## Functional notes: Rootle, the English Biomedical Vocabulary Builder

Contents

[Functional notes: Rootle, the English Biomedical Vocabulary Builder 1](#_Toc202283109)

[Description 2](#_Toc202283110)

[Look and feel 2](#_Toc202283111)

[User flow 3](#_Toc202283112)

[Installation 3](#_Toc202283113)

[Core function 3](#_Toc202283114)

[Search function 3](#_Toc202283115)

[Subscription 4](#_Toc202283116)

[Offline mode 7](#_Toc202283117)

[Features/behavior 8](#_Toc202283118)

[Audio 8](#_Toc202283119)

[Offline availability 8](#_Toc202283120)

[Displaying sentences 9](#_Toc202283121)

[Friendly Faces 9](#_Toc202283122)

[Search function 9](#_Toc202283123)

[Offline mode 9](#_Toc202283124)

[Subscription status 9](#_Toc202283125)

[Sort status 9](#_Toc202283126)

[User interface 9](#_Toc202283127)

[Figma template 9](#_Toc202283128)

[Settings menu 9](#_Toc202283129)

[Update notifications 13](#_Toc202283130)

[Misc 13](#_Toc202283131)

[Size 14](#_Toc202283132)

[Data ready now 15](#_Toc202283133)

[Admin UI 15](#_Toc202283134)

[Links 15](#_Toc202283135)

[Screenshots 16](#_Toc202283136)

[Other languages 18](#_Toc202283137)

[Outstanding issues 18](#_Toc202283138)

## ****Description****

### Look and feel

Fun + educational. No tests, no status reports, no pressure. Colors are tropical pastels, and Friendly Faces appear on the core pages.

From the app’s FAQ:

**Is this app fun?**

Guessing is fun! Some people with no knowledge or intention of studying biology or medicine think this app is very fun.

**How does this app work?**

Your main activity in this app is to make smart guesses based on context clues. It’s the best way to learn complicated vocabulary -- it’s better than trying to memorize words one at a time.

On each page, this app gives you:

1. A **root** (usually Latin or Greek) that is found in many English medical terms
2. A sample **word** containing that root
3. A sample **sentence** containing that word
4. A challenge to **guess** the word's meaning
5. A **reveal** of the word's meaning

For each root, there are one to three challenge words and sample sentences.

At any point, you can also open the **Search bar** from the top to look up content within the app that might improve your guess. See the Outstanding questions section for more on the Search function.

**Do I have to type in a guess before I can see the word’s meaning?**

No; you can tap **Show the meaning** at any time.

**Do my answers have to match the Dictionary answers exactly to be correct?**

No, they don't; if you guess "bones softened" and the Dictionary meaning is "Softening of bones," give yourself an A.

**Does this app keep score, or grade me, or save my answers?**

No. This app is all about the activity of making smart guesses based on context clues. Training your brain is the objective. This being the case, it’s a good idea to memorize the roots.

## ****User flow****

### Installation

1. **Splash screen** offers choice between Male and Female American audio. Click gets a voice sample. User may also check to disable autoplay of audio when each page is loaded. User clicks button to confirm choices and go to next screen (How-to).
2. User clicks button to dismiss How-to screen.
3. First content page loads.

### Core function

When content page loads, audio for Root and the root’s Meaning play if autoplay is enabled.

*The user may perform any of the following actions, all of which are optional.*

* Tap the speaker button in the Root area to play the Root + Meaning audio. They can do this as many times as they like.
* Tap another speaker button in the Challenge word area to play the Challenge word. They can do this as many times as they like.
* Enter a guess for the meaning of the Challenge word. To do this, they click in the Guess text field, which invokes the device’s native keyboard. Pressing Go or Enter on the keyboard closes it. The Guess field is expandable to accommodate long entries. This text is held in view until the user swipes to the next screen.
* Click the **Show the meaning** button to view the “dictionary” meaning.
* Advance to the next Challenge word for the Root. To do this, the user swipes across the Challenge word area or taps the right arrow button in the Challenge word area. This loads the next word and plays the Root + Meaning audio again if autoplay is selected. Each Root has one to three associated Challenge words.
* Advance to the next Root. To do this, the user swipes across the Root area or taps the right arrow in the Root area.
* Use the Search function. This searches all content – Roots, Challenge words, Sentences.

When the user has swiped to the final Challenge word for the Root, swiping across either the Challenge word area *or* the Root area advances the screen to the next Root.

### Search function

Search can be invoked from the Core screen at any time. Restrict results to the Roots and Words, no sentences. The JSON data includes a Search\_Terms column for each row. This should also enable autocomplete when the user types.

My graphic designer got a start except that the sentences won’t need to be included. Also, this should be an overlay that appears directly below the top nav. It should not fill the width of the screen.

List results in alphabetical order.   
A screenshot of a phone

AI-generated content may be incorrect. A screenshot of a phone

AI-generated content may be incorrect.

### Subscription

The user has a 7-day free trial, after which they must subscribe to continue using the app. Subscriptions are done through the Google Play Store and Apple App Store, no third-party payments.

A screenshot of a phone

AI-generated content may be incorrect.

At the bottom of the "How to use this app" screen, before the "Let's go!" button, I added:

7-Day Free Trial (bold)

Enjoy access to all content for 7 days.

Then [#.00/]month, cancel anytime

I also moved the "Let's go!" button down.

Questions:

1. Will the bottom nav that my graphic artist provided be needed? If so, the frame will have to be lengthened and users will have to scroll down to see the logo, but I'm not concerned about that.
2. Should this instead be shown on another separate screen or modal? I’d like for users to get into the app as quickly as possible without clicking and dismissing screen after screen, but if it would be more helpful and ethical to inform them on a new screen that they are starting a 7-day free trial that ends in a subscription requirement, let’s create that screen.

I do need new Splash screens that show a countdown to the end of the free subscription + a Subscribe button, and then after that an expired message. Something like this, for 3 days left, 2 days left, 1 day left:

A screenshot of a video game

AI-generated content may be incorrect.

These Splash screens also show as the user approaches the end of a subscription period as well: 3 days, 2 days, 1 day.

The Subscribe button takes the user to the Google Play Store or Apple App Store payment area. Once that process is complete, the user can re-launch the app and use it for the next 30 days.

After the free trial lapses or after the user’s subscription lapses, the user cannot load any content. Please display a screen like this if possible:

A screenshot of a video game

AI-generated content may be incorrect.

### Offline mode

For all related UI, follow the style of the Subscription modal shown in the [Subscription](#_Subscription_content) section.

A modal or screen needs to be added to the UI. For Subscription status = N (within the 7-day trial), this should appear after three Challenge words.

Text:

Want to use Rootle without Wi-Fi?

Subscribe to Rootle and download all US English audio for offline access. This will allow you to hear pronunciation guides and root meanings without an internet connection.

✅ Choose [###]MB Male, [###]MB Female, or [##]GB both

✅ One-time initial download

✅ Optional monthly downloads of new content

✅ Remove anytime

[Subscribe now] [Remind me later]

**Remind me later.** For this choice, show a modal with this text:

You may choose Offline mode at any time after you subscribe.

[Close]

**Subscribe now.** For this choice, launch the payment process in the Google Play Store or Apple App Store.

After the user subscribes and re-launches the app, display a screen or modal with this text after the first 3 swipes:

Want to use Rootle without Wi-Fi?

Download all US English audio for offline access. This will allow you to hear pronunciation guides and root meanings without an internet connection.

✅ Choose [###]MB Male, [###]MB Female, or [##]GB both

✅ One-time initial download

✅ Optional monthly downloads of new content

✅ Remove anytime

Download audio for offline use

☐ Male audio ([###]MB)

☐ Female audio ([###]MB)

[Download now]

[Remind me later]

* **Remind me later.** For this choice, display a modal with this text:

You may choose Offline mode in the Settings anytime.

[Close]

* **Download now.** For this choice, execute download(s) per user’s choice. Display Progress UI during download, Confirmation modal upon completion.

## Features/behavior

### **Audio**

The Root and Meaning audios are separate files. They play one after the other (Root, Meaning) with no pause in between.

#### **Latency**

To prevent an annoying lag of the audio, I suggest that audio files be loaded on launch for the next ~25 words, or whatever is a reasonable amount of data to download. This would cause a slight lag at each incremental download, unless downloads can happen in the background while the user is advancing through the app, but it’s probably a better option than running up to the server for each separate audio file.

### Offline availability

Option for offline availability is included. These files should go into app-private storage.

For convenience in describing the User Interface, I’m using:

* + If user has downloaded Male audio, **Offline mode = M**
  + If user has downloaded Female audio, **Offline mode = F**
  + If user has downloaded both Male and Female audio, **Offline mode = B**
  + If user has no offline audio (downloaded and removed or never downloaded), **Offline mode = N.**

### Displaying sentences

Quotation marks must be added to the sample sentences at runtime. Examples:

<Text>“<RenderHTML source={{ html: sentence }} />”</Text>

OR

Text('“${Html(data: sentence)}”')

### Friendly Faces

A Friendly Face graphic invites the user to Guess the meaning. Once the user clicks Show the meaning, an additional Friendly Face graphic appears next to it. After 10 screens, swap in a new pair of Friendly Faces. The images are pngs that are placed over a green “halo” in the app. I’ll need to know requirements for resizing them during runtime. Should they all be the same size? All square rather than rectangular? I will add these png files to the Assets.

### Search function

Since this uses only one column in the JSON data, it should be possible to sort results alphabetically on the client side.

### Subscription status

**Y** and **N**.

### Sort status

**R, A,** and **S** (random, alpha, system)

### Localization

App will be priced differently depending on region. Instead of hard-coding subscription prices, these should be fetched at runtime from platform-specific APIs. Here’s what AI gave me:

A screenshot of a computer code

AI-generated content may be incorrect.

### Multiple languages

Users can select a language for the UI:

* English (default)
* Français
* 中文
* العربية
* हिन्दी
* Português
* Español

## User interface

### Figma template

Designed, except for some screens that need to be added, noted in this document.

### Settings menu

#### FAQ

Full text to come. This is static text that requires scrolling to read it all. It should incorporate the How-to text and graphic as the SECOND question, which should be “How does this app work?” Here is an old design that reflects this:  
A screenshot of a cell phone

AI-generated content may be incorrect.

#### Audio preferences

User may choose Male or Female. User may also select or deselect to disable autoplay for Root + Meaning each time a new Root or Challenge word loads.

#### Sort and filter

User may choose to view entries in one of 3 ways:

* Sort status A: Alphabetical order (by Root)
* Sort status R: Random order
* Sort status B: By biological system. If this is chosen, roots display in alphabetical order within each system. Default order of the systems themselves is alphabetical, but the user may reorder them by dragging cards.

1. Basics
2. Blood & Lymph
3. Cardiology
4. Digestive
5. Endocrine
6. Eye & Ear
7. Gynecology
8. Integumentary
9. Male
10. Musculo-skeletal
11. Neurological
12. Respiratory
13. Urinary

For Sort status A and B, save the user’s Last Viewed Position by RECNUM so they can resume this place when they reopen the app.

In Sort & Filter, the user may also select or deselect to hide Challenge words they have already seen.

#### Manage subscription

Expand the settings screen. Use this text:

Your Rootle subscription is securely managed through your device's app store.

* To **cancel or modify** your subscription, please use the links below:

📱 **Android (Google Play)**  
[Manage on Google Play](https://play.google.com/store/account/subscriptions)

🍎 **iOS (Apple App Store)**  
[Manage on Apple Subscriptions](https://support.apple.com/en-us/HT202039)

You can cancel anytime. Your access will continue through the end of the current billing period.

#### Offline mode

**If Subscription status = N,** expand the Settings screen with this text (same as the screen shown after 3 swipes):

Want to use Rootle without Wi-Fi?

Subscribe to Rootle and download all US English audio for offline access. This will allow you to hear pronunciation guides and root meanings without an internet connection.

✅ Choose [###]MB Male, [###]MB Female, or [##]GB both

✅ One-time initial download

✅ Optional monthly downloads of new content

✅ Remove anytime

[Subscribe now] [Remind me later]

**If Subscription status = Y and Offline mode = N,** expand Settings screen with this text. Scan Firebase Storage for current volume.

Use Rootle without Wi-Fi

Download all US English audio for offline access. This will allow you to hear pronunciation guides and root meanings without an internet connection.

✅ One-time initial download

✅ Optional monthly downloads of new content

✅ Remove anytime

Download audio for offline use

☐ Male audio only ([###]MB)

☐ Female audio only ([###]MB)

[Download now]

[Remind me later]

**If Subscription status = Y and Offline mode = M, F, or B,** expand Settings screen with relevant text.

Scan the app’s local audio folder on the user’s device on the fly to get the correct size.

Offline mode = M

**🔊 Your offline audio**

[###]MB Male downloaded [Delete audio files]

[###]MB Female available [Download audio files]

Offline mode = F

**🔊 Your offline audio**

[###]MB Female downloaded [Delete audio files]

[###]MB Male available [Download audio files]

Offline mode = B

**🔊 Your offline audio**

[###]MB Male downloaded [Delete audio files]

[###]MB Female downloaded [Delete audio files]

#### App language

* English (default)
* Français
* 中文
* العربية
* हिन्दी
* Português
* Español

User can tap to choose which language the UI displays in. Note, this will only be for UI terms, not the content.

#### About us

Content to come.

### Update notifications

I will be adding ~10 rows per month. When new content is added, display banner when user opens app. Use this text:

🆕 New roots and words added this month!  
[View now] or [Dismiss]

**View now.** For this choice, queue the latest content and preload the audio files.

**Dismiss.** For this choice display content per Sort status.

**R.** Queue the latest content and preload the audio files.

**A.** Resume the user’s place in the app.

**S.** Resume the user’s place in the app.

**Implementation suggested by AI:**

* Store a “latest content date” in Firebase.
* On app launch, compare this to the last time the user opened the app.
* If newer → show the banner.

### Misc

NOTE: I adjusted the alignment of one element in the Figma design, highlighted in yellow below. “Hyperbilirubinemia” is the longest word in the database, and it fits fine.

Screens screenshot of a chat

AI-generated content may be incorrect.

## Size

Approximately 1.4GB of audio files is estimated – as of now, 688MB each for Male and Female. This will grow as I add rows! Is there an limit beyond which I should stop adding data? Or would this affect only users who opt for Offline mode?

## Data ready now

460 rows complete in Excel spreadsheet (one row per Root). Only a sample has been uploaded into the Firebase Realtime database and Firebase Storage.

JSON data for 117 rows uploaded in Firebase Realtime Database (9 rows for each of 13 CATEGORYs).

Audio files for 117 rows uploaded in Firebase Storage.

NOTE: After we test the sample data, I will re-upload all of it with audio file names changed.

## Admin UI

I have an Admin UI to add content over the lifetime of the app. It needs a tweak (audio files not uploading to database).

## Links

Figjam Flow : <https://www.figma.com/board/Gkhpjg1HLKUTxWHbBTLhaM/Rootle-flow?node-id=0-1&t=CM4xDsIh7d9CPY8Z-1>

Figma prototype: <https://www.figma.com/proto/4oofwdLIu6tNqkDEZFhR5V/R2?node-id=92-849&p=f&t=ike0YCAzl4iwuZqo-1&scaling=scale-down&content-scaling=fixed&page-id=0%3A1&starting-point-node-id=5%3A2&show-proto-sidebar=1>

Video of *old* prototype that shows functionality (different graphics but same functions) except that Search isn’t built out: <https://youtube.com/shorts/EhebYd_fbsc>

I can provide: JSON data, Excel or csv file, whatever else you need.

## Screenshots

**Firebase Storage for the audio files**

A screenshot of a computer

AI-generated content may be incorrect.

**Firebase Database**

A screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

## Other languages

I will provide translations of the UI into Hindi, Simplified Chinese, Portuguese, Spanish, Arabic, and French.

## Outstanding issues

1. New screens/overlays/modals needed:
   1. Redesign Search results overlay per notes in [Search function](#_Search_function)
   2. Splash screens that show countdown to expiration of 7-day free trial
   3. Screen that displays after expiration of 7-day free trial
   4. Screen or modal that offers Offline mode during 7-day free trial
   5. (after decline) Modal to tell users they may choose Offline mode after they subscribe
   6. Screen that displays in Subscription status Y offering Offline mode
   7. (after decline) Modal to tell users they may choose Offline mode at any time from Settings
   8. UI to show download progress if users choose Offline mode
   9. Confirmation modal when download is complete
   10. Banner for new content
   11. Not sure if these need to be new screens or we can expand inside the Settings menu when the user taps:
       1. Manage subscription choices
       2. Offline mode choices
2. Will the bottom nav that my graphic artist provided be needed?
3. Should the Subscription option be shown on a separate screen after initial launch, or is it okay to leave it on the How-to screen and then use countdown Reminder screens as the user approaches the end of the 7-day free trial?
4. What are dev requirements for the Friendly Faces pngs?
5. At what point should I stop adding data? The combined Male and Female audio files for the launch are ~1.4GB. Would this affect only users who opt for Offline mode?
6. ~~Account screen on the Settings menu? The screen doesn’t exist yet; I’m not sure it’s necessary. We’ll add it it’s needed for subscription maintenance/cancelation, although this should be done through the App Store or Play Store.~~
7. ~~Search UI. This should be an overlay. Haven’t fully designed this yet.~~
8. ~~Analytics. I might want to know, if possible, how many swipes a user makes during a session, and which sorts and filters users favor. Let’s discuss this.~~