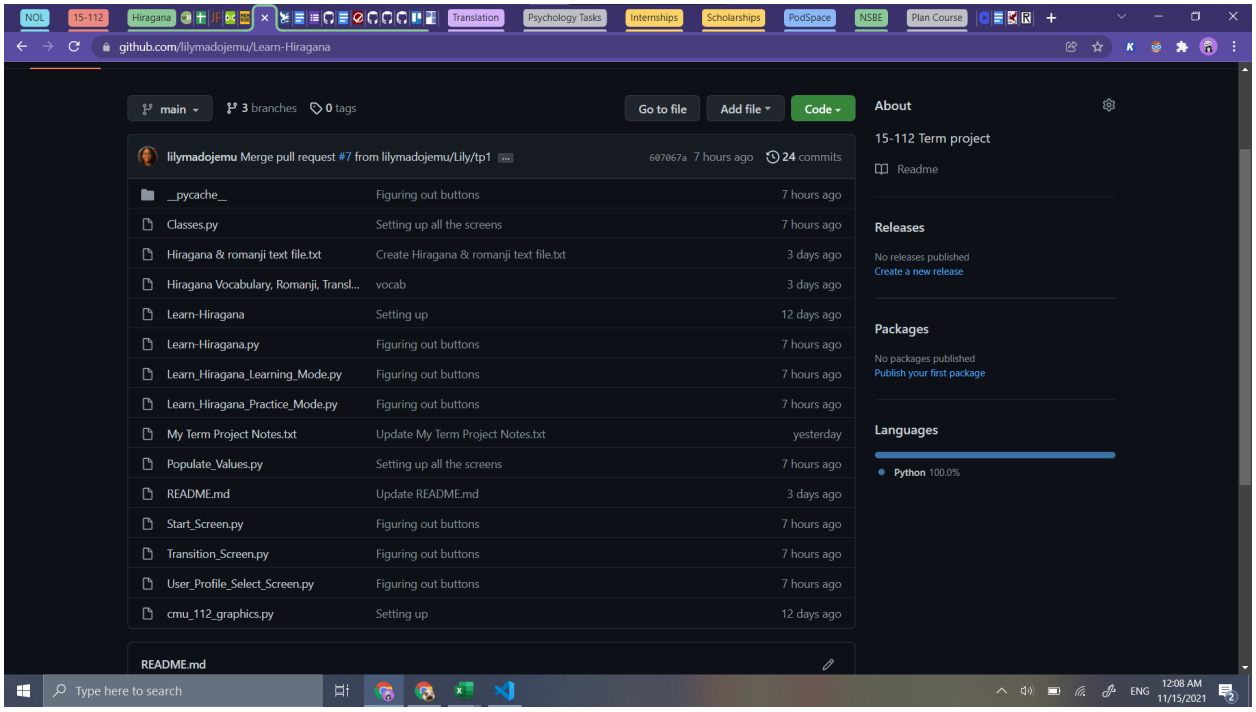
November 22: Flip card animation and give user ability to exit/stop practicing

November 25: Give user the ability to exit/end session without losing progress (any words/characters that have been learned or practiced will be remembered)

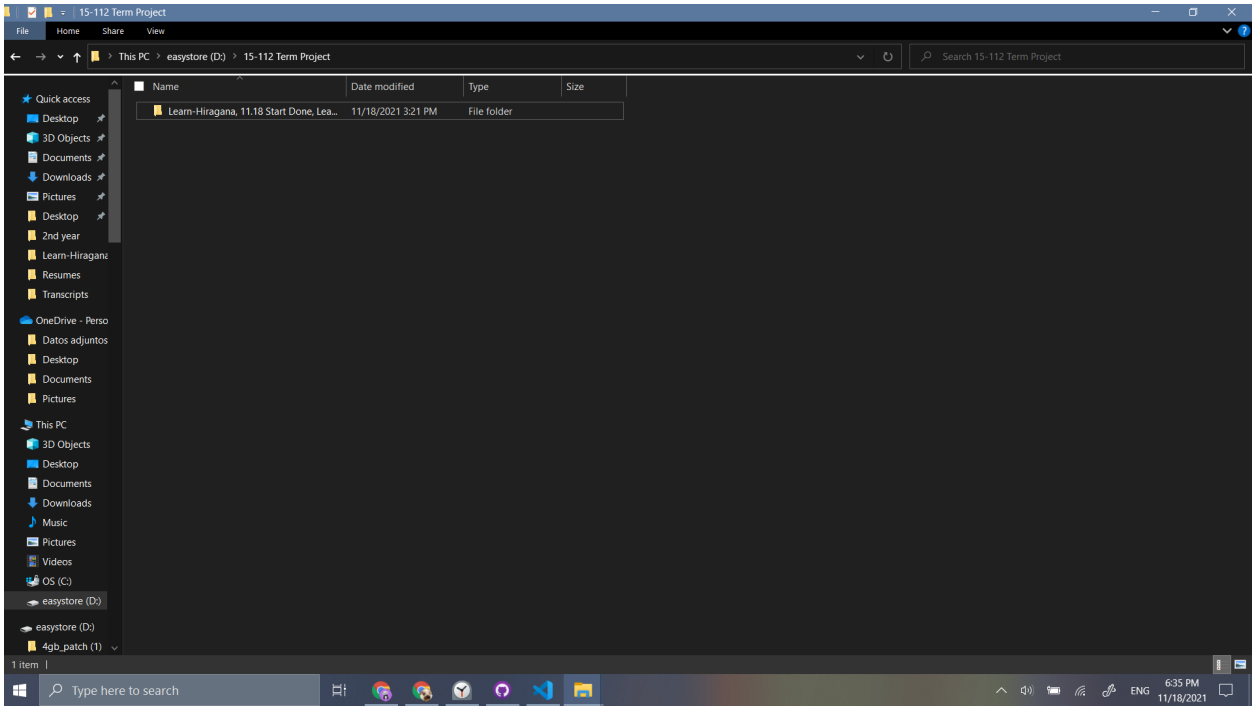
November 29: (If able) User able to “star”/”favorite” flashcards to review separately

November 30: (if able) add backgrounds, emoticons, etc to UI component

Version Control



I will back up my code by using git to upload and keep track of any changes I make to my code onto Github every few hours.



Additionally, every few days I will back up my term project files by making a complete copy of my project and storing it on an external harddrive, which will also note the date, time, and any major features that I have implemented/ in the process of implementing.

Module List

I am not planning to use any external modules/hardware/technologies.

TP 2 Updates

- No updates in design have been made

TP 3 Updates

- Users will have to go through all the cards first in learning mode before given the ability to go back
- During practice mode, the appearance of cards will not be based on time rather on Leitner System which follows the user's knowledge by repeating words based on whether they are correct or incorrect
- Instead of card flip, a review mode was implemented where, during learning mode, users are given the ability to favorite flashcards to separate;y appear in review mode

- During practice mode, if a user continues getting questions correct, the number of cards the user will see during learning mode will gradually increase (by increments of 5)