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# The Gamified Language Data Explorer

*Presented by Team Phonetic Evolution*



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# The Team

Kenzie Norris  
*Team Leader*

Preston Lee  
*Database Coordinator*

Krystian Bednarz  
*Documentation Manager*

Sam Asher  
*Release Manager*



# Our Clients

## Dr. Okim Kang

- Professor Department of English NAU (TESL/Applied Linguistics)
- Director of the Applied Linguistics Speech Lab, NAU
- Overall research goal: investigate the nature of accented speech of non-native speakers of English

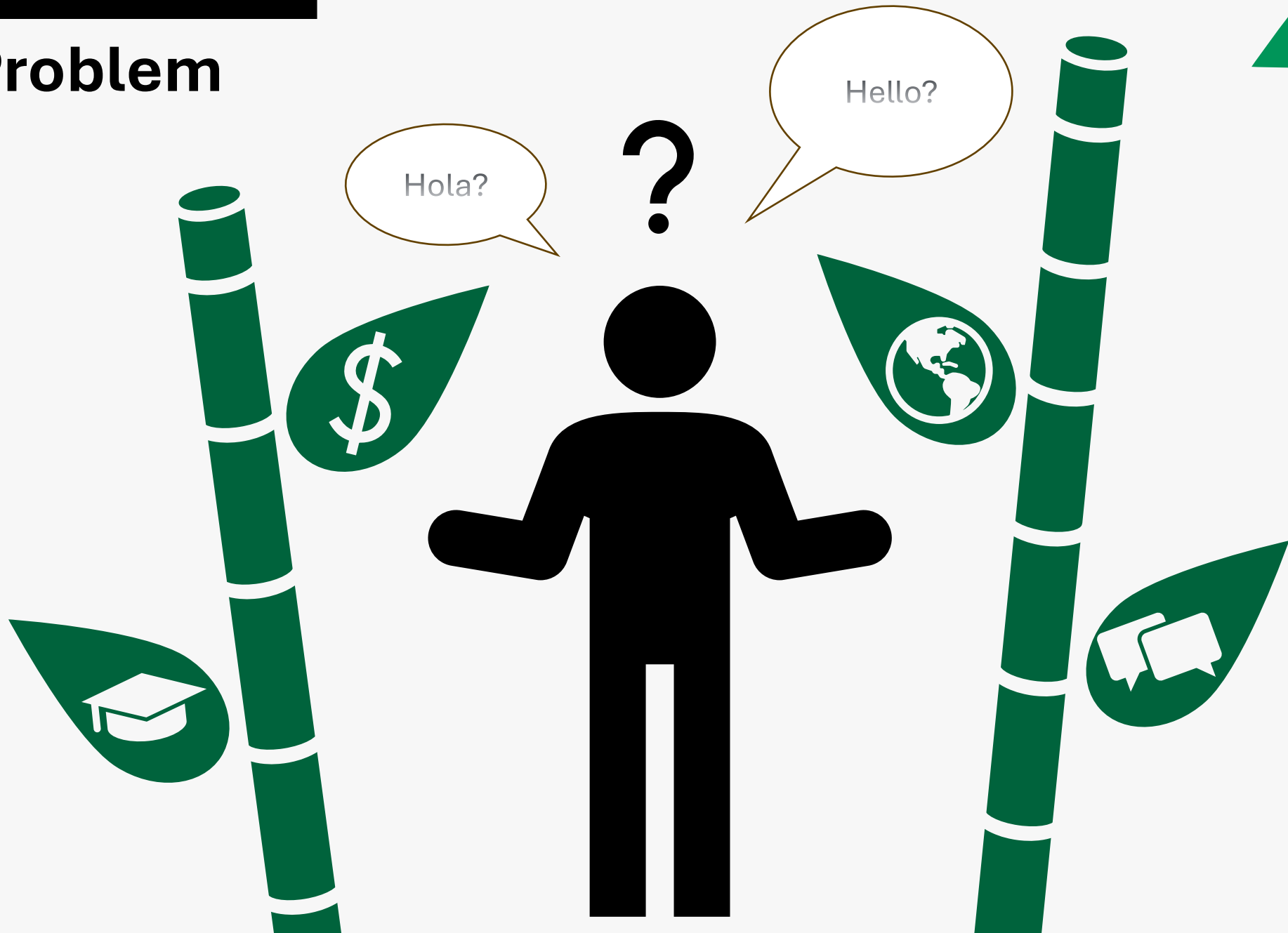
## Kevin Hirschi

- PhD Candidate in Applied Linguistics at NAU
- Second language acquisition with a focus on L2 pronunciation
- Technology for analytic and learning purposes
- Corpus linguistics



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# The Problem



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# The Problem

Traditional Learning corpora are commonly text-only

- No audio for the user to connect with

No direct search features for specific words

- Any search features that are provided are often complex and not user-friendly

Not freely accessible

- Paywalls or Restricted access



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# Our Goals



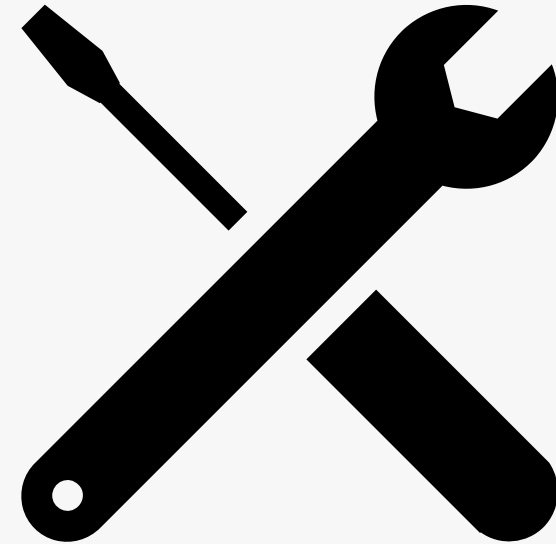
Extend the availability of data-driven learning software



Create a useful, free learning tool for learners, teachers, and researchers

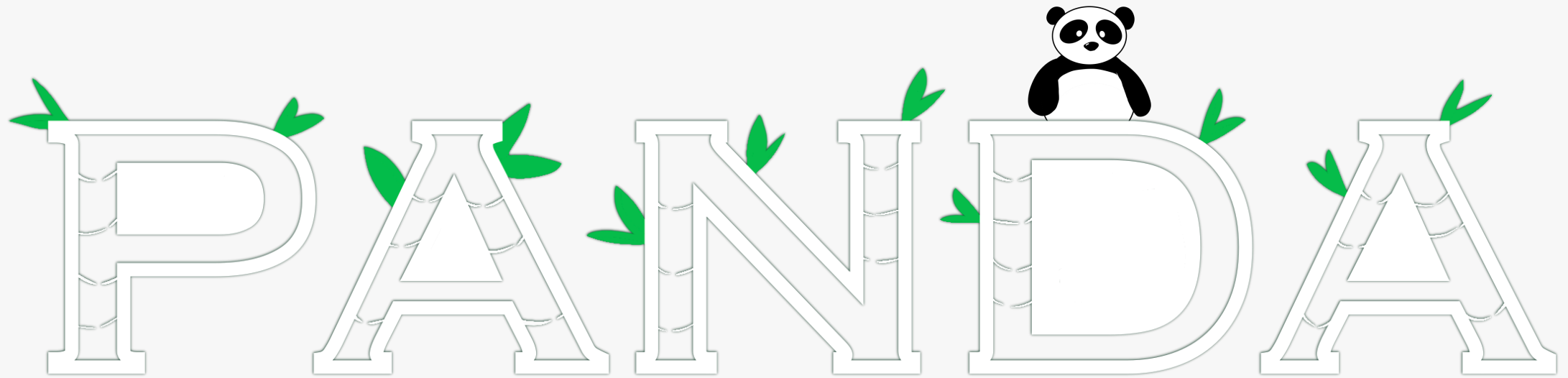


Make learning a new language fun and easy to jump into



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# The Solution



Pronunciation through **AN**alysis of **D**Ata

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# The Solution



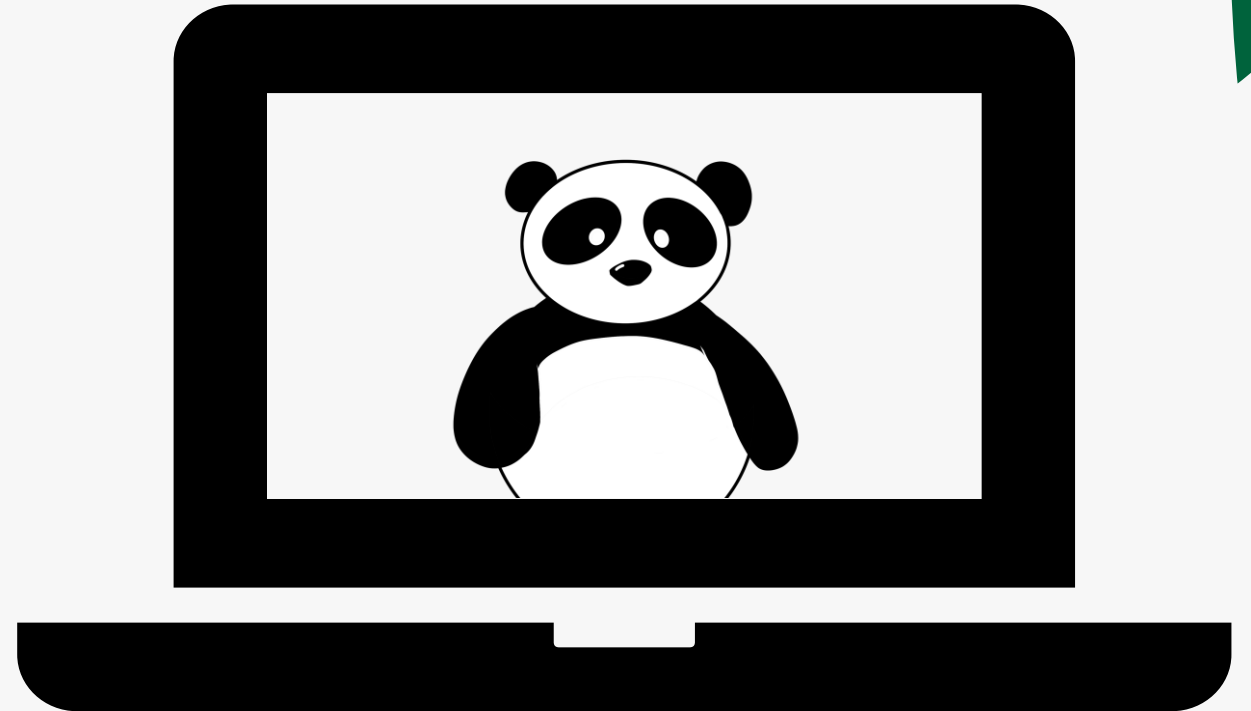
Use the dataset provided to allow users to have a user-friendly search



Allow users to practice with the dataset in custom-made games



Keep a Leaderboard, Day Streak, and Challenges to keep the user engaged





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# The Requirements

## Functional

- Search tool for the NAU audio corpus
- An administrator page for managing users and viewing progress
- Gamified Elements
- Progress tracking



## Performance

- Website must stay responsive while searching through database
- Website must stay fast with multiple users access the site

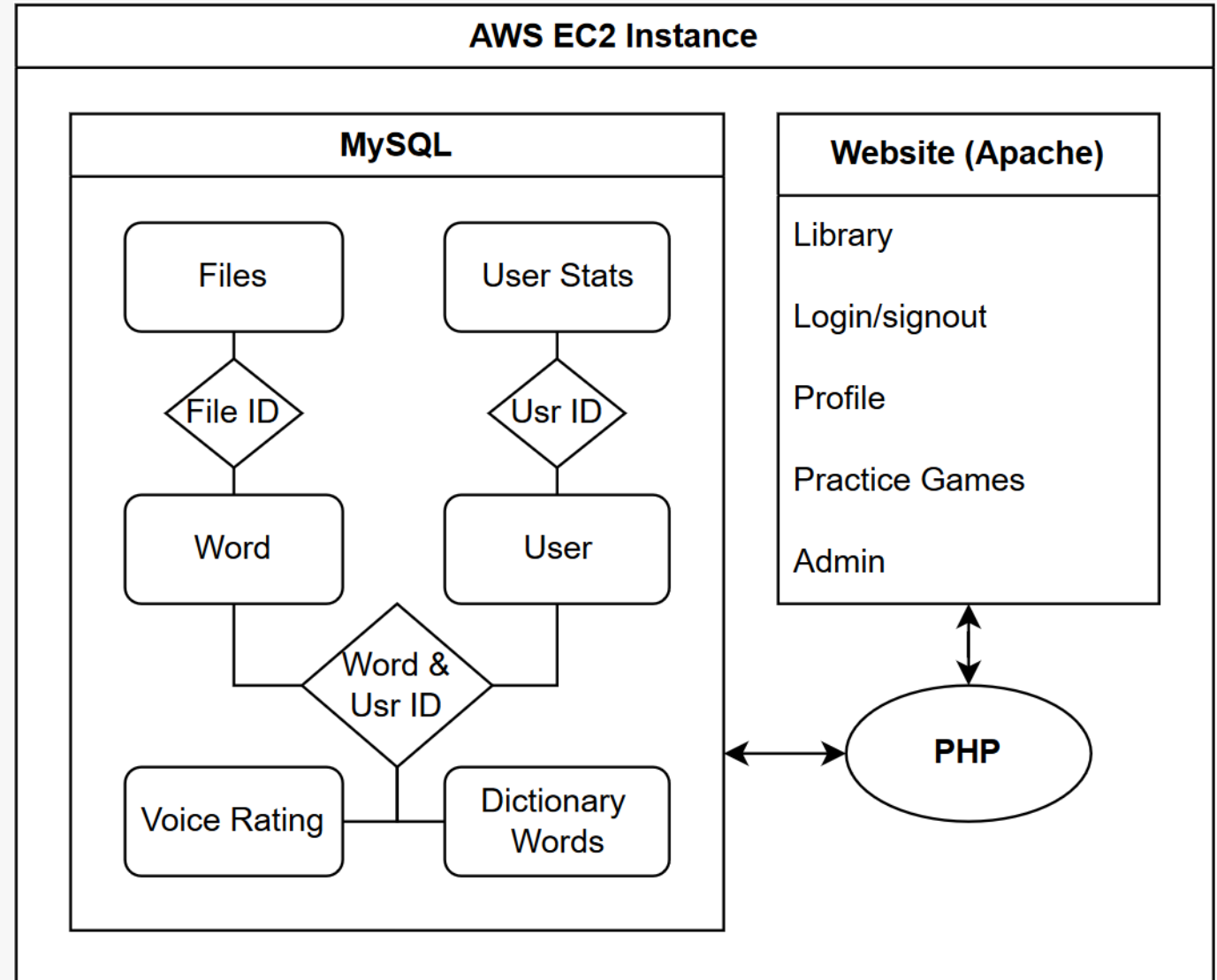


## Environmental

- Due to restrictions given by the client, when a user is logging in we cannot use Gmail authentication

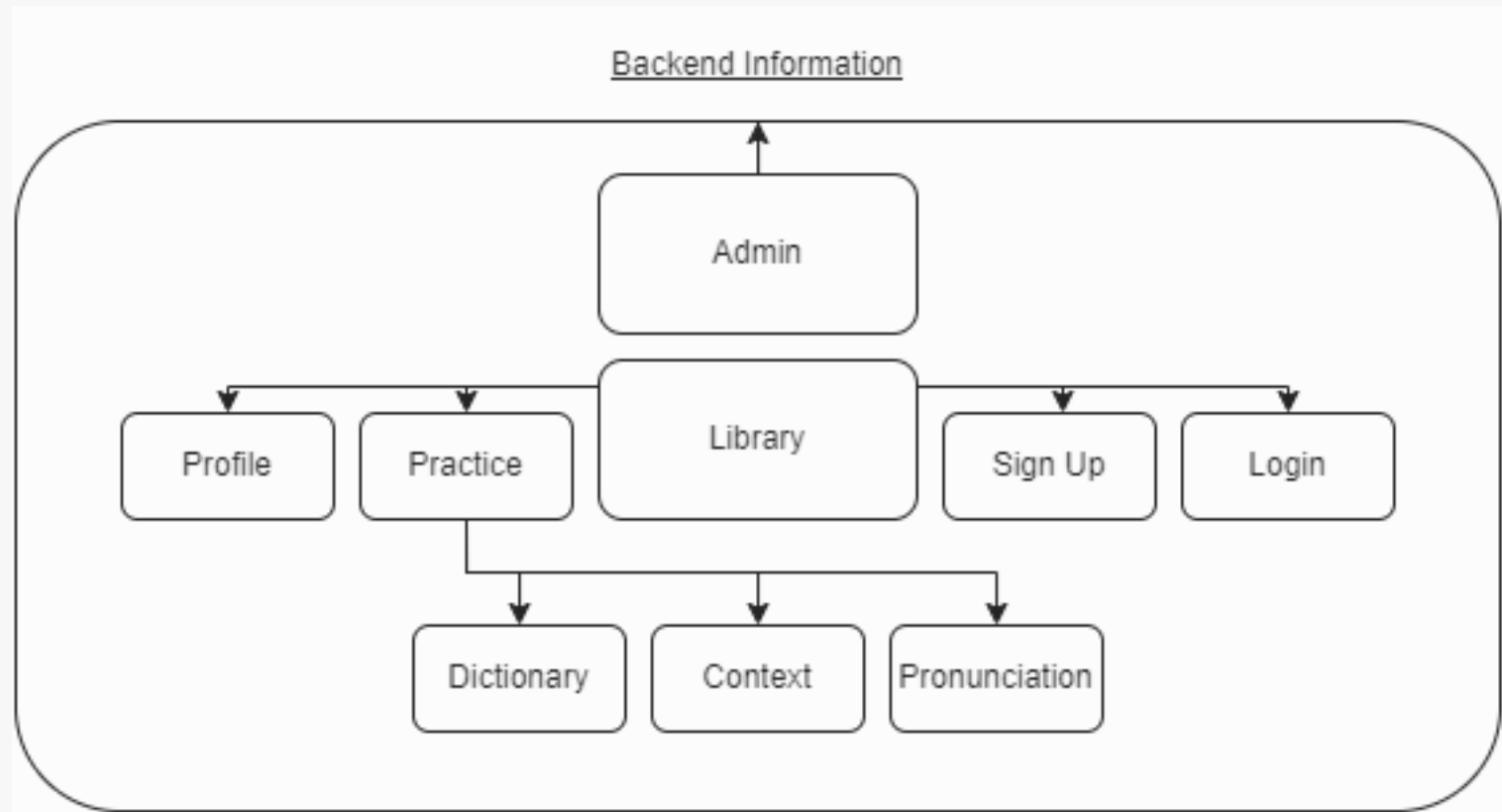


# The Website Architecture

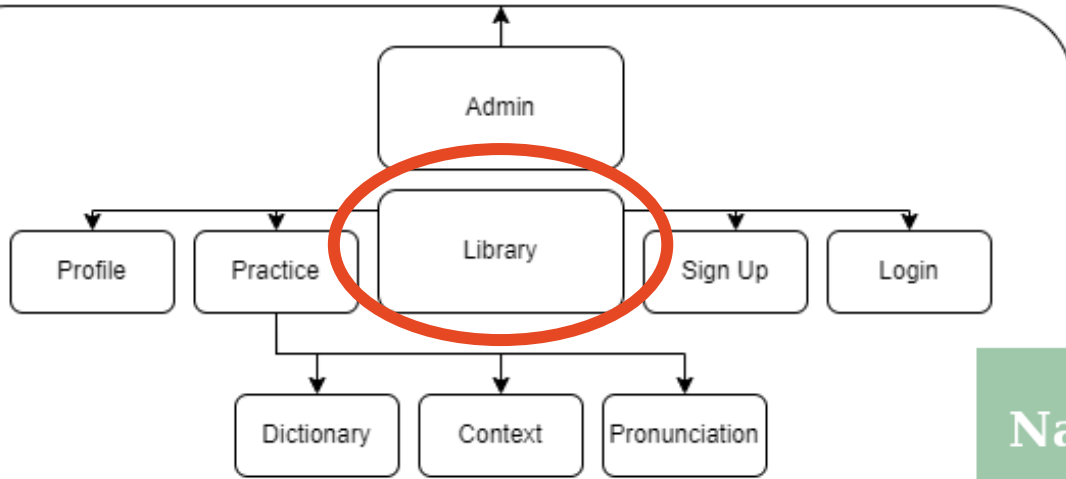


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# The Website Architecture



Backend Information



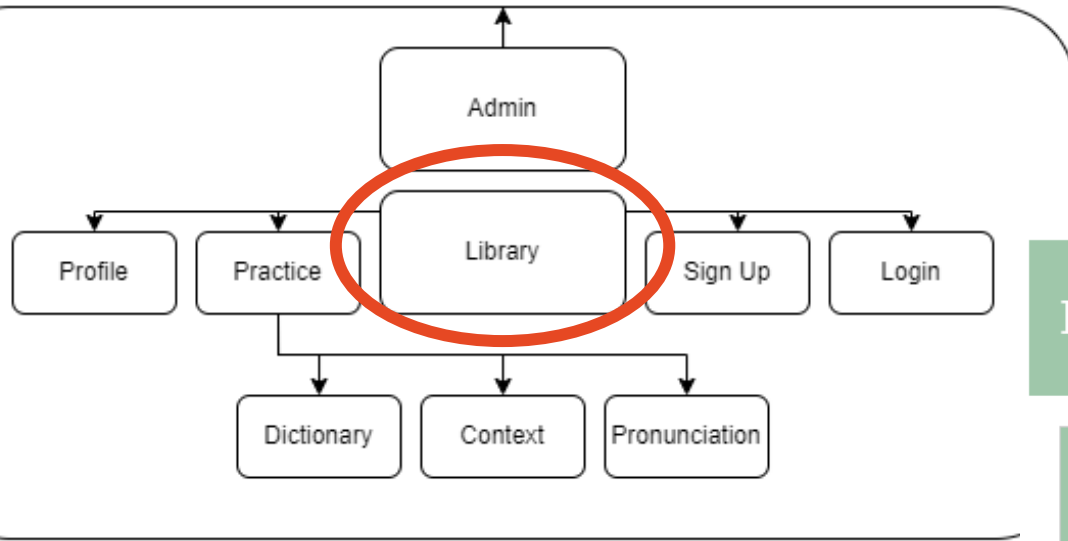
Navigation ▾

LIBRARY

Login | Sign Up

Context Quantity: 5

## Backend Information



Navigation ▾

LIBRARY

Login | Sign Up

Search

Context  
Quantity:

5



### **have**

Okay? And it doesn't really have an uh, you know, a



### **have**

is it does it doesn't have a negative connotation, it is

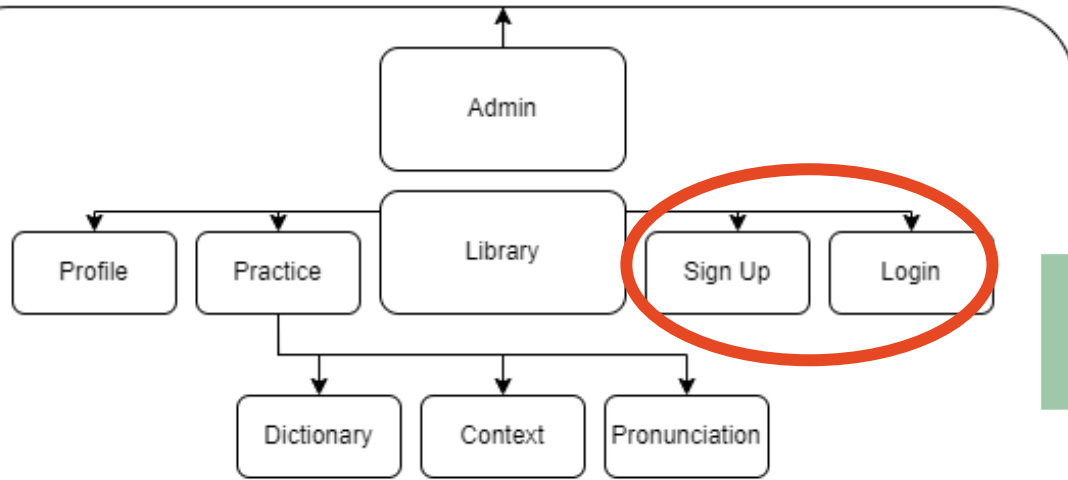


### **have**

use it. Now we just have to make sure that we



## Backend Information



Navigation ▾

LIBRARY

Login | Sign Up

Enter search term

Search

Context  
Quantity:

5

### **have**

Okay? And it doesn't really have an uh, you know, a



### **have**

is it does it doesn't have a negative connotation, it is

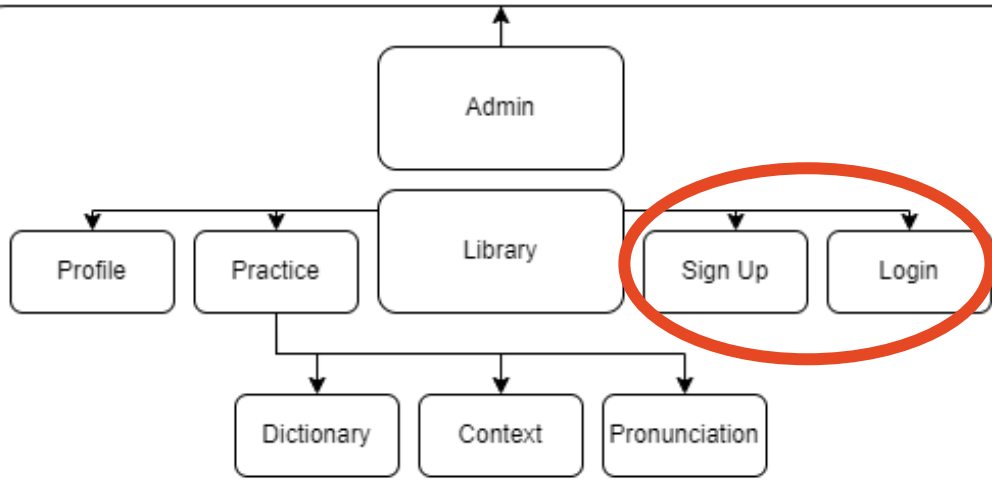


### **have**

use it. Now we just have to make sure that we



Backend Information



Navigation ▾

LOGIN

Login | Sign Up

Username

Password

Login

Navigation ▾

SIGNUP

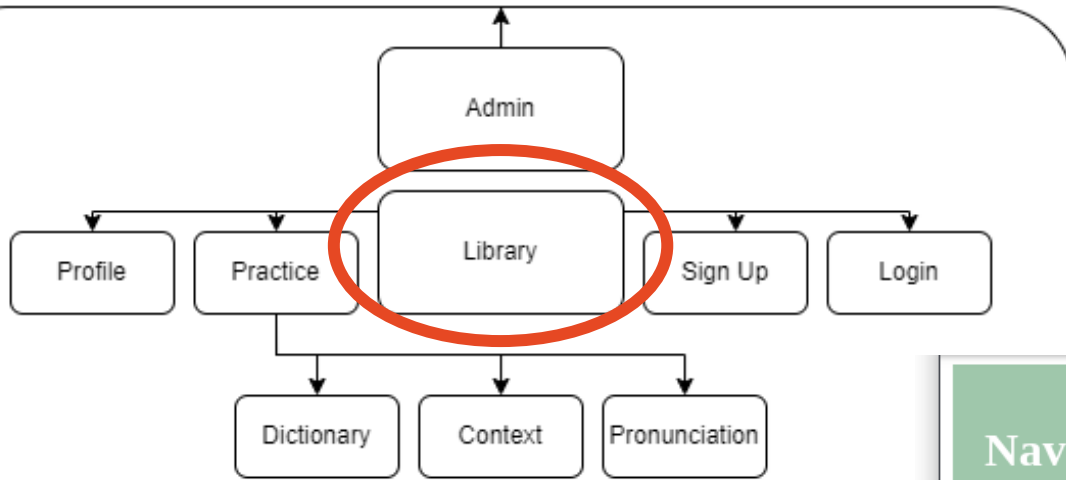
Login | Sign Up

Username

Password

Sign Up

Backend Information



Navigation ▾

LIBRARY



Profile

Logout

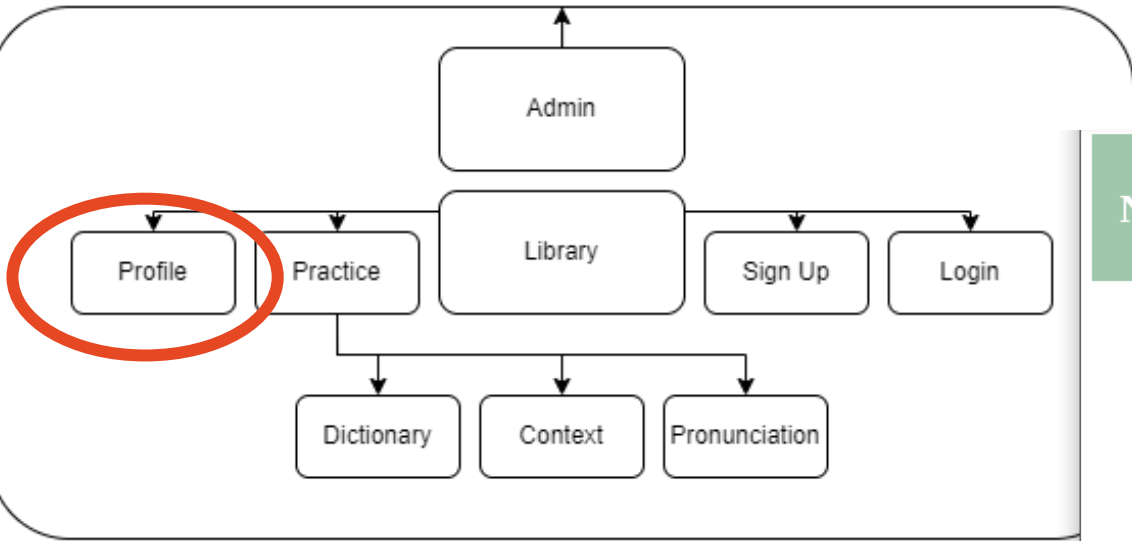
Enter search term


Search

Context  
Quantity:



Backend Information




Navigation ▾ PROFILE  panda

# Hello panda!

### Top Players

- 1) : panda - Score 14
- 2) : cat - Score 12
- 3) : Test4 - Score 10
- 4) : test - Score 9
- 5) : frog - Score 7



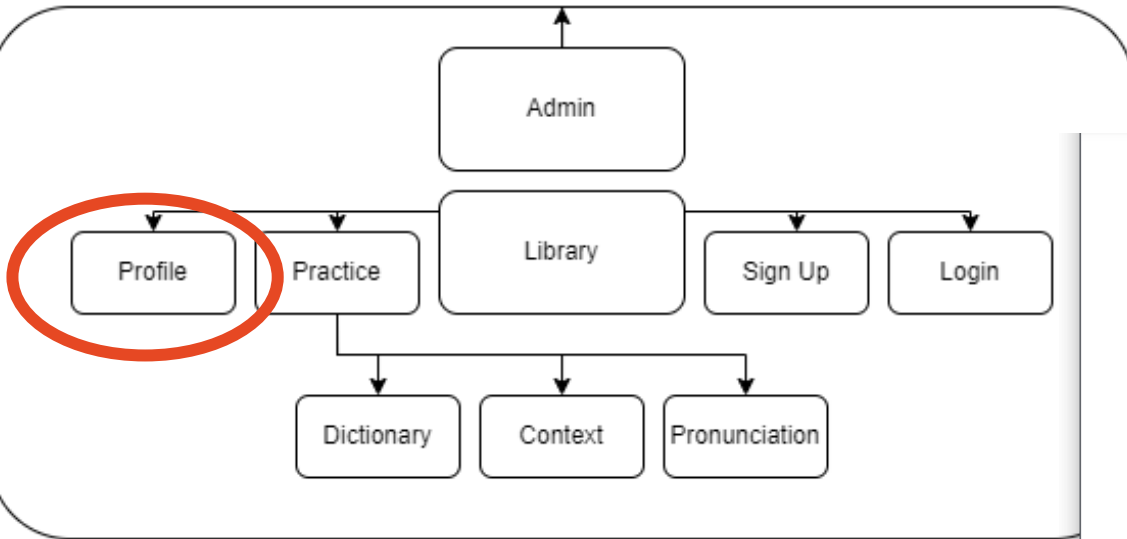
### Day Streak

0

### Daily Challenge!!

Get a correct answer in the Context Game! (0/1)

## Backend Information



**Day Streak**  
0

**Daily Challenge!!**

Get a correct answer in the Context Game! (0/1)

# Total Words Practiced: 14

### Personal Definitions

you : Someone referring to myself

when : Referring to a time to do something.

and : doing something as well as another.

### Personal Ratings

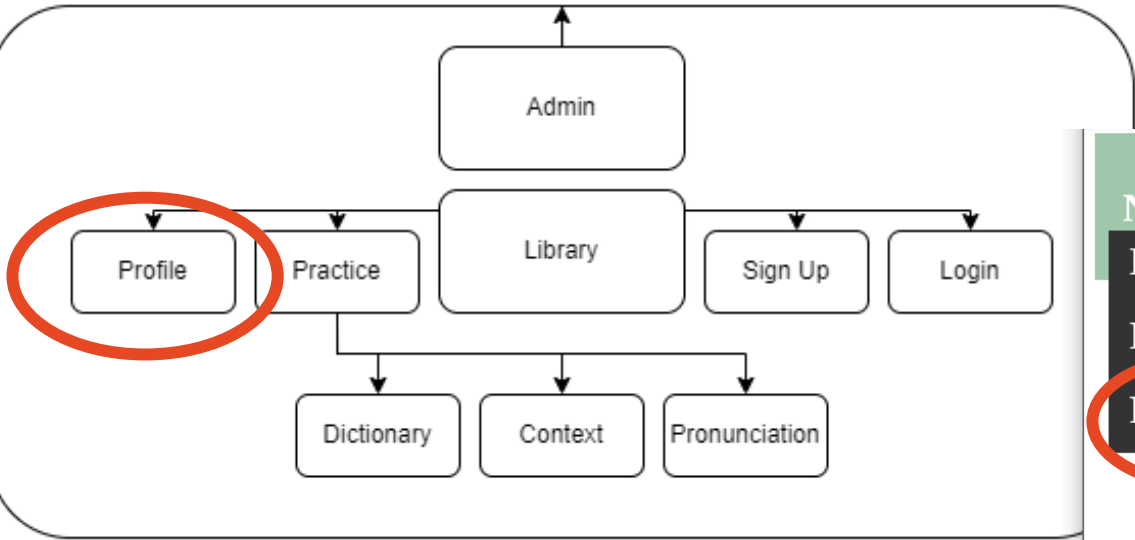
have : 2

late : 5

in : 1

compete : 5

Backend Information



**Navigation** ▾

**Library**

**Notebook**

**Practice**

**PROFILE**

panda

Hello panda!

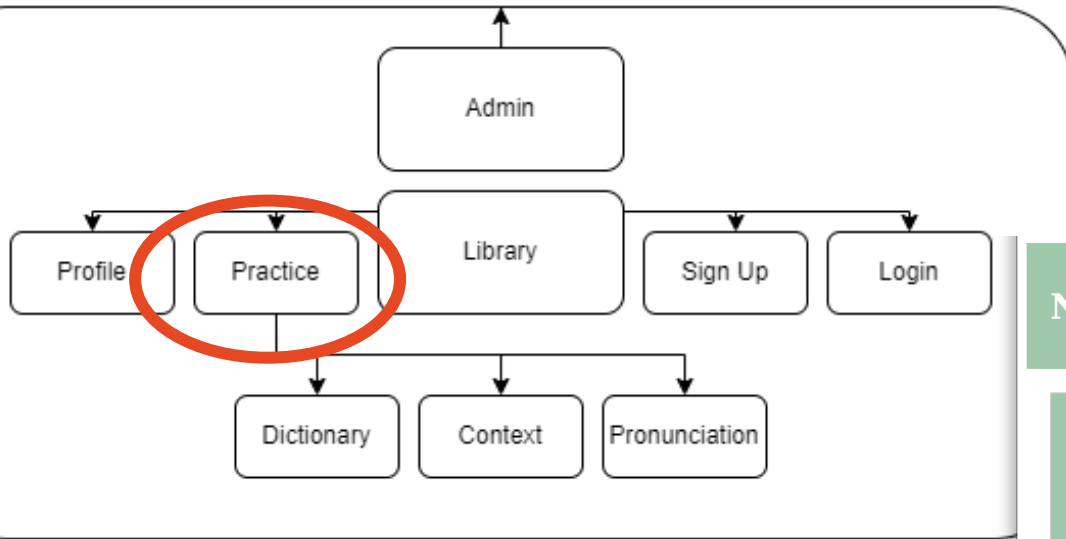
**Top Players**

- 1) : panda - Score 14
- 2) : cat - Score 12
- 3) : Test4 - Score 10
- 4) : test - Score 9
- 5) : frog - Score 7

**Day Streak**  
0

**Daily Challenge!!**

Backend Information



Navigation ▾

PRACTICE



# Practice Selection

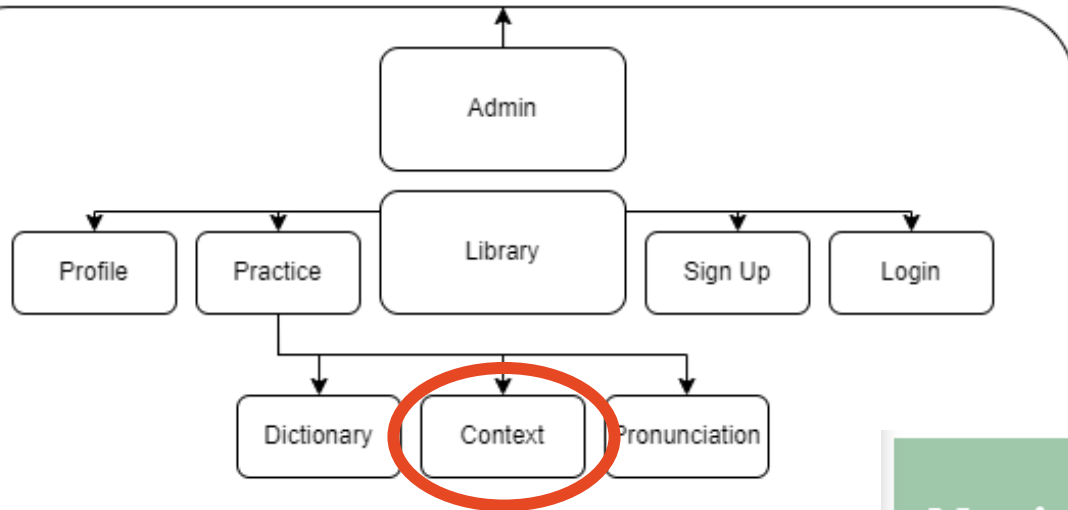
Context Game

Dictionary Game

Pronunciation Game



## Backend Information



Navigation ▾

CONTEXT GAME



panda

## Welcome to the Context Game!

What game would you like to play?

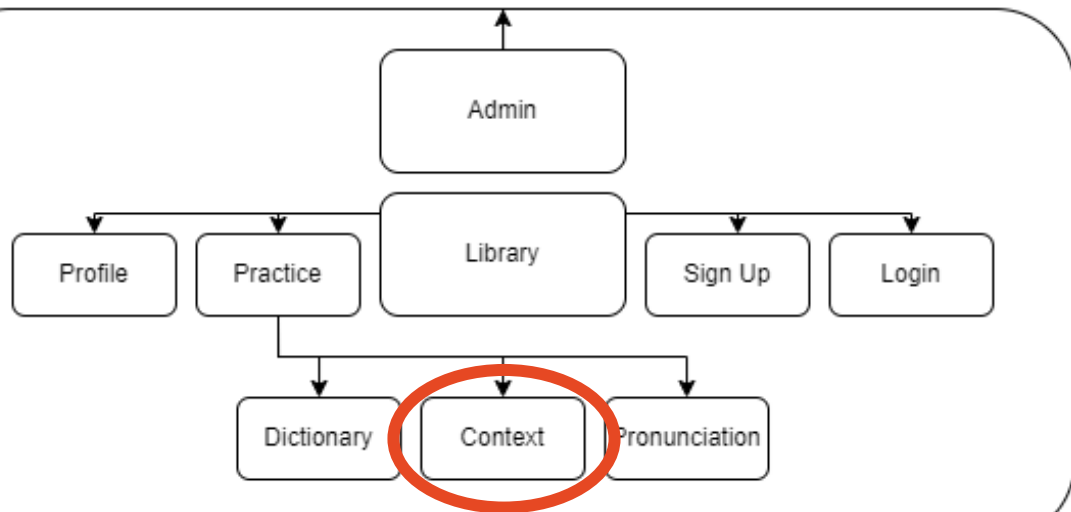
Given a sentence, what word would best fit into the blank?

Words

Given a word, which sentence would that word best fit into?

Sentences

## Backend Information



Navigation ▾

CONTEXT GAME



panda

Question: ... inside it's a little \_\_\_ red. So kind of ...

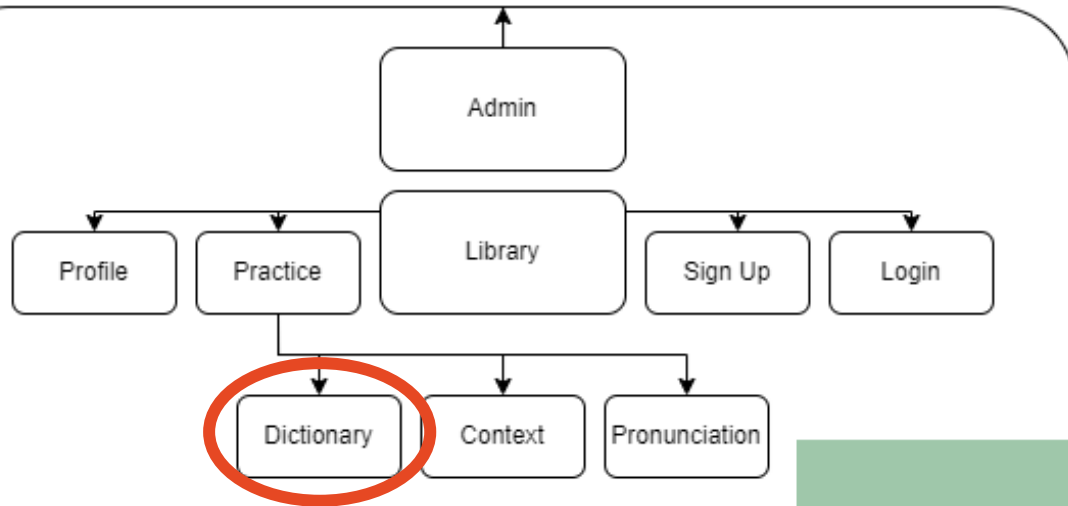
A: bit

B: for

C: Discombobulated.

D: you

## Backend Information



Navigation ▾

DICTIONARY PAGE



panda

Word to define: emerging

Context: ... steps and the data emerging opportunities. So that's the ...

Word: emerging | Definition:

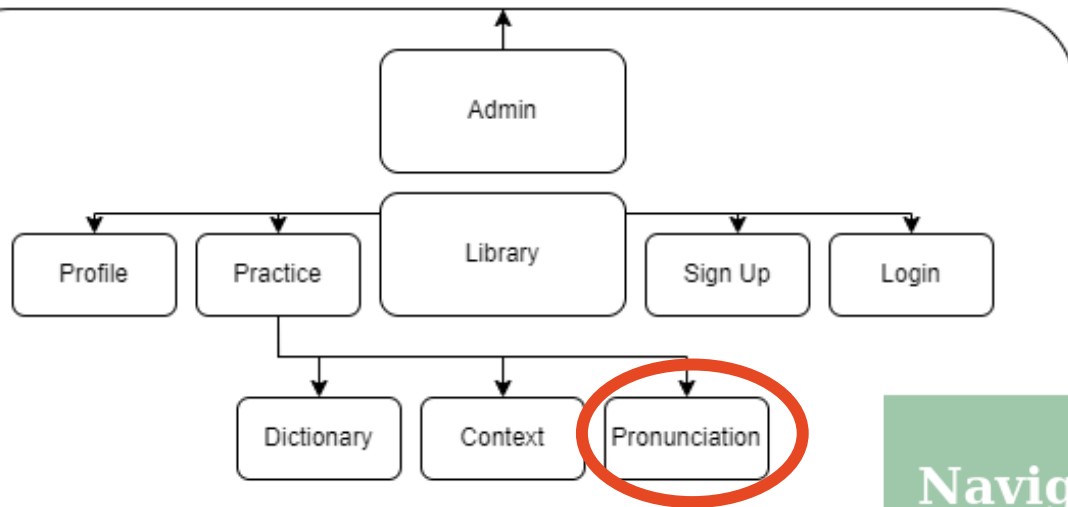
Save

[you: Someone referring to myself](#)

[when: Referring to a time to do something.](#)

[and: doing something as well as another.](#)

## Backend Information



Navigation ▾

PRONUNCIATION



panda

### example.

uh the word discutir, for example. It actually in Spanish, for



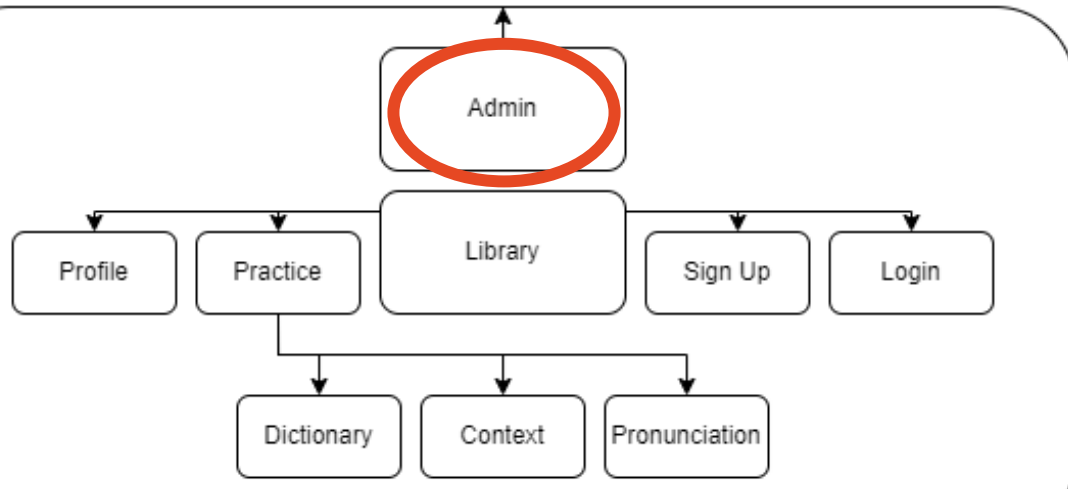
Click the slider to increase your Stats score:



Rate



## Backend Information



Navigation ▾

ADMIN



test

### Search/Modify User:

- Change Password
- Change User's Group

test ▾ Admin ▾ Updated Password

import and add textgrid file and flac file into the backend.

No file selected.  No file selected.

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# Challenges

Choosing a  
Database

Lack of Google  
Authentication

Integration of  
the Pages

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# Challenges

## Choosing a Database

- MySQL - compatibility, performance, ease of use

## Lack of Google Authentication

- Custom Hashing and Salting

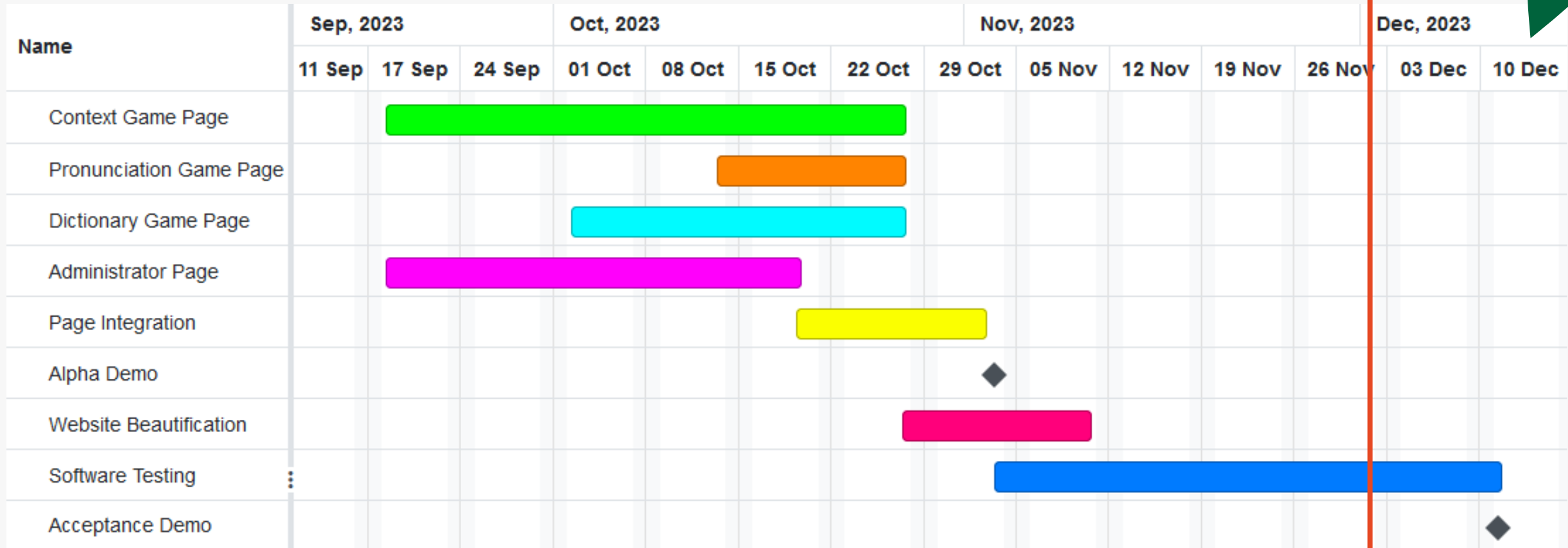
## Integration of the Pages

- Team Cooperation and Communication

# Schedule

Name	Feb, 2023				Mar, 2023				Apr, 2023				May, 2023	
	05 Feb	12 Feb	19 Feb	26 Feb	05 Mar	12 Mar	19 Mar	26 Mar	02 Apr	09 Apr	16 Apr	23 Apr	30 Apr	07 May
Team Standards		■												
Team Inventory		■												
Mini Intro			■											
Technological Feasibility					■	■	■	■	■	■				
Requirements Specification											■	■	■	■
Design Review 1											■	■	■	■

# Schedule



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# Milestones

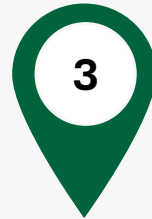
**The Library  
Page**



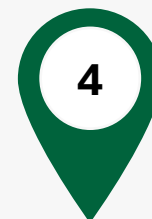
**The Profile  
Page**



**Three Practice  
Minigames**



**Groups and  
Leaderboard**



**Customization and  
Daily Challenges**



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# How to Improve for the Future?



PANDA



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# Conclusion

- The world needs a new language learning program
- A new gamified data explorer made for the user

