



USER MANUAL

A large, faint watermark in the center of the page, consisting of a green plant with leaves and a blue headset with a microphone, identical to the logo in the top right corner.

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Version 1.1

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1. Introduction

Welcome to the User Manual for PANDA. The following document will detail installing the website on a new server, day-to-day interaction for users and admins, and a strictly programming-only section detailing how to expand or edit the system. The goal of this manual is to ensure the future of this program has all of the documentation needed to continue.

2. Website Set-Up

As everything must start from nothing, this section goes over all the steps to get your Apache website setup, your MySQL set up, as well as populating the MySQL server with the designated files you want.

First things first, you need to get a web server of some kind. Specifically one that has a public IP address. This can be gained in a multitude of ways, hostwinds, AWS, etc. Once you have access to a site, you will have a few things:

- A public IP address, in the instructions whenever you see 'host', that is where that IP is going to go. If the server you are looking to run this website on does not have an IP, do not use it.
- You will also have a user of some kind, depending on your platform this will be different. Look up where to find this information on your specific platform. When you do find this user, it will go where you see 'user' in user@host.
- The web server must run on some form of Ubuntu Linux machine, as the rest of the items will be exclusively trying to run commands on this instance

2.1 The Environment Requirements

While this probably can be made in a different environment, we went with a Ubuntu Linux machine with Apache and MySQL installed on it. To do this, simply make an EC2 instance for Ubuntu on AWS or some other server run on Ubuntu.

Perform these steps when you get your Ubuntu server:

- “sudo scp -r -i your_pem_file.pem /directions/to/website/folder user@host:~” On your machine, not the external one, transfer the website folder over, not the data transfer.py file or data sample, to the external machine.
- “ssh user@host -i your_pem_file.pem” to get to your machine.
- “cd website” to get into the website folder for later.
- “sudo apt update” to update your machine.
- “sudo apt install apache2” to install apache.
- “sudo apt install php libapache2-mod-php php-mysql” for PHP.
 - Ours was PHP 8.1.2-1ubuntu2.14 (cli) (built: Aug 18 2023 11:41:11) (NTS)
- “sudo systemctl restart apache2” to enable php.
- “sudo apt install mysql-server” to install MySQL.
 - Ours was mysql Ver 8.0.35-0ubuntu0.22.04.1 for Linux on x86_64 ((Ubuntu))
- “sudo mysql_secure_installation” to set up mysql.
- “sudo mysql -p” omit the -p if you set up root without password, relying on only the sudo.
- “CREATE DATABASE Evolution_DB;” To create the database we need.
- “use Evolution_DB;” to start using it;
- “source mysql;” pulls from the MySQL schema we made to get Evolution_DB ready for data to be stored how we want;

- “CREATE USER 'your_username'@'localhost' IDENTIFIED BY 'your_password';” This is making the profile that PHP can use for modifying the backend.
- “GRANT ALL PRIVILEGES ON Evolution_DB.* TO 'your_username'@'localhost';” This allows the profile to make changes.
- “FLUSH PRIVILEGES;” To finalize it.
- “Ctrl d” to get out of MySQL
- “sudo mv -r * /var/www/html” As you’re still in the website folder, this moves everything within it, to the directory Apache uses for your website.

2.2 Setting Up the Database

- “sudo apt install python3” to install Python on your device.
- “pip install mysql-connector-python” To allow for the python file to populate the backend.
- Put the python file in the same directory as the folder containing the flac folder, and textgrid folder.
- “vim data_transfer.py” Modify the host, user, and password to what you set them as.
- “python3 data_transfer.py” It should take around 30 min or so as it’s transferring via the internet, but if it were on your local machine for your personal environment, it takes 30 seconds or so.

```
(base) preston@pop-os:~/Desktop/school/476Capstone/dataTransferExample$ ls
data_transfer.py  HIL2_Data_sample  mysql  Homework1.png  Screenshot from
(base) preston@pop-os:~/Desktop/school/476Capstone/dataTransferExample$
```

2.3 Setting Up the Admin

- Using a browser, go to your host's IP, and make a profile using the signup page.
- Ssh and sudo mysql to Get inside the mysql, then use Evolution_DB as shown before.
- "SELECT * FROM User;" to see what your userId is.
- "UPDATE User SET groupRole = 'admin' WHERE userID = 1" change 1 to whatever your userID is.
- "ctrl d" to get out after finishing.

2.4 Adding a New Domain

If you wish to use something other than your system's base IP, you will need to acquire a domain. The one that is the easiest to understand and has the most troubleshooting information is called **namecheap**.

NOTE: If you choose to not purchase a domain or have one already accessible, the pronunciation game will not function on most computers as it requires a secure connection, something you can confirm by purchasing a domain.

Once you've purchased your domain name verify your e-mail with **namecheap**, if you don't your domain name could be unexpectedly suspended.

Next, log in to **namecheap** and click on the "Domain List" tab off to the left. Click the "Manage" button for your domain and then select "Advanced DNS" from the top menu. You should see two or three records there that namecheap auto-generated for you. Delete them. Next, create two A-records appropriate for your site using the IP address for your server. Make sure you create two A-records, one for "www" and one for "@". Be extra careful to enter

all the information into your A records correctly since it can take a while for changes to propagate through the DNS infrastructure.

If you choose to use any other site, feel free to follow the instructions on their site to convert your IP to the new domain.

3. User Interaction

As a User, the day-to-day interaction is entirely up to the user's preference, but this section will detail all of the different things a user can and should be able to do when interacting with the website.

3.1 The Library

The Library acts as the home page and landing page for the site. Here a user can search any word and get results from the current pool of language data. This doesn't have every word present in the English dictionary, currently, only the information provided during the setup. The user can also select the context quantity, which will expand the resulting sentence in length depending on the user's input.

Once the search results are provided, the user can click on the sentence to hear the audio connected to said search result. The audio will only play to the end of the provided result. On top of the audio, the user has two options, to define said word using the Dictionary Game, or try practicing pronouncing the word using the Pronunciation Game. However, they will not be able to save any of their data unless they log in.

3.1.1 Login and Sign Up

At the top of every page, there should be a Login and Sign Up option. If the user does not have an account yet, they should select Sign up. They are asked to simply provide a username and password, both of which are unique to each user, and will tell the user to choose a different username if the one they attempt to create is not viable. Another note is that users' passwords are protected using a complex hashing system, so there is no fear of user data getting out.

Once they have an account or if they already have one, they can log in using said username and password. If the username and password are correct and there is a registered user with those credentials the site will bring forth their userID and the user's data will now be connected with their session. The header will now have their user icon, username, and a new drop-down for the user to access.

3.2 The User Profile

After logging in, the user will now have access to the user profile page either under the dropdown connected to the user icon, or the navigation dropdown and clicking 'Notebook'. The user profile will have many different statistics for the user to view.

3.2.1 Top User Leaderboard

The leaderboard shown is an updated leaderboard of the top players of the site and their scores. It will display their username and their user icon as well as the total of words practiced. This will update every time the user enters or refreshes the user profile page.

3.2.2 Changing User Icon

The large icon on the page takes the user to a profile customization screen. They have access to three free options as well as three options that

require the user to practice a certain amount to have access to the other user icon options. These special icons will stay unlocked and won't require the user to 'buy' using their words practiced once they reach the threshold provided on the page to gain access to those custom icons.

3.2.3 Daily Challenge and Day Streak

The Daily Challenge and Day Streak sit right underneath the leaderboard and the user icon. Both of these will auto-update starting at midnight of the new day whenever a user logs in. The day streak will only update if its the user's second day in a row logging in. If they break this streak, it will return back to zero. The daily challenge will randomly select a goal and the number of words needed to hit that goal. The challenge has no direct consequence for the player, if they start a goal but don't finish it, the goal will stay upon the next day until the user completes it. The challenge is also just present to give the user some direction on how to interact with the site for a day if they are unsure which game to play or practice with.

3.2.4 Personal Definitions and Ratings

At the bottom of the profile page sits the Personal Definitions and Ratings. Both of these are pulled from the user's interactions with the pronunciation game and the dictionary game. They will update every time the user enters the profile page. This will be the personal storage for the user to keep track of their definitions and their self-reflected ratings.

3.3 The Practice Games

To enter a practice game, the user can either select an option after searching for a word in the library, or from the navigation drop-down, head to the practice section. Here you will be provided the three games available for the user to play.

3.3.1 Context Game

The Context game has a secondary selection screen in which they can choose whether they want to go with sentences or words. These two versions of the game are functionally the same, however from experience, filling sentences has always been the harder game.

The game itself is a multiple-choice game in which the user is provided a random word or sentence, and then given four random sentences or words (respectively depending on the game mode). The user can select what they believe is the correct answer and are automatically given their results. If the answer they chose was incorrect, they are given the correct answer. After answering a question, they can ask for another question or return to the start screen.

3.3.2 Pronunciation Game

The Pronunciation game will give the user the word selected off the library page, or a random word if selected off the practice game selection screen. This word will come with its accompanying context, as well as the playable audio similar to the library page. The user can record their own audio of them practicing the word. Once done, they can play back said audio as many times as they want, and re-record if they so choose. Afterward, there is a slider they can use to rate how they believe they did. This rating will be stored on the user profile page.

3.3.3 Dictionary Game

Finally, the Dictionary game will also give the user the word selected off the library page, or a random word if selected off the practice game selection screen. The user will be given a text box where they can fill in the definition they believe works best. This game will encourage the user to look up the word and figure out what definition works best for the word in the given context.

As well as adding new definitions, the user can edit previous definitions they have filled in. All of these will be updated automatically on the user profile page.

4. Admin Interaction

The Admin page is under a specific URL that can only be accessed by the user accounts labeled as admin. Starting out, there will only be one admin that will be created upon the uploading of the site. That specific user's information will be up to your discretion.

This admin can access the admin page to do all of the following actions under this URL (Note: if the user logged in is not in the admin group it will not allow them to connect to the admin page):

<BaseUrl>/admin.php

The following section will go over what you can do with the admin role. The section does not dive into anything regarding the coding backend or the database itself. Overall the website should be able to run on its own without admin input, however, there are still some actions the admin can do to help with upkeep.

4.1 User Information

To select a specific user and view their stats, the admin must search for the user they wish to view. Once selected their statistics with the site will be pulled up and displayed. This includes their total words practiced, site usage metrics, etc. From there the admin can change a few things about the user.

4.1.1 Changing User Group

A user's group defines their access as well as helps the admin later when it comes to downloading CSV files. When it comes to changing the user group, once the user is selected they have access to checking off changing the user group in which the selection of all of the available groups will be accessible. The admin will select which option they wish to give the user and submit the request. This user will now be in said group. If the admin gave the user the admin role they will also be able to access this admin.php page.

4.1.2 Changing User Password

Since the user cannot sign up with an email, it is up to the admin to help users change their passwords for the time being. The admin will select the user from the group, and the user will send the admin their desired new password. The admin will enter the user's new password and submit the request. This new password change will update automatically.

4.1.3 Removing a User

At some point, inactive users or perhaps disruptive users could start clogging up the site. The admin can remove their accounts by simply selecting them and removing their account. This will remove their personal practice and their login information from the database. There will be two buttons the admin must press in order to do this to prevent accidental user deletion.

4.2 Adding or Removing Files

The site itself runs off of its internal database of audio and textgrid files. Adding to this database will require the admin to have the python script as well as files within the HIL2_Data_sample as gone through in 2.2. It is advised that the audio goes under a volume review as if the file is too quiet it is hard for the users to hear on the actual site. These files should be a *.flac* for the audio and a *.textgrid* respectively. It is also required to keep track of these files using naming conventions that align (for example, 103.flac and 103.textgrid). Removing data is done within the admin.php page on the website.

4.2.1 Adding Data

After review, to add the data, simply have the files within their designated folders. These are “speech” and “textgrids” respectfully, within the HIL2_Data_sample folder. Once the files are processed, this data will automatically be able to be used by the rest of the site. This includes the library and the practice games and can even update as the users are using the site.

4.2.2 Removing Data

Removing data is as simple as interacting with the admin.php page, but there are a few things as an admin you should know before removing a set of files.

1. Removing the Data will delete it permanently from the database. So ensure you have backups of the data before deleting it just in case you delete the wrong file.
2. Deleting a file will cause any words that are present in that file to disappear for the user. This means if they have a personal rating or definition with said word, it will disappear from their account.

3. If the site is up and running with no data inside of it, the practice games will not be functional, so if you plan on doing a full wipe of data, ensure the users know the site will not be accessible for the time being and remove access to said files.

It is recommended that there is no removing data, however, there are some points when outdated data needs to be recycled so that newer information can replace it. Please ensure you have gone through the consequences before removing files.

4.3 Downloading Data

As the site is currently in beta, it was important that admins be able to download the user statistics and run comparisons and detailed analyses on user activity using programs specified for that. Near the bottom of the screen will be options for downloading user data.

The CVS outline for the data pulled and in what order will look as follows:

{ user Id, username, total words practiced, streak, last interacted, context practiced, dictionary practiced, pronunciation practiced, total time spent on site }

4.3.1 CVS Download

At the bottom of the screen will be a few options when it comes to the CSV download. Firstly it will ask you to select the group of users you want to select the data from, or just simply press all if you want to grab all of the data. Once that is selected it will give you a display showing which data is being grabbed and then it will prompt whether you wish to download the CVS or you can make another selection (NOTE: It will only show the first 10 results to prevent long load times). Once downloaded the CVS can be opened in Excel or Google Sheets for viewing and analysis.

4.4 Troubleshooting

If at any point the site starts to have some problems there are some things that admins can have users or actions admins can take to help fix some issues with the site. The main two issues are provided below, any other issues don't have simple troubleshooting and should be handed off to a programmer and send them down to the *Programming Rundown* section of this user manual.

4.4.1 Slow Run Time

If the user is experiencing slow load times, there is a few things that could be occurring. The first could simply be the user's internet is the source of the issue and there is nothing on the admin side that can be done to solve this. The other concept could be too many users on the site at a current time, although this shouldn't theoretically happen with the current storage of the website unless close to 400-500 users are interacting with the site synchronously. Lastly, an influx of inactive users and their data could cause longer load times for the current users. Feel free to circle back to the *Removing a User* section.

4.4.2 Day Streak and Daily Goal not Updating

If a user is experiencing issues with the daily goal and daily streak not updating, a few things could be happening. If the daily goal is not updating properly, make sure the user is:

1. Completing the Daily Goal so that it can Update
2. Their Date and Time on their computer is Up to Date

These two items can also affect the ability to update the day streak. If both of these items are checked off and the daily goal and day streak are not updating, please see *Programming Rundown* for further troubleshooting.

5. Programming Rundown

WARNING: The following section is a detailed description of how the program functions using a lot of coding language and buzzwords that will most likely be understandable only to programmers. This section is for future programmers who plan on trying to extend the project or any admins who are curious about how the site runs.

5.1 Introduction to the Site

Overall the site consists of mainly PHP, SQL, and HTML libraries. Upon taking a look at the source code, it becomes obvious the site builds itself as the user goes to and from the different pages using the 'echo' command in PHP. There are also a lot of SQL calls, in which in order to access the database there is a file that has the SQL login information which stays hidden from anyone besides the admin who has access to the server's backend. That file is currently labeled **db_config.php**. This file should already be attuned as needed during the set-up.

Each part of the site also includes the **header.php**, this is how the site has a consistent header throughout every page. If any new page is added, the header needs to be included in the beginning to ensure that uniformity continues. The rest of this section will briefly give the SQL schema list, go over where and how to add new pages and/or aspects of the site, and a rundown of how some of the pages themselves function.

5.2 SQL Schema Rundown

This section will break down the current database into its individual tables and go over the purpose of each of them, and where these following areas are used. The schema itself should be already implemented during the Website Set-Up, this is now a detailed run-through about which files call which tables and their purpose.

5.2.1 User

```
CREATE TABLE IF NOT EXISTS User (  
  userID INT NOT NULL AUTO_INCREMENT,  
  username VARCHAR(255) NOT NULL,  
  password VARCHAR(255) NOT NULL,  
  userGroup ENUM('Admin', 'Moderator', 'User') NOT NULL,  
  PRIMARY KEY (userID)  
);
```

The User table is responsible for holding the username, password, the user group, and finally the userID. The userID is what defines the session, and when the password is stored it is stored using said custom hashing system written inside the login or sign-up function. The groups are ENUM's which allows the program to refer to the group by name or by number.

5.2.2 Files

```
CREATE TABLE IF NOT EXISTS files (  
  file_id INT NOT NULL AUTO_INCREMENT,  
  file_name VARCHAR(255) NOT NULL,  
  audio_file LONGBLOB NOT NULL,  
  PRIMARY KEY (file_id)  
);
```

The Files table is what stores all of the audio and text files upon upload. The only way to store audio inside SQL is using the LONGBLOB type, which is strange when you try to view it but it does function the way we need it to. There is also a fileID which is what most of the items that call to this table use.

5.2.3 Words

```
CREATE TABLE IF NOT EXISTS words (  
  word_id INT NOT NULL AUTO_INCREMENT,  
  file_id INT NOT NULL,  
  actual_word VARCHAR(50) NOT NULL,  
  timestamp_start FLOAT NOT NULL,  
  timestamp_end FLOAT NOT NULL,  
  PRIMARY KEY (word_id),  
  FOREIGN KEY (file_id) REFERENCES files (file_id)  
);
```

When a new file is uploaded to the database each word it uploaded to said word table. It gains its own ID and is attached to its file using its respective id as well. The string of the word is stored and from the textgrid file, the time stamps in the audio of both the start in the finish are pulled. Besides the userID, the wordID is the most used in the current version of the website.

5.2.4 Interacted and Starred

```
CREATE TABLE IF NOT EXISTS Interacted (  
  userID INT NOT NULL,  
  sentenceID INT NOT NULL,  
  FOREIGN KEY (userID) REFERENCES User(userID),  
  FOREIGN KEY (sentenceID) REFERENCES words(word_id),  
  UNIQUE (userID, sentenceID)  
);
```

```
CREATE TABLE IF NOT EXISTS Starred (  
  userID INT NOT NULL,  
  sentenceID INT NOT NULL,  
  FOREIGN KEY (userID) REFERENCES User(userID),  
  FOREIGN KEY (sentenceID) REFERENCES words(word_id),  
  UNIQUE (userID, sentenceID)  
);
```

These two tables are unused in the current version of the website. The original purpose of these tables was for the website to store what the user interacted with and it would allow them to star words they can store for later. These two features were scrapped in development but their schema still stands if any future developers wish to try and implement these scrapped features.

5.2.6 Definitions

```
CREATE TABLE IF NOT EXISTS Definitions (  
  userID INT NOT NULL,  
  sentenceID INT NOT NULL,  
  definition VARCHAR(255) NOT NULL,  
  FOREIGN KEY (userID) REFERENCES User(userID),  
  FOREIGN KEY (sentenceID) REFERENCES words(word_id),  
  UNIQUE (userID, sentenceID)  
);
```

The definitions table is directly connected to the dictionary game and the user's profile where the user can view said definitions. It references which user the definition belongs to and which sentence the word belongs to as well. This allows the dictionary game to show the prompts and the definitions with zero issues.

5.2.7 Voice Ratings

```
CREATE TABLE IF NOT EXISTS VoiceRatings (  
  userID INT NOT NULL,  
  sentenceID INT NOT NULL,  
  rating INT NOT NULL DEFAULT 0,  
  FOREIGN KEY (userID) REFERENCES User(userID),  
  FOREIGN KEY (sentenceID) REFERENCES words(word_id),  
  UNIQUE (userID, sentenceID)  
);
```

Similar to the definition table, the voice rating does a similar thing. It stores the rating num, references the user, and references the word/sentence to be able to pull it up during the game and the profile page respectively.

5.2.8 Stats

```
CREATE TABLE IF NOT EXISTS Stats (  
  userID INT NOT NULL,  
  wordsPracticed INT NOT NULL DEFAULT 0,  
  daysPracticed INT NOT NULL DEFAULT 0,  
  dayStreak INT NOT NULL DEFAULT 0,  
  lastDayPracticed TIMESTAMP DEFAULT CURRENT_TIMESTAMP,  
  userImage ENUM('Green', 'Blue', 'Purple', 'Panda', 'Fox', 'Raccoon') NOT  
  NULL DEFAULT 'Green',  
  FOREIGN KEY (userID) REFERENCES User(userID)  
);
```

The stats table stores everything related to user activity and user customization. The wordsPracticed is an overall total of the words a user practices, while daysPracticed is just as self-explanatory. The lastDayPracticed is used to keep track of the dayStreak, if the last day practiced isn't yesterday, then the day streak resets. Lastly, the userImage is a

set of enums that define and correlate to the icons provided in the avatars folder. A small note, the red panda is labeled fox in the enums.

5.2.9 Daily Record

```
CREATE TABLE IF NOT EXISTS dailyRecord (  
  userID INT NOT NULL,  
  goalType ENUM('the Context Game', 'the Dictionary Game', 'the  
Pronunciation Game', 'a Practice game') NOT NULL DEFAULT 'a Practice  
game',  
  goalCount INT NOT NULL DEFAULT 0,  
  goalMax INT NOT NULL DEFAULT 0,  
  FOREIGN KEY (userID) REFERENCES User(userID)  
);
```

The last table currently inside the SQL database is the daily record, this keeps track of the daily goals, counting them and allowing the site to choose a random goal. Currently, as there are only three games, there are only three ENUM options for specific games, with the last one being a default practice game for the user to interact with. The number that goalMax can be is random, this can range from any number and can be changed by future programmers.

5.3 Adding New Meta Data

A current issue with the data provided is that there are proper pronouns, articles, and simple buffer words that can sometimes cause issues with the different practice games. Specifically, if you were asked to define “China” or “Calvin Klien” as direct examples from the data we used to build the site. A way to fix that is to have the provided data have their POS (parts of speech) defined before getting pushed through the site. Most of this is

theoretical but the following would be our suggestion of how to implement this.

5.3.1 Meta Data SQL Upload

A concept for the actual format of the metadata can be fairly simple. Provided with the website package is the file called **uploadFiles.py**, this file is what is called to upload the files properly into the SQL database and read through the textgrid files carefully to pull the data needed. One of the items it pulls is the word's ID and the word itself. The metadata file can be created alongside this upload process. The table *WOIRDS* would need a new row, defined by something such as posID. As the words are uploaded they could be run in automatically and labeled, or the uploadFiles.py could call to a metadata file written like so:

Word1, noun

Word2, verb

Word3, buffer

A Python script would easily be able to read this metadata and transfer it into the SQL database for the website to call upon when trying to pull these random words.

5.3.2 Conditionals in the Practice Games

The way the practice games randomly select the sentences is a simple random call and pulling a random word ID (only if the game is selected off the practice selection screen.) A way to use this new metadata is to simply check to see if the wordID pulled has the posID of something that isn't an article, buffer, or proper. Where these statements would (roughly) go are here:

1. **context_game__.php** Line 47

2. **pronunciation.php** Line 99
3. **Dictionary_Page.php** Line 75

This should prevent the random word generator from pulling these 'hard-to-define' words or 'hard-to-select' context words.

5.4 Adding New Practice Games

Currently, there are only three practice games, however, with the site being built modularly, it could be fairly simple to add a new practice game using the database. This game can be built in any way, but we will provide our suggestions and everything that needs to be added/updated to the site to allow this new game to be implemented seamlessly.

5.4.1 Updates to the Database

As noted in the SQL Schema Rundown, the two games that save items to the user profile have their own tables in the database directly connected to items such as the wordID and the userID. If the game you plan on adding is saving data more than just simply the word practiced counter, you will need to create a new table in the database.

To do this simply refer to the setting up the database section when it comes to running SQL code and adding said tables to the database. In the SQL Schema Rundown section, another thing to note is all of the SQL you see is the command you would write to add said table. When creating your new game make sure you have the userID connected as the minimum, or if you are making a game similar to the context game, feel free to skip this step.

Another thing you need to update is the Daily Record, specifically the ENUM section. If you want your new practice game to show up as a daily challenge possibility, you need to add it as an ENUM by running this command in the SQL backend:


```
ALTER TABLE dailyRecord  
MODIFY COLUMN goalType ENUM('the Context Game', 'the Dictionary  
Game', 'the Pronunciation Game', 'INSERT GAME NAME HERE', 'a  
Practice Game') NOT NULL DEFAULT 'a Practice game';
```

This will now have the new game you have created to be added to the cycle of daily challenges automatically.

5.4.2 Required Code Inside

Currently, at this stage, you should have your game functioning when it comes to working on its own, but now you want to ensure that it interacts with the rest of the site. The following list contains instructions on what needs to be updated to allow your practice game to work with the rest of the site.

1. Adding the Practice game to the hub:

Currently, in **practice.php** there are simple buttons that link to the rest of the site. To add your game, simply add another button and link to the new *.php* file.

2. Adding to the Words Practiced Counter

To allow the user to be rewarded with the practicing of the words inside of your game, you need to ensure that the words practiced counter is updated when the user completes an action; a good example is in **context_game____.php** on Line 137.

3. Adding to the Goal Counter

Another important piece of code is ensuring the goal counter is updated if the current user's daily goal is that current practice game. In **context_game_____.php** there is an example of this on Line 144.

If your game saves custom data, like the dictionary or pronunciation page, please see the **profile.php** and scroll down to see how the dictionary box or rating box are handled in terms of their printing.

5.5 Adding New Custom Icons

The Custom Icons that you currently see on the site were drawn by Kenzie Norris, one of the previous developers on the team for the site. The way she approached it was simply drawing over the base icon and adding details or changing the specific colors. However, if you want to add more options feel free to follow these steps.

1. The image should be a .png file and the size should be 395 x 395 pixels, upload it into the /profile_avatars folder
2. Whatever you name the image (example: Fox.png), you need to add that new enum into the profile custom table in SQL using the following command:
3. In **profile_customization.php** add the newest option following the format. If you would like to make the image have a price, add the highlighted section.

Everything else should be automatically updated in the **header.php** once step two is completed. If you aren't seeing your new image, double-check the naming conventions, and make sure your image is labeled correctly inside the /profile_avatars folder.

6. Conclusion

Overall we hope this manual gave an accurate representation of how to run the site and how to add to it in the future. The majority of the PHP files have comments detailing the purpose of their sections. If you have any further questions on the code, please see those locations.