



Word Master 3000

Technical & User Manual

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Professor, Institute of Information Technology,
University of Dhaka.

**Supervisor's
Signature:**

A handwritten signature in black ink, appearing to read "Kazi Muheymin-Us Sakib". The signature is fluid and cursive, with some loops and variations in line thickness.

Acknowledgement

We are highly indebted for getting such a wonderful opportunity to prepare the User Manual report of the project ‘Word Master 3000’. We would like to thank whole-heartedly to our supervisor, Dr. Kazi Muheymin-Us-Sakib, Professor, Institute of Information Technology, University of Dhaka for giving us guidelines on preparing the project and this report.

Abstract

Word Master 3000, or WM3K for short, is a mobile based application which aims to help/guide the user achieve mastery over English words. The app will help users learn spelling, word meaning, multiple meanings of words, use of words in sentences, spelling, synonyms, etc., using standard memorization techniques, short training session, games and quizzes. This app will be particularly helpful for students who find memorizing word meanings difficult, and it can help students prepare their vocabulary for competitive exams like GRE, TOEFL, BCS, university admission tests, etc. In addition, this will boost the preparation of Spelling Bee contestants so that they might make it to the international level.

To build this app, we started with extracting requirements from a sample of intended end users. We analyzed the requirements and formulated an SRS documentation which we then implemented in code. The android application has been coded with Flutter framework and Java. The dictionary database has been coded in Java, and the server-side programming has been coded in Typescript. The output is a full-fledged application powered by a cloud server. We aim to release our app in the play store and hope that it will gain popularity among students and contestants.

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Introduction

Many students, especially the ones good at analytical tasks, do not like memorization. As a result, they find it very problematic to memorize hundreds of word meanings as preparation for competitive exams like GRE, university admission test, BCS, etc. Besides, there are many international level achievements in fields of science and technology from Bangladesh like achievements in international physics Olympiad, math Olympiad, robotics Olympiad, etc. However, there is none in English Language based competitions like Spelling Bee. These are the problems we aim to solve with WM3K. By bringing different learning tricks together and with tons of features like memorization sessions, quizzes, floating bubble, games, creating and sharing courses, etc., WM3K hopes to make vocabulary fun and easy to improve. With AI generated training sessions, we ensure that our users get the best long-term training possible. WM3K is the perfect companion app for any learner.

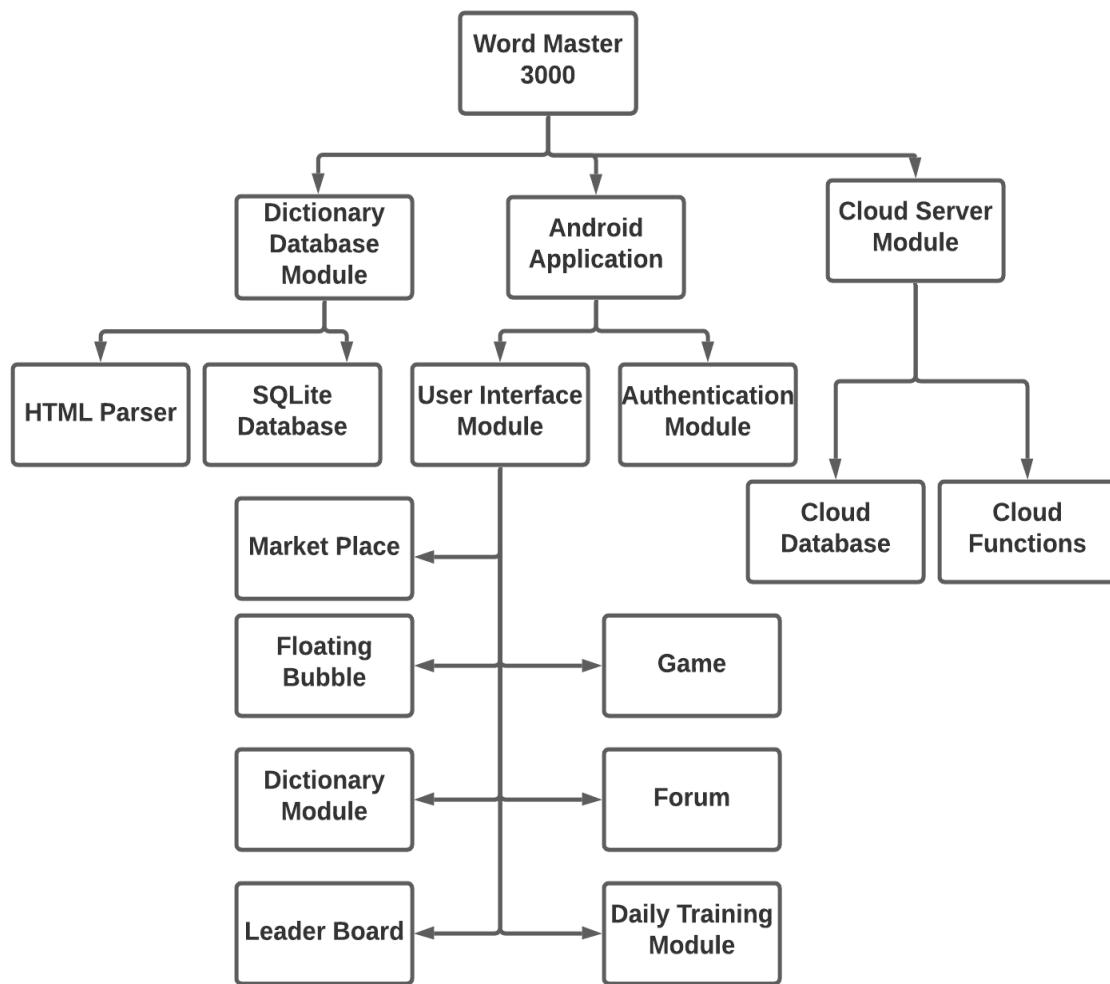
Features

- ✓ Offline dictionary of over 77,500 words with parts of speech, meaning, examples, synonyms and related words, idioms and phrases.
- ✓ Search on copy
- ✓ View meaning on floating bubble for quick and easy access
- ✓ Search and store words in word-lists
- ✓ Create and share courses
- ✓ Enroll and unenroll in courses
- ✓ Memorize word meanings by repetition
- ✓ Practice word's spellings
- ✓ Take quiz
- ✓ Fun game like spelling master
- ✓ Leaderboard
- ✓ Daily training
- ✓ Training summary of daily training
- ✓ Forum
- ✓ Create post, preview post, delete post
- ✓ Showing appreciation on a post
- ✓ Write comment and delete comment on a post
- ✓ Check activity and notification log
- ✓ Search for a user

Explanation Of Implementation

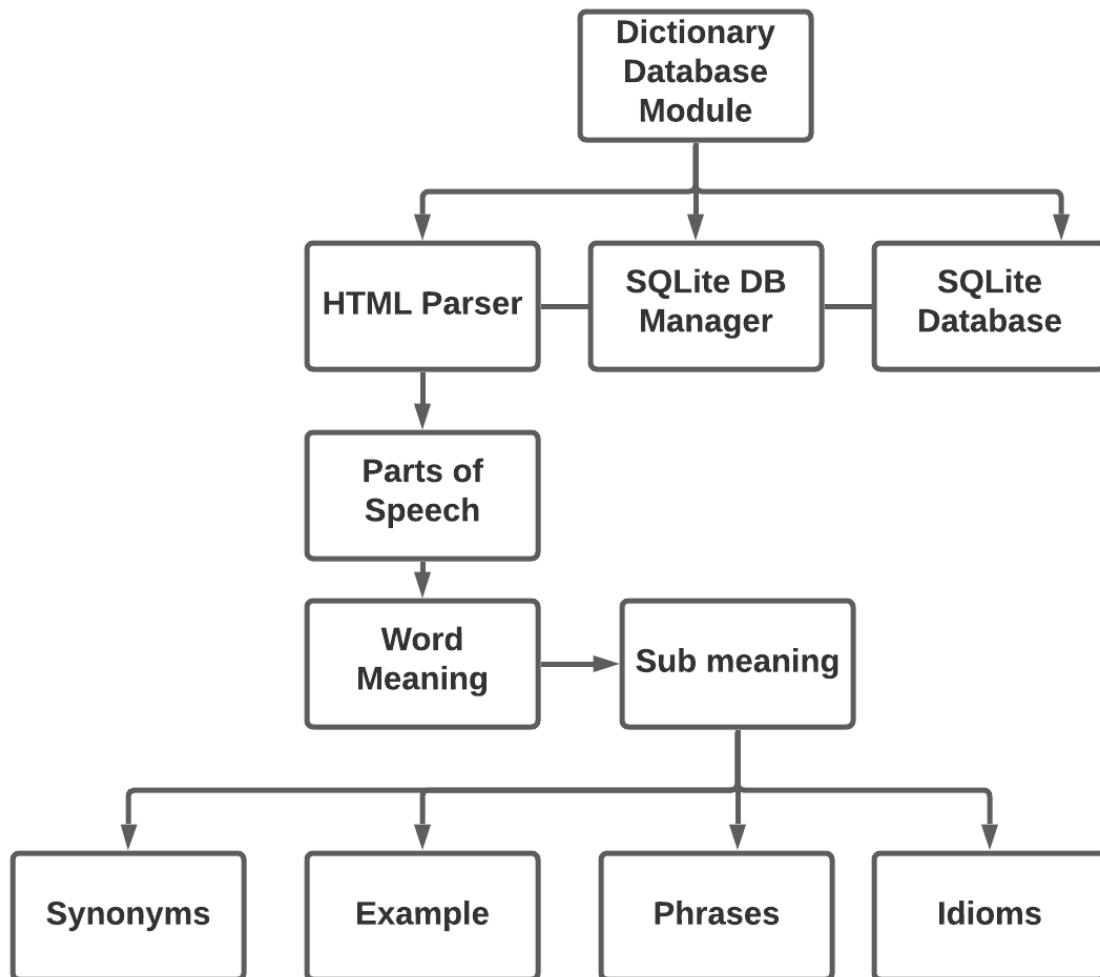
A high-level overview of our project implementation is given below. In the following diagrams, each box stands for a module or functionality. The lines denote “contains” relationship. For example, Word Master 3000 contains Dictionary database module, Android application, and Cloud server module.

Top Level Overview of Word Master 3000



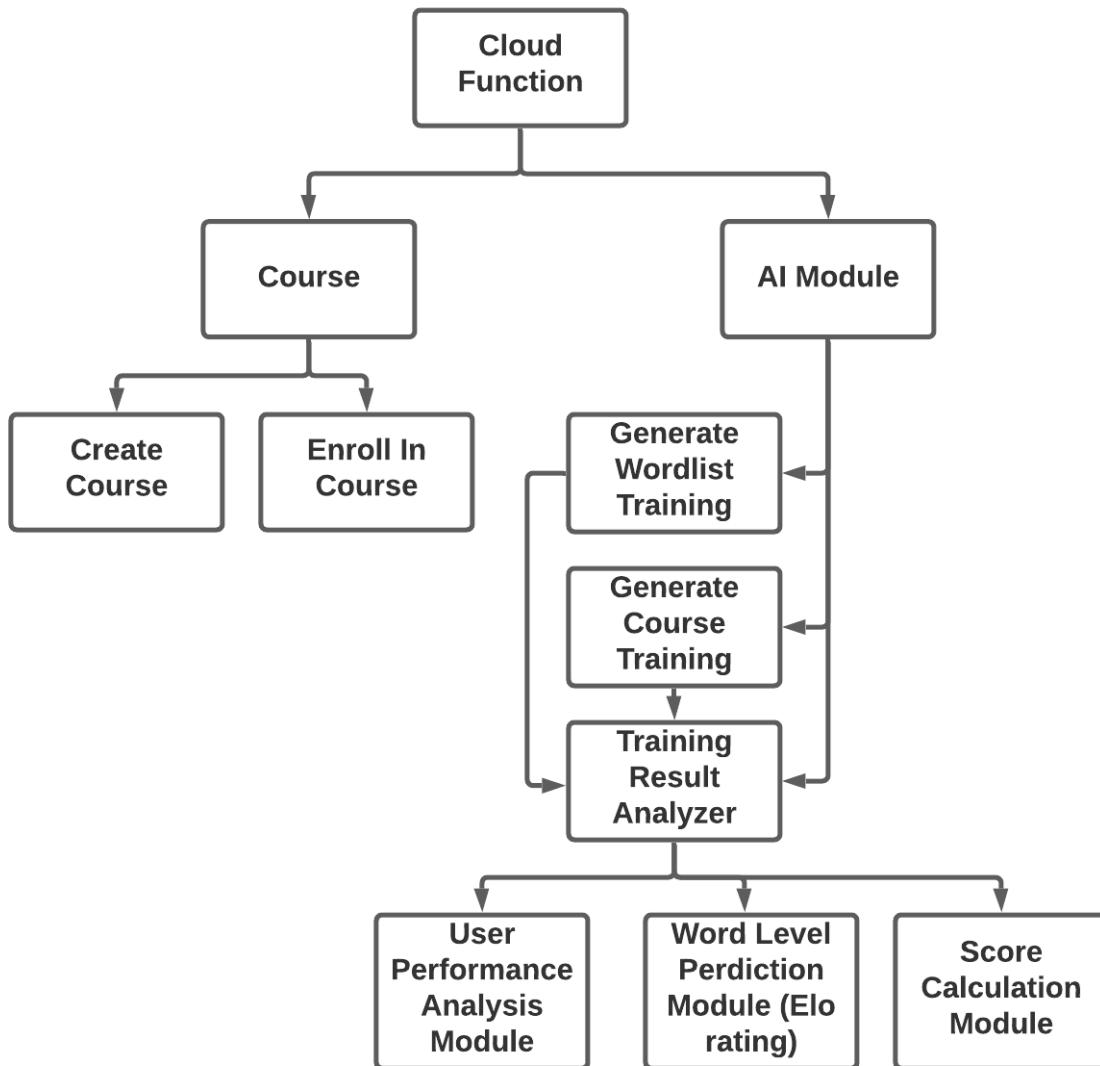
The diagram gives a glimpse of all the submodules in this project.

Dictionary Database Module



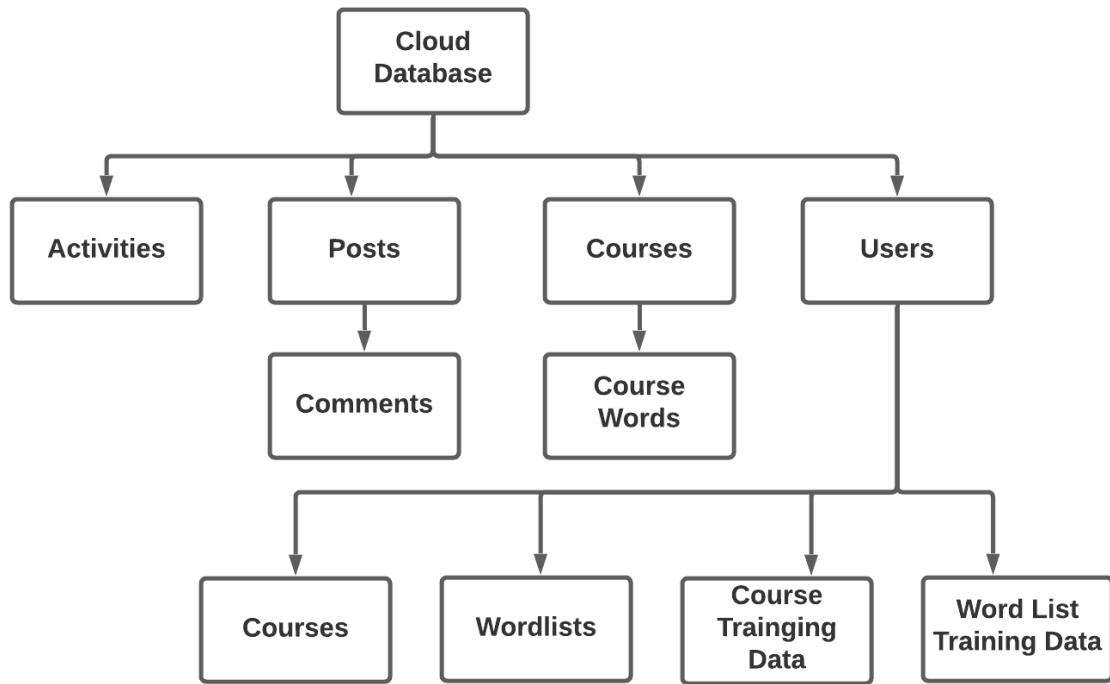
The above diagram further demonstrates the dictionary database module which has 3 sub modules HTML parser, SQLite DB Manager, SQLite Database. This code is mainly responsible for querying the online Cambridge Dictionary database, parsing the HTML, and storing the result in database.

Cloud Functions



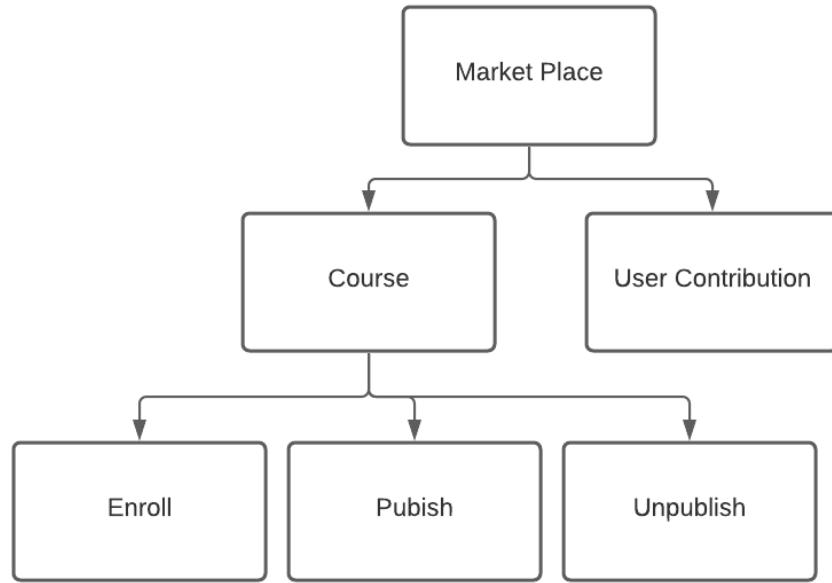
The diagram demonstrates the cloud functions. Mainly it is divided into two parts - course related functions and AI Module. The AI module further divides into 3 interconnecting parts which uses various functionalities to generate results.

Cloud Database



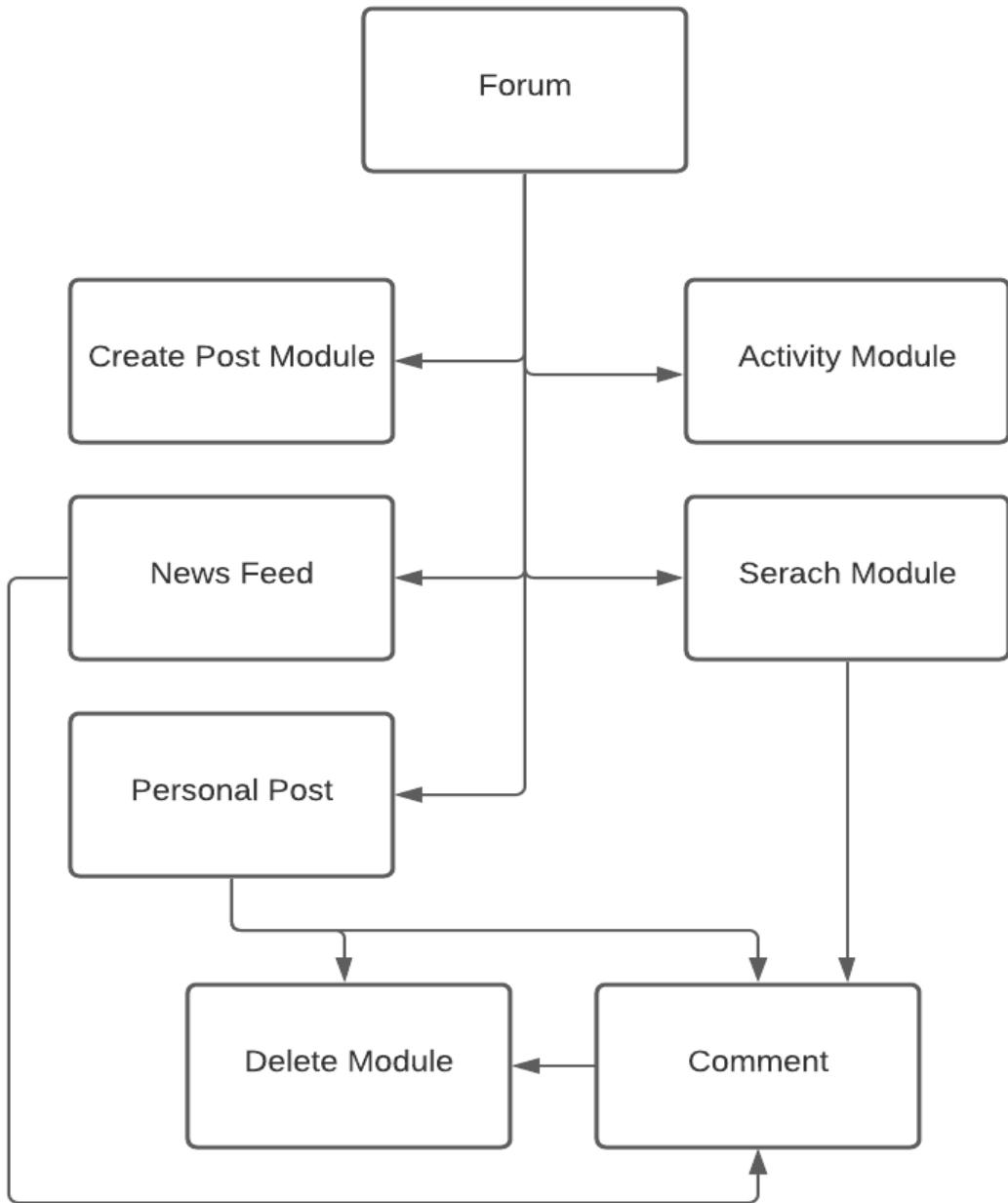
The diagram shows the collections of cloud database. There are 4 main collections Activities, Posts, Courses, Users and each of these further carries sub collections.

Market Place



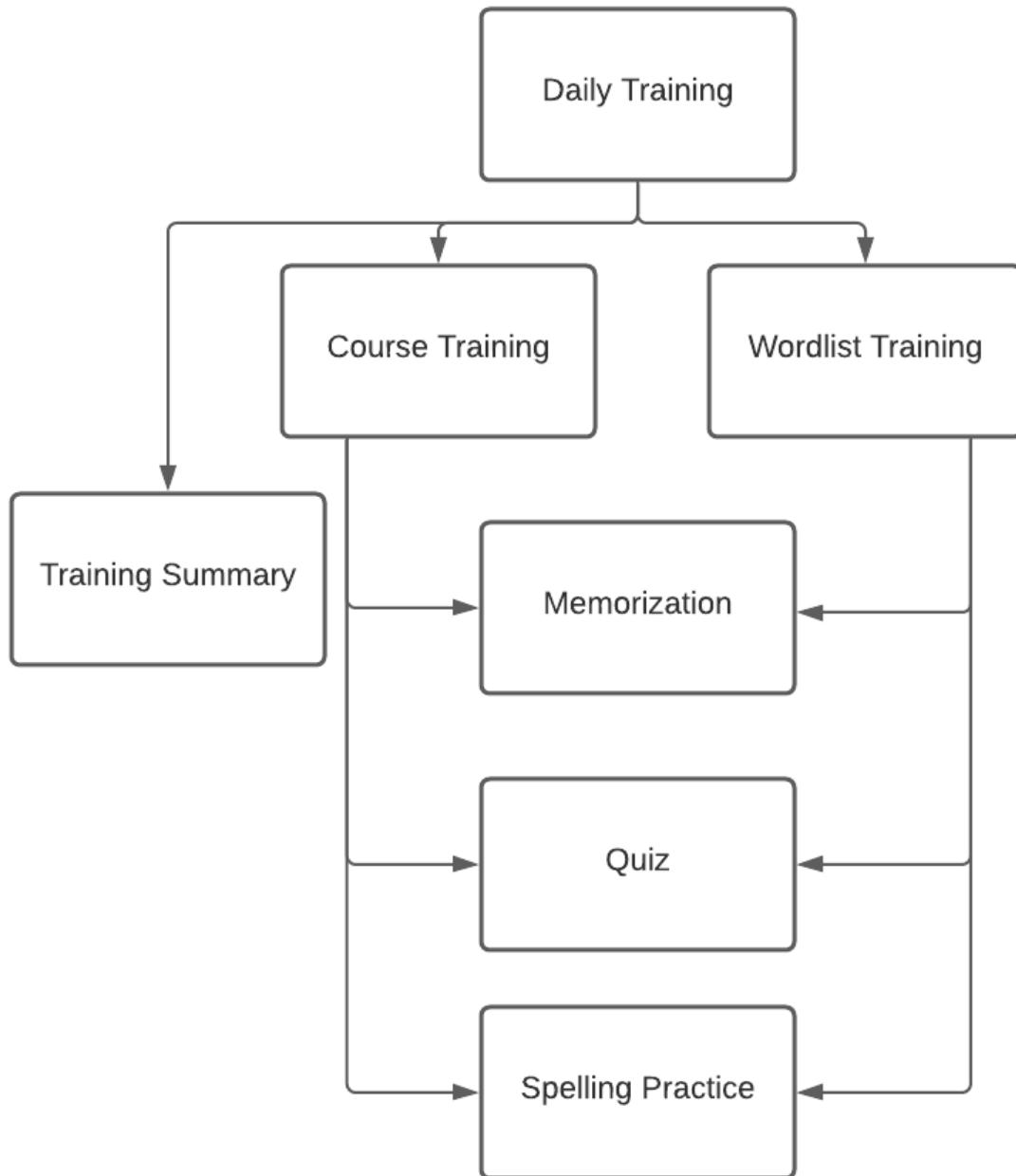
The market place has two parts, new course and User contribution. Users can publish, enroll, and unpublish a course. The “User contribution” module shows what courses they have published in the marketplace. It also gives the users the option to unpublish the course if they wish to.

Forum



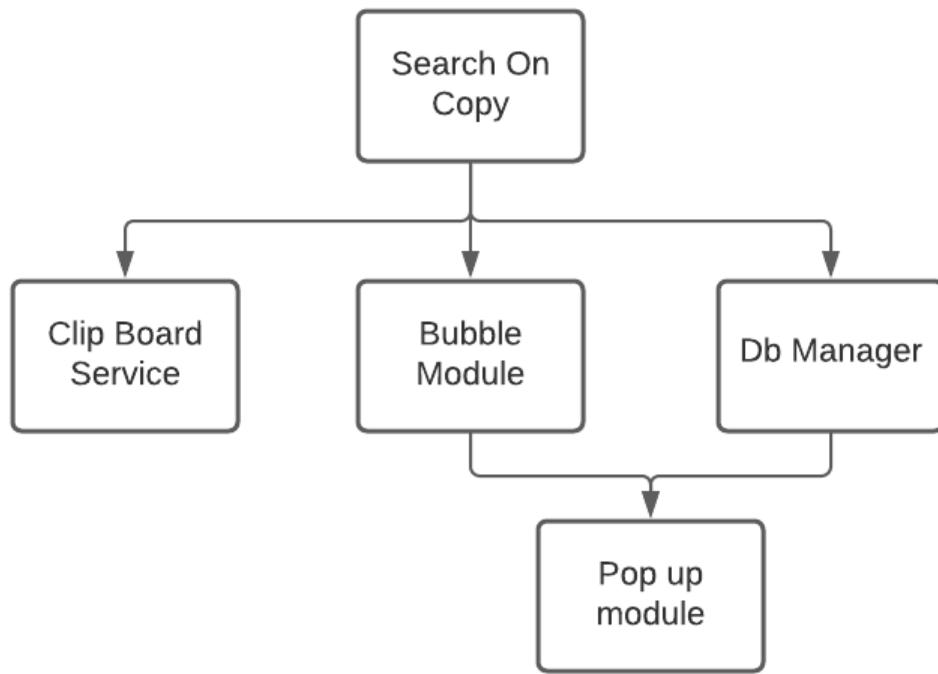
The diagram demonstrates the forum module which has 5 main parts - create post module, news feed, personal post, search module and activity module. News feed, personal post and search module share two submodules which are delete module and comment.

Daily Training



Daily training has 3 main parts. Course training, Wordlist Training and both of them have 3 common submodules Memorization, Quiz, Spelling practice. Daily training sessions consists of course training and word-list training, each of which involve the three steps – memorization, quiz, and spelling practice. At the end of daily training, a training summary is shown.

Search On Copy



The module is divided into three parts, Clip Board Service, Bubble Module and Db Manager where Bubble Module and Db Manager share a common submodule Popup module. The clipboard service is responsible for listening for changes in the clipboard. As soon as the user copies something, the clipboard service notifies the bubble module. The bubble module queries the database through the popup module and displays the result.

Explanation of code

Cloud functions

Cloud functions are functions that have been deployed to the server as server-side scripting. The code for this module has been written in structured language (structured side of typescript).

AI Module

The AI's task is to make best possible training routine for users. For this, it firstly analyzes how well the user is doing in his daily training (**User performance analysis module**). Based on user's performance it predicts how likely the user is to be able to recall a word correctly (**Word level prediction module**) –

```
function calcWinPercentage(rating1, rating2) {
    rating1 = parseInt(rating1);
    rating2 = parseInt(rating2);
    var x1 = Math.pow(10, r1/400);
    var x2 = Math.pow(10, r2/400);
    var percentage = x1 / (x1 + x2);
    return percentage;
}
```

Here rating1 is the rating of the user and rating2 is the rating of the word. The higher the rating, the more difficult the word is.

If the predicted success rate is 50%, it means the word is new. The user may or may not know the word. Such words are called **new words**.

The closer the rate is to 100%, the more familiar the user is with the word. Such words are called **easy words**.

If the predicted rate is less than 50%, it means the user has associated a wrong meaning with the word and is more likely to answer incorrectly. Such words are called **difficult words**.

```
// add a maximum of five difficult words
var count = await addOldWords(
    username, 5, 0, '>', path, colGroup);
// add a maximum of three easy words
count = await addOldWords(
    username, 3, 0, '<', path, colGroup);
// remaining words are new words
count = await addNewWords(
    username, getRemainingCount(count, 5.0), count, path, colGroup);

// if there are no new words, add more difficult words
count = await addOldWords(
    username, getRemainingCount(count, 6.0), count, '>', path, colGroup, 6);
// remaining words can be easy words
count = await addOldWords(
    username, getRemainingCount(count, 2.0), count, '<', path, colGroup, 4);
```

The snapshot above shows how a training session is generated. A training session can have a maximum of 26 words. Each easy word is repeated two times, hard words three times, and new words five times. The repetition may help the user better remember the word.

Once the user completes a training session, his results are matched against the predictions made by the algorithm. Then the difficulty level of the words is updated (More difficult words have higher rating). The user's score is updated based on how much he performed above the predictions of the algorithm as shown below –

```
const r2 = doc['rating'];
// Calculate new rating of word
const newrating = r2 +
    32 * (calcWinPercentage(1000, r2) - 1 * mul);

docs[i].ref.update({'rating': newrating});

if(newrating < r2) {
    var dif = r2 - newrating;
    dif = dif + ud.data()["score"];
    userDoc.ref.update({"score": dif});
}
```

Search-on-copy module

Search on copy allows users to see meaning of words from a floating bubble upon coping the word to clipboard. For this, our project uses android native to run background services. A channel is created between the app and native android service. The app passes a string to the service activates it.

```

@Override
public void configureFlutterEngine(@NonNull FlutterEngine flutterEngine) {
    super.configureFlutterEngine(flutterEngine);
    new MethodChannel(flutterEngine.getDartExecutor().getBinaryMessenger(), CHANNEL)
        .setMethodCallHandler(
            (call, result) -> {
                // This method is invoked on the main thread.
                if (call.method.equals("openchathead")) {
                    System.out.println("need to ask permission");
                    // Check permission and
                    // Minimum android SDK
                    if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M &&
                        !Settings.canDrawOverlays(this))
                    {
                        Intent intent = new Intent(Settings.ACTION_MANAGE_OVERLAY_PERMISSION,
                            Uri.parse("package:" + getPackageName()));
                        startActivityForResult(intent, PERMISSION_REQUEST_CODE);
                    }
                    else {
                        showChatHead();
                    }
                }
            });
}
}

```

The app displays meaning using a pop up. In order to show popup over other services ‘Display over other services permission is needed’. The app first checks whether the permission is given. If required permission is given then it starts all necessary background services.

```

startService(new Intent(MainActivity.this, chatHeadService.class));
startService(new Intent(MainActivity.this, ClipBoard.class));

```

From the “showChatHead ()” method, all necessary background services are called which are needed for search on copy functionality.

Dictionary Database Module

We have created a separate java project in order to create our dictionary database. The java project mainly acted as a html parser which helped us to collect word meanings, examples, idioms, phrases, synonyms from Cambridge dictionary.

```

try {
    scanner = new Scanner(file);
} catch (FileNotFoundException var11) {
    var11.printStackTrace();
    System.out.println("File not found");
}

System.out.println("File reading");

while(true) {
    String input;
    do {
        if (!scanner.hasNext()) {
            return;
        }

        input = scanner.next();
    } while(input.contains("-"));

    word = input.toLowerCase();
    String url = baseUrl + word;

    try {
        Document document = Jsoup.connect(url).get();
        Elements paragraphs = document.getElementsByClass("pr dictionary");
        Iterator var8 = paragraphs.iterator();
        if (var8.hasNext()) {
            Element paragraph = (Element)var8.next();
            divideMain e = new divideMain();

```

We managed to collect more than 77500 words for our dictionary database along with their parts of speech, sub meanings, examples, idioms, phrases and synonyms.

User Manual

As soon as a user downloads the app, the user will find the app in their menu named as “WM3k”

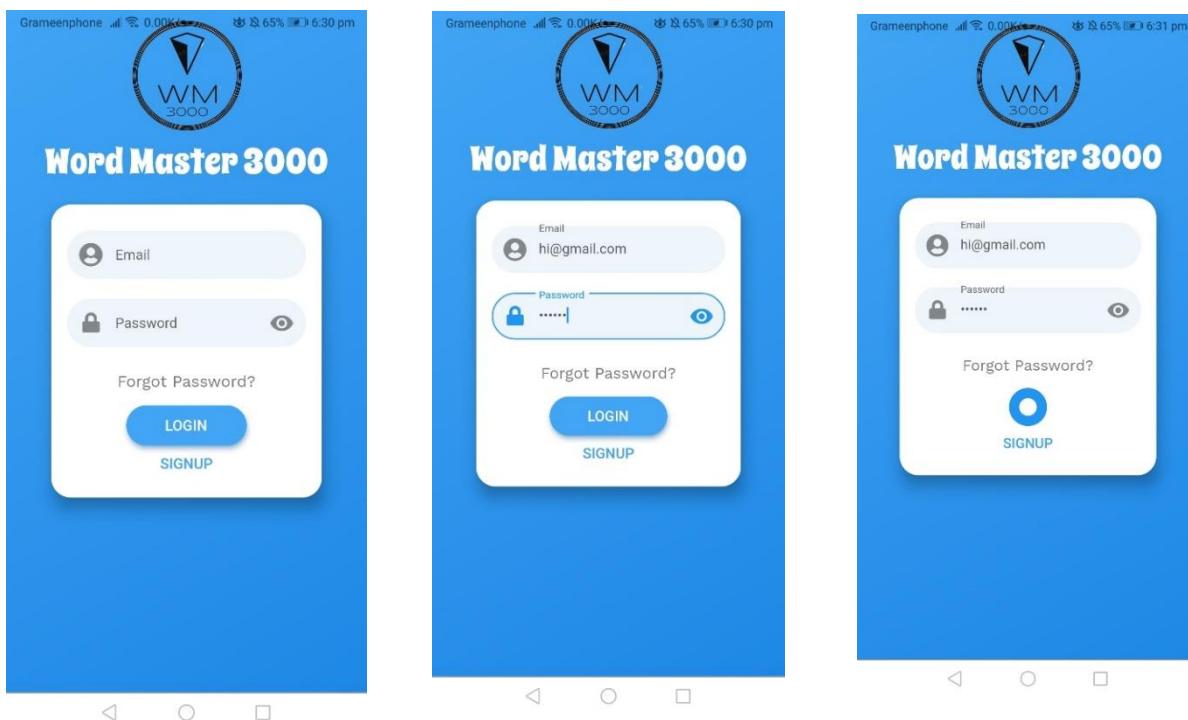


Authentication

At first the user will need to login to the app with their account, using their given email address and password. If any user does not have an account, the user can create an account using the sing up feature.

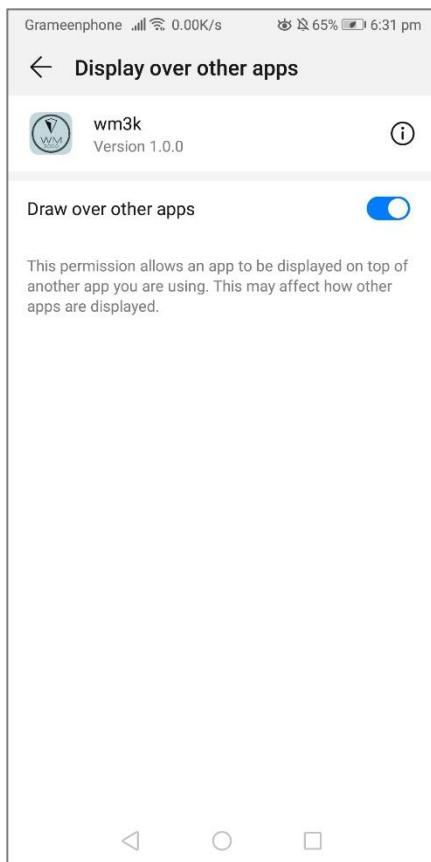
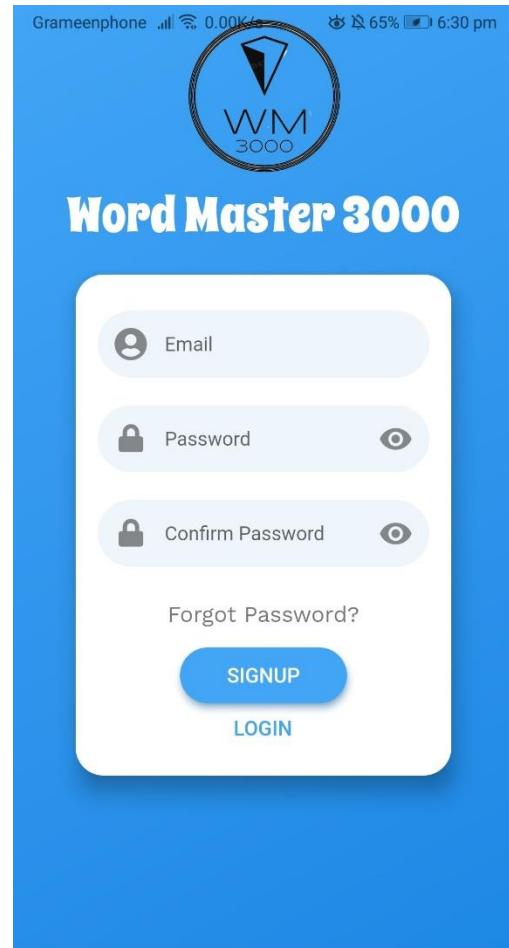
Login

Login to the system using email and password



Sign Up

If the user does not have an account, the user can sign up by giving their email, password and password confirmation.

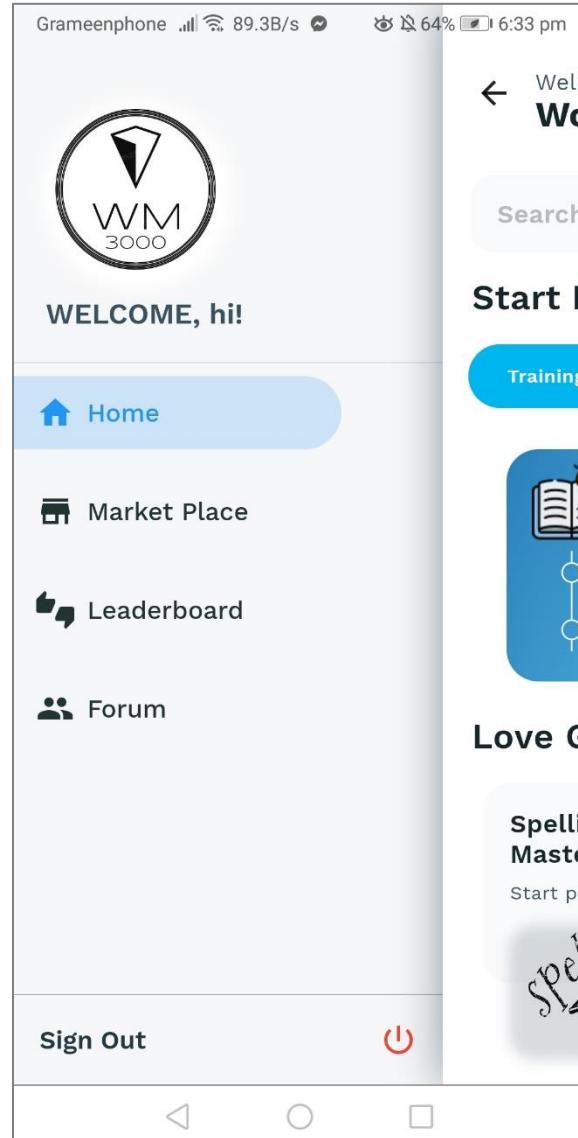
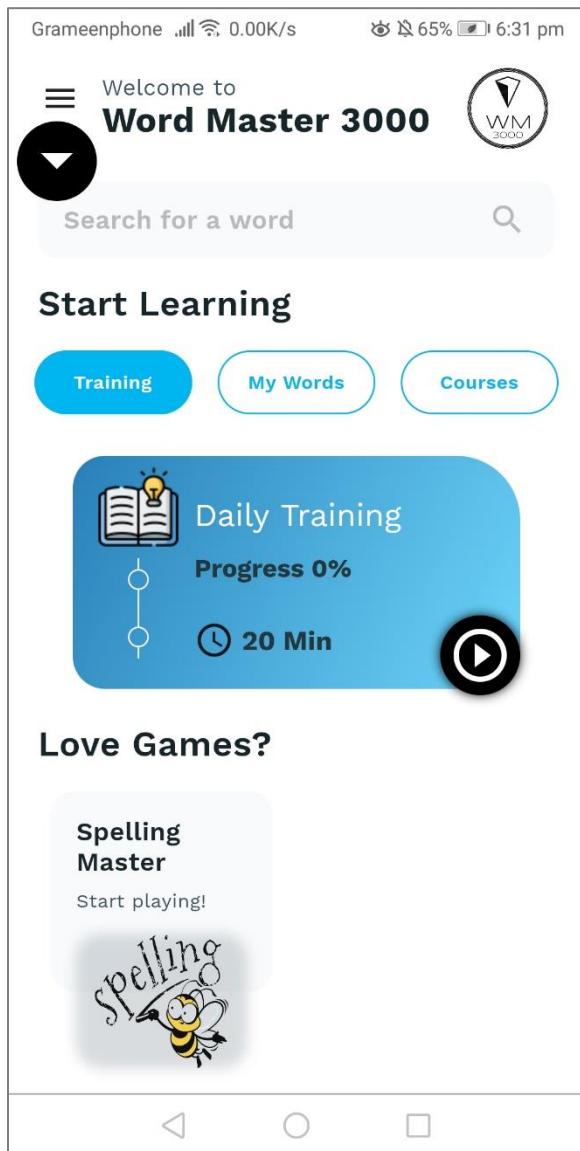


Permissions

After logging in, the user will be taken to the home screen of our app. The user will need to give permission “Display over other apps” upon first login. The app will carry the user to the permission page. The user needs to provide permission only once; that is after first successful login.

Home Screen

After providing necessary permissions (Only once, during first login) the user is good to go. Now, the user will be taken to the home screen.

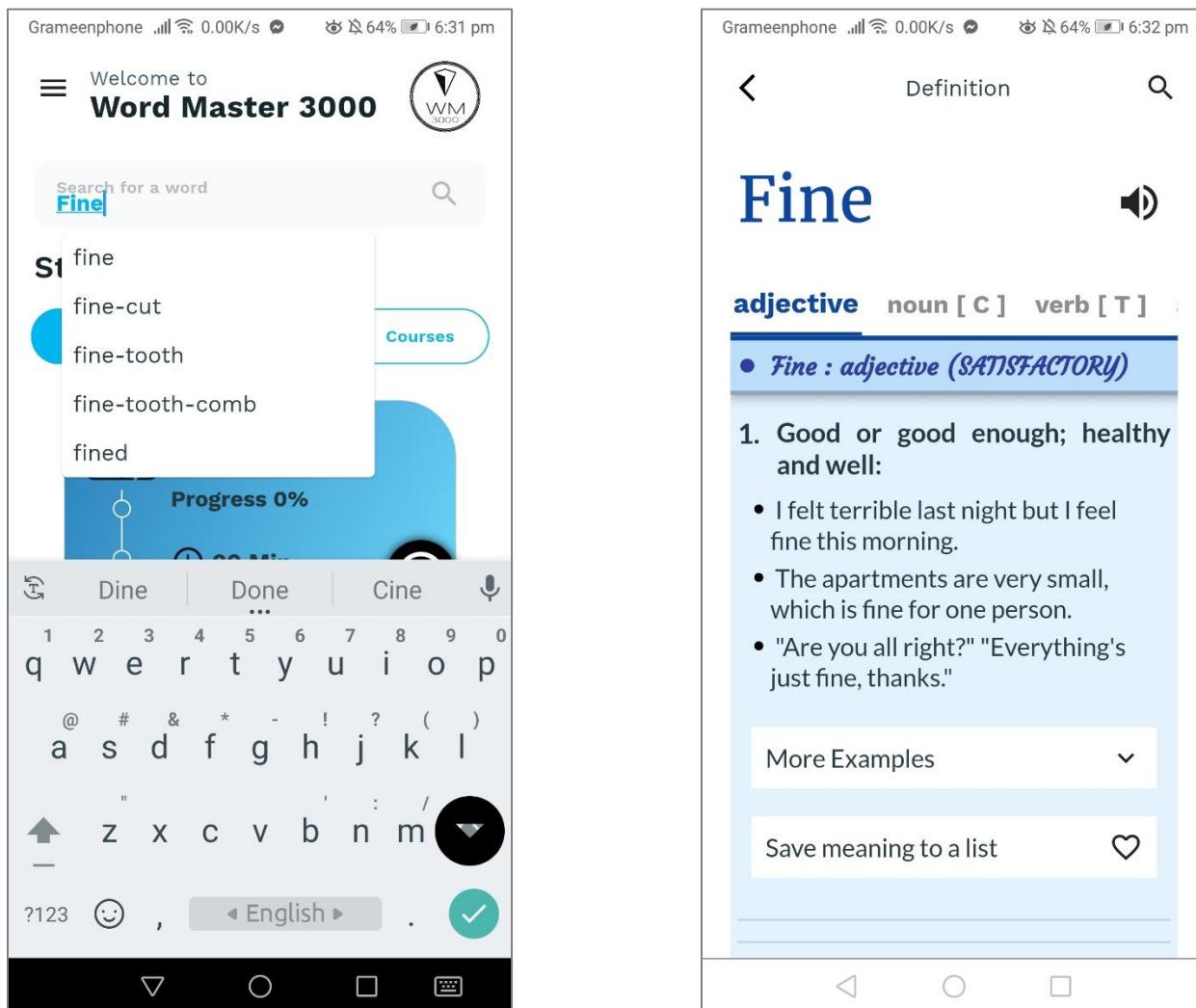


Search Words

The user can search for various words from the home screen. Upon typing, the user will be shown a suggestion list. The user can select a word or type the whole word to see its meaning and other details.

Word details will include meaning, parts of speech, example, multiple meanings, synonyms antonyms and other necessary information related to the word.

In the following example, the user can see what the word *fine* stands for as an adjective, as a noun, and as a verb, along with proper examples. The text to speech will help him to know the pronunciation of the word.

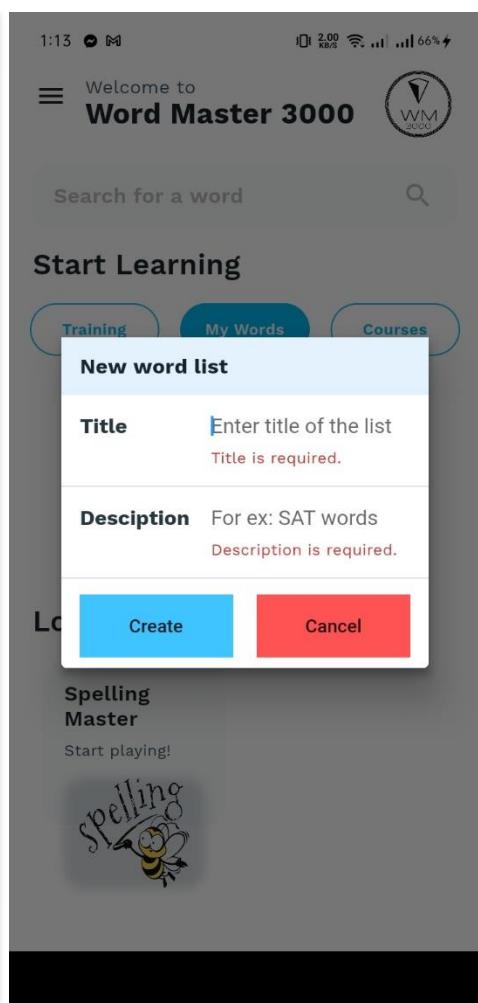
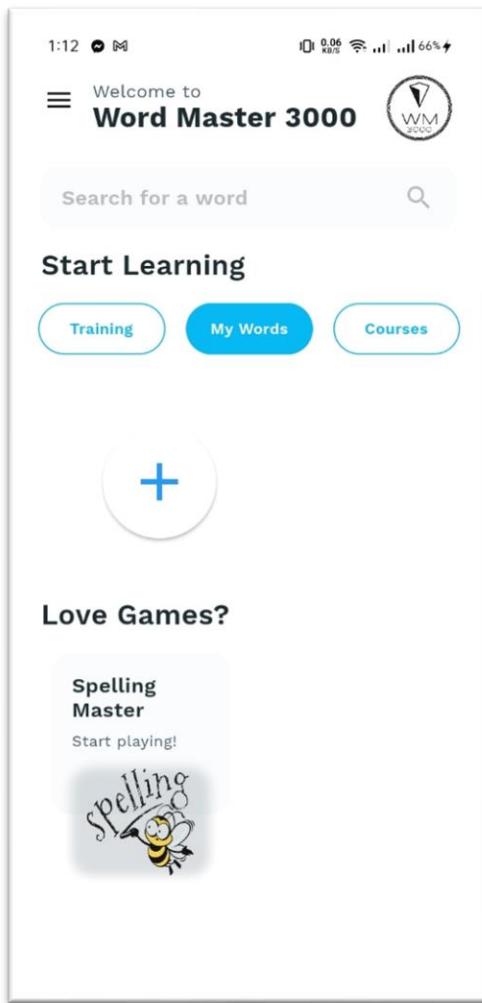
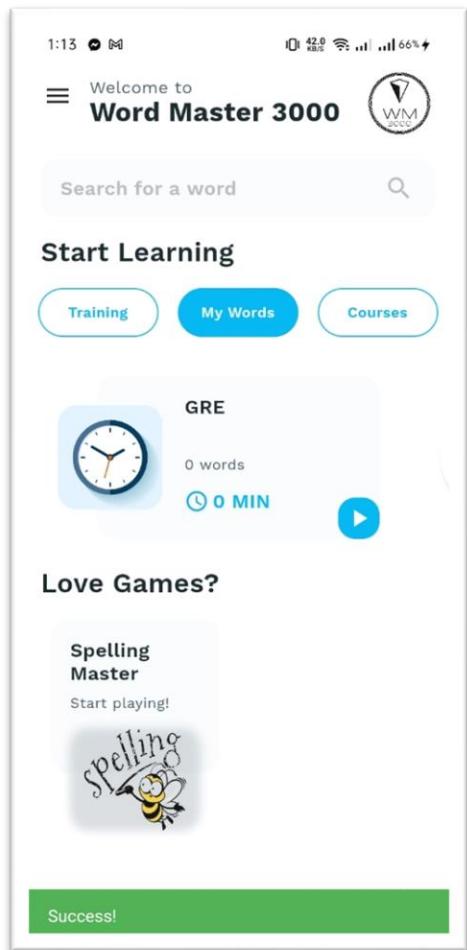


Store Word Meanings

The user can store word meanings upon clicking the 'Save meaning to a list' button.

Word list

The user can create wordlist from the home screen. User will have to provide the necessary information that is title and description to create a new wordlist.



Providing all necessary information, the user will have to press *create button* as show in the diagram above, and the course fill be created.

Add Words to list

After creating a word list, the user can add words to the list. The user can search any words, and save it to a selected list from the ‘save meaning to list’ option.

The image consists of two side-by-side screenshots of a mobile application interface, likely a dictionary or language learning app.

Screenshot 1 (Left):

- Top status bar: 1:14, 2.00 KB/s, 67% battery.
- Header: Definition, back arrow, search icon.
- Word: **Bottle**, with a speaker icon.
- Type: noun, More.
- Definition: **Bottle : noun (CONTAINER)**
- Example 1: A container for liquids, usually made of glass or plastic, with a narrow neck:
 - a milk bottle
 - a wine bottle
 - a bottle of beer/whisky
- Buttons: More Examples (dropdown), Save meaning to a list (with an X icon), GRE (with a heart icon).

Screenshot 2 (Right):

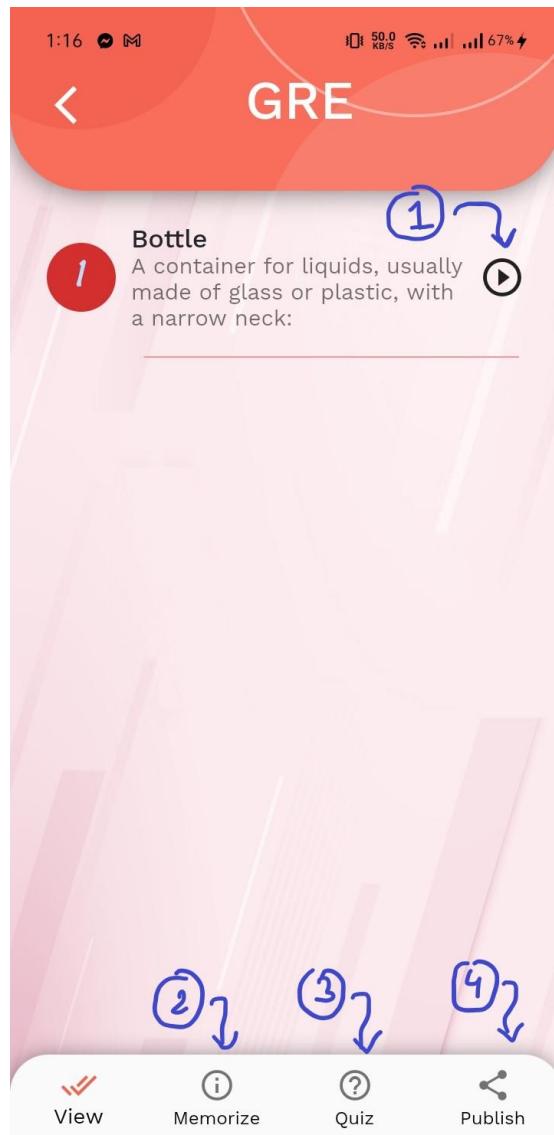
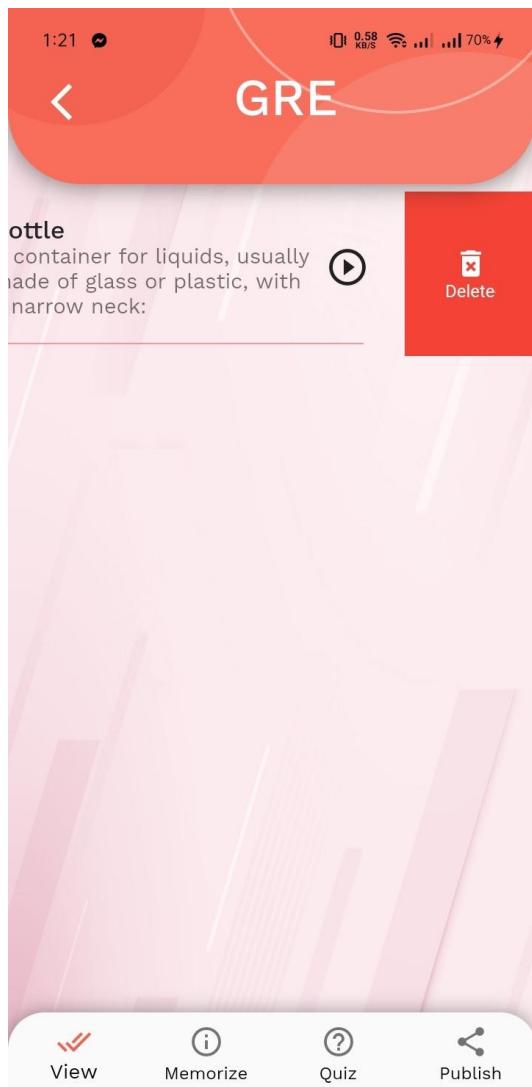
- Top status bar: 1:15, 52.0 KB/s, 67% battery.
- Header: Definition, back arrow, search icon.
- Word: **Bottle**, with a speaker icon.
- Type: noun, More.
- Definition: **Bottle : noun (CONTAINER)**
- Example 1: A container for liquids, usually made of glass or plastic, with a narrow neck:
 - a milk bottle
 - a wine bottle
 - a bottle of beer/whisky
- Buttons: More Examples (dropdown), Save meaning to a list (with an X icon), GRE (with a filled heart icon).
- Bottom bar: Added to GRE, UNDO.

Wordlist Activities

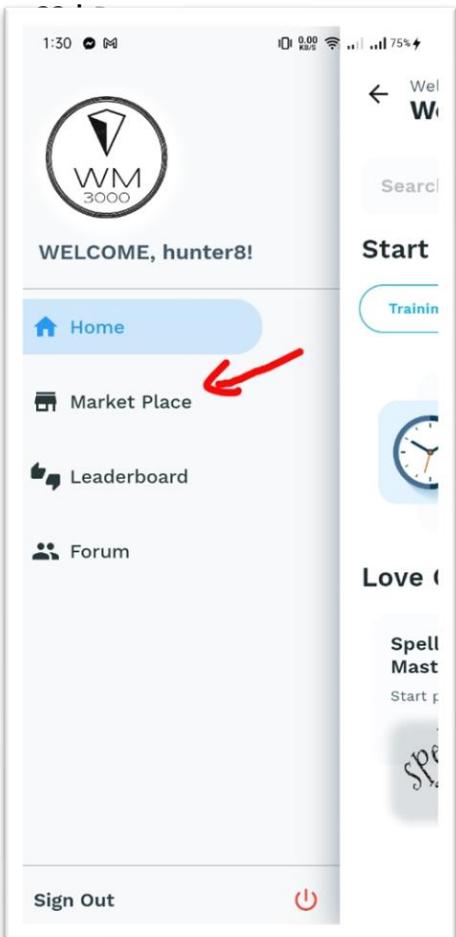
The user can view the wordlist as shown.

In the screenshot -

1. Open in Dictionary
2. Memorize
3. Quiz
4. Publish



User can delete words from list by swiping left on the word and selecting *delete*.



Market Place

The user can access market place from home screen drawer.

Market Place

- Word List
- TOEFL
- IELTS
- GRE

Total words: 1
W M 3 K

Practice words
hunter9@gmail.com

Here are some of my favourite words in this list.

Total words: 1
W M 3 K

GRE
hunter8@gmail.com

Important GRE words

Total words: 4
W M 3 K

New Courses My Contribution

GRE

1 **Abject**
The state of being extremely unhappy, poor, unsuccessful, etc.: ▶

2 **Garner**
To collect something, usually after much work or with difficulty: ▶

3 **Nimble**
Quick and exact either in movement or thoughts: ▶

4 **Ossify**
If habits or ideas ossify, or if something ossifies them, they become fixed and unable to change: ▶

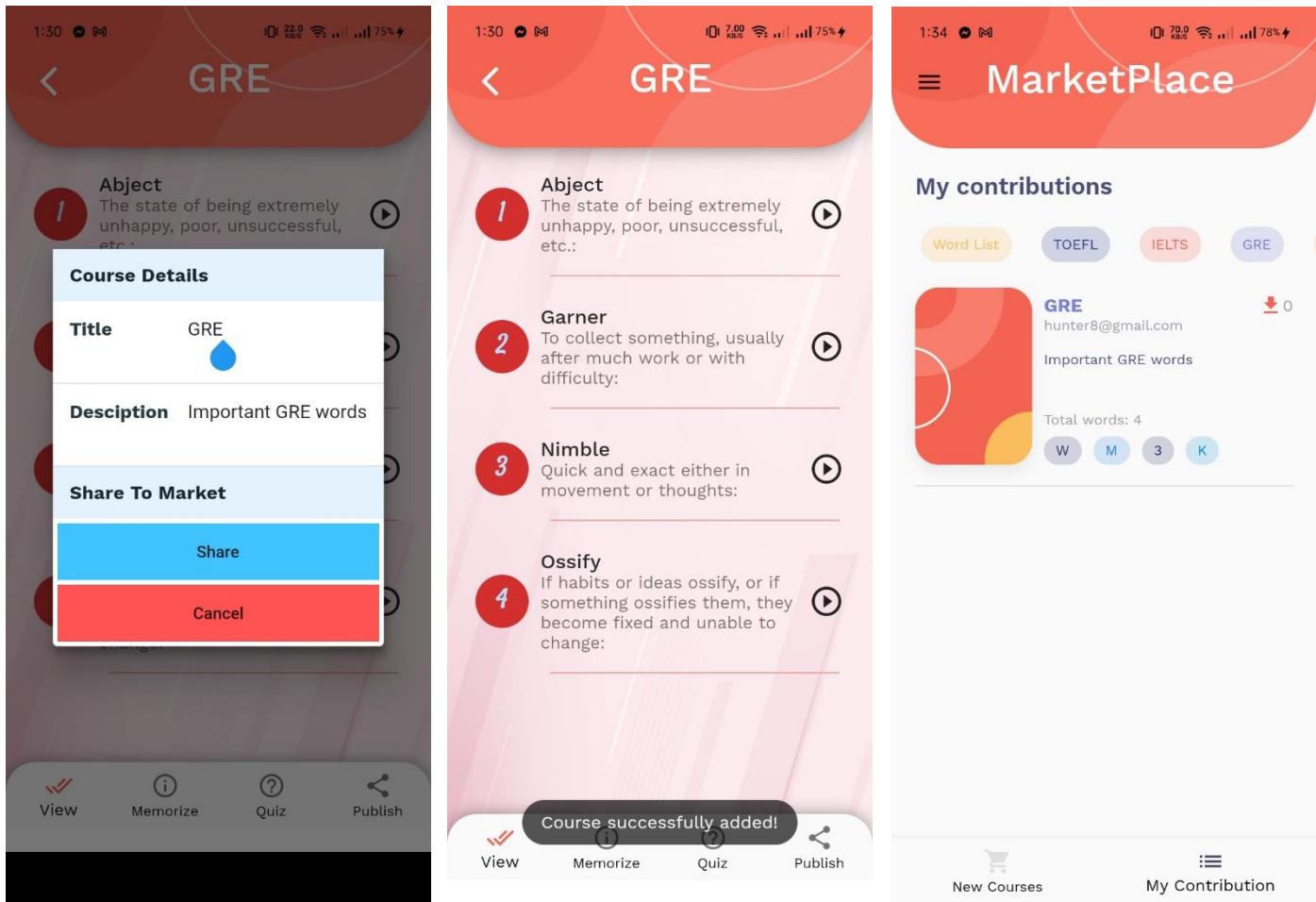
View **Enroll** **Unpublish**

Upon pressing on any course, the user will be taken to that course's page. There the user can

- Enroll in course
- Unpublish (If the author is the user)

Share Word List to Market Place

The user can share their wordlist with others. The user has to select *publish* from the course details page and press the *share* button on the pop up. The course will be shared to the market place. The user can find their shared courses under *my contribution* in the marketplace.



Daily training

Users can access daily training from the home screen. The training card shows the progress that has been made, and the estimated time required to complete the training session.

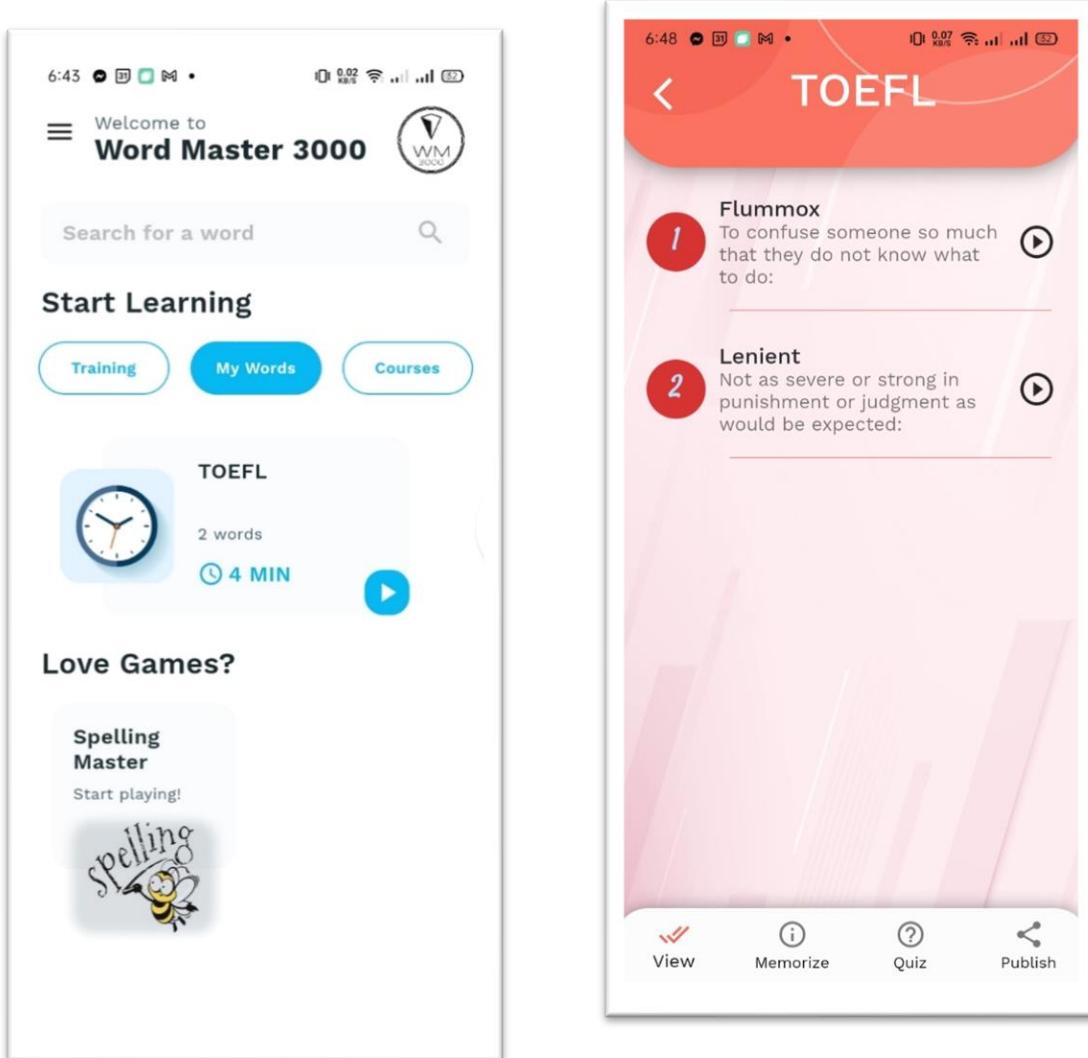


Training sessions are divided into two sessions - training with the user's wordlists and training with enrolled courses.

To access each session, the user has to either enroll in a course from marketplace or create a wordlist and add at least one word in it.

Word-list training

The user creates a wordlist named “TOEFL” and adds two words in it



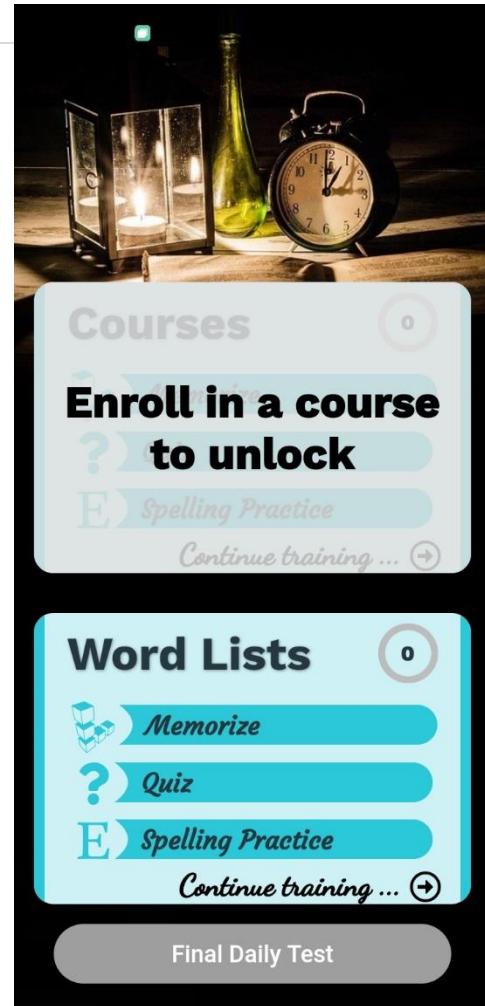
This unlocks word-list training –

The training session consists of three phases:

1. Memorization
2. Quiz
3. Spelling practice

Each of the three phases will take place sequentially.

User's progress is shown in the top right corner of each card.



Memorization

Memorization starts with this screen. The user will memorize this meaning and tap on “tick” button if he is done, or on the cross button if he is unsure.

In this screenshot –

- | | |
|--|---------------------------|
| 1. Progress bar | 2 Word |
| 3. Example | 4. Meaning |
| 5. More examples | 6. See word in dictionary |
| 7. Press if the word is memorized. Also triggers swipe animation to the right. | |
| 8. Press if the user is not confident about the word. Also triggers swipe animation to the left. | |



If all words are not memorized, the session proceeds with the crossed words until none is left. Then the user has to try again until he can tick through all the words in one run. Without that, the training session will not proceed.

The memorization session completes when all words are memorized, i.e., there are no crossed words in the first round. (As shown on the right)



As memorization is done, the training session proceeds and the progress bar starts to fill.

Quiz

1 / 10 Completed

• Meaning of "Lenient"?

Eg: They believe that judges are too lenient with terrorist suspects.

Options

- a structure formerly used in East Asia for transporting one person. It consists of a box that is carried by four or six people by means of two long poles.
- to notice or see
- Not as severe or strong in punishment or judgment as would be expected
- used to refer to something that people want to have

Continue

Courses

Enroll in a course

to unlock

E Spelling Practice

Continue training ... ↗

Word Lists

33

Memorize ✓

Quiz

E Spelling Practice

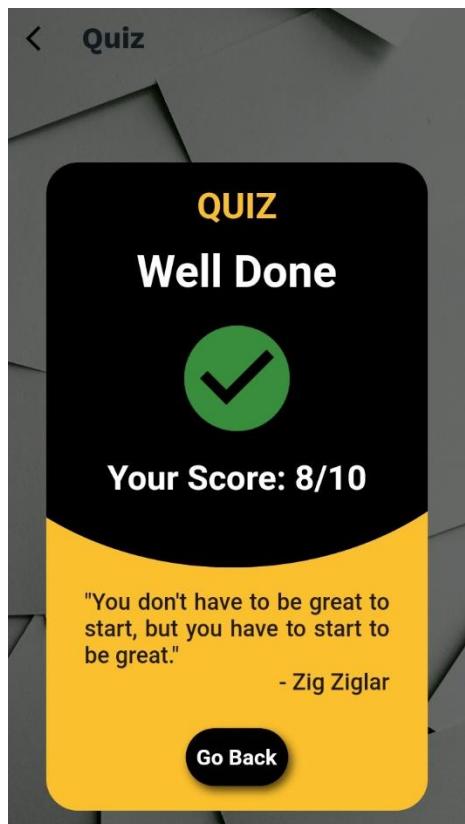
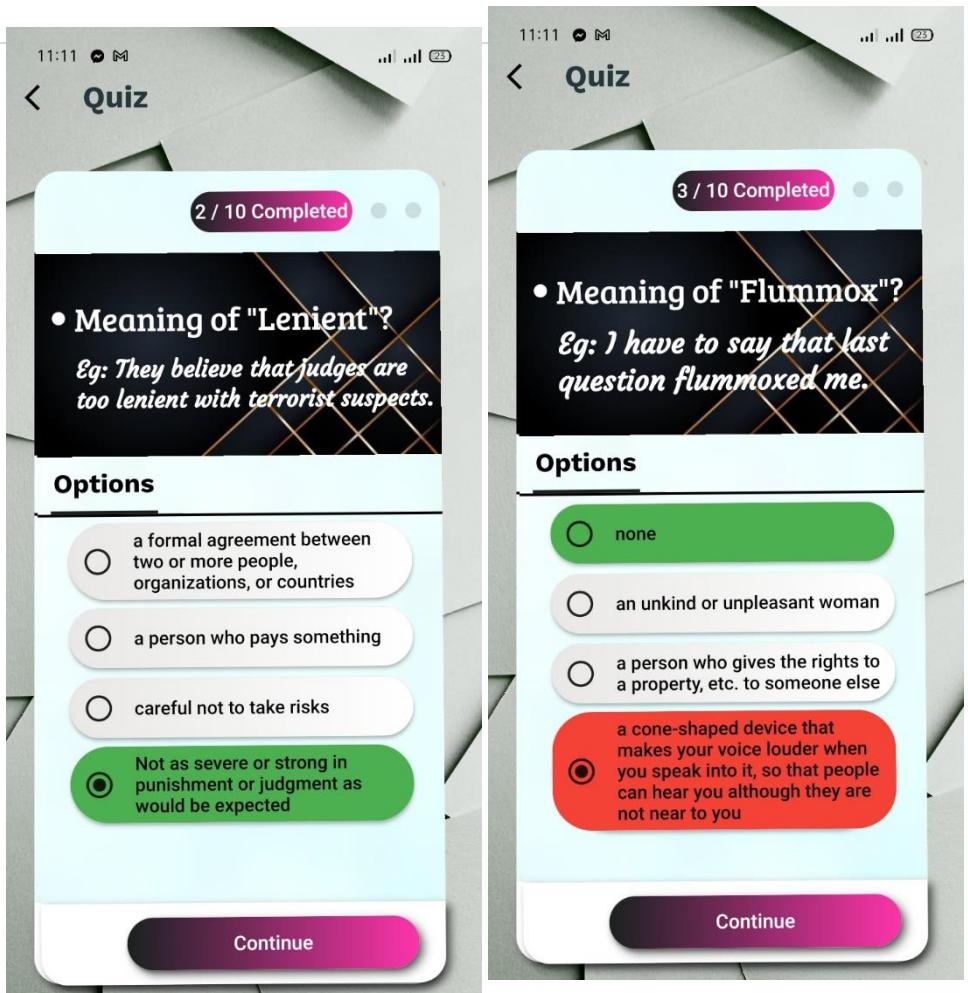
Continue training ... ↗

Final Daily Test

Quiz

Quiz screen starts like this. The word in question and an example sentence is displayed. The user selects what he thinks is the correct answer.

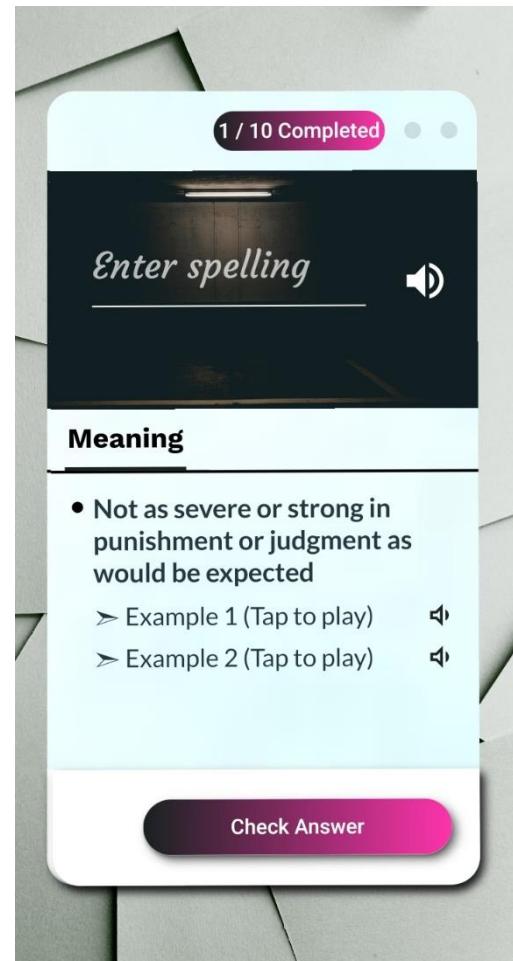
The answer is evaluated immediately



In the end, the whole test is graded and the score is displayed.



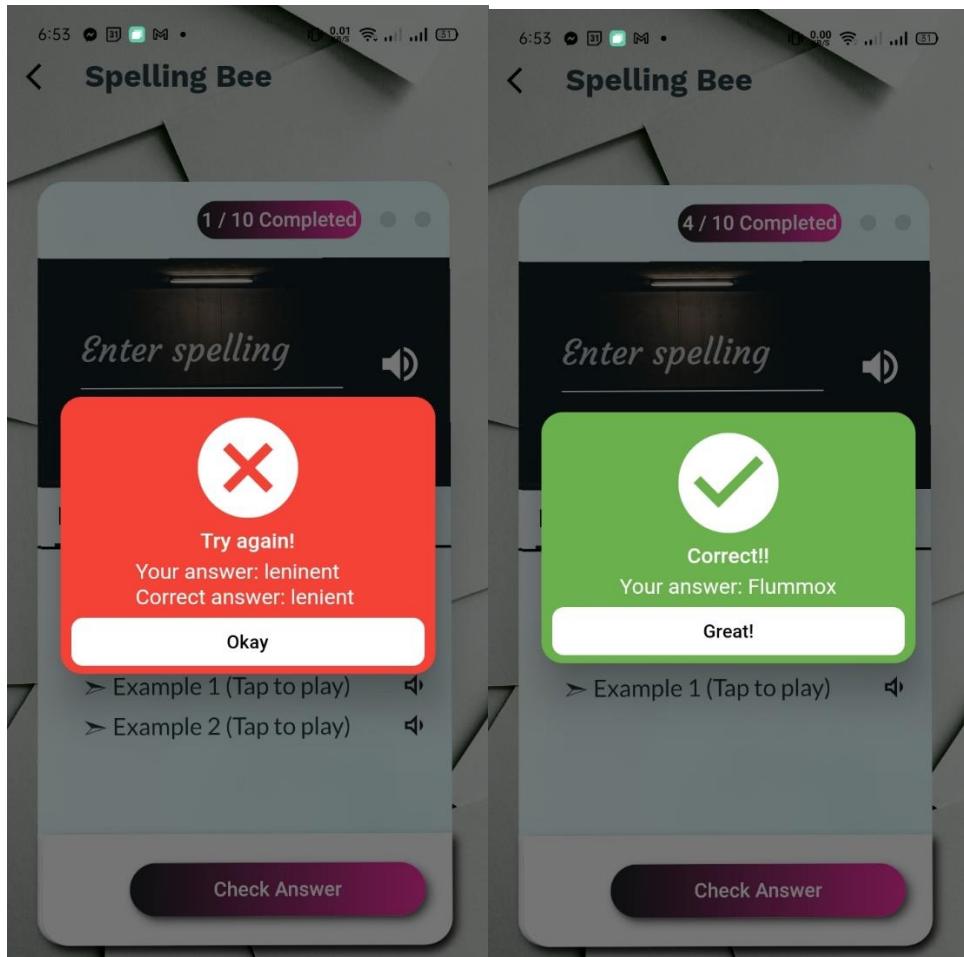
Quiz is complete and the progress bar moves to 66%. The final step is spelling practice.



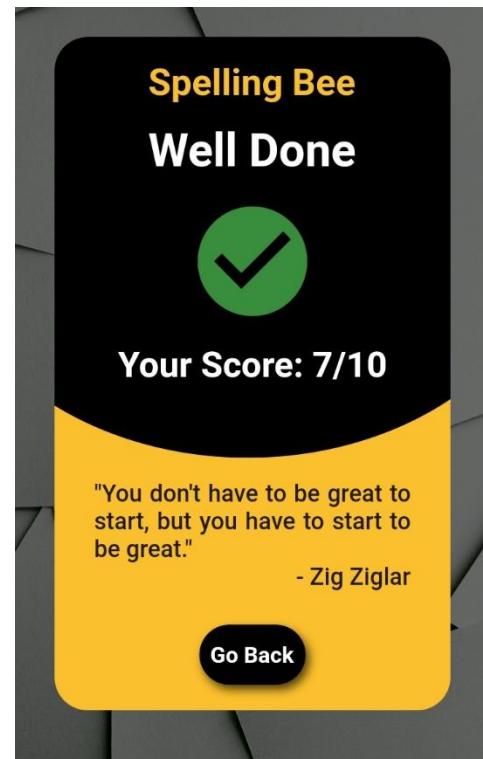
Spelling exercise starts like this. The user can tap on the speaker icon to listen the pronunciation of the word. The meaning is also given. The user can also listen to the example sentences by tapping on them.

The user then tries spelling the word in the space provided. The result is immediate checked and the feedback is shown.

The outcome -

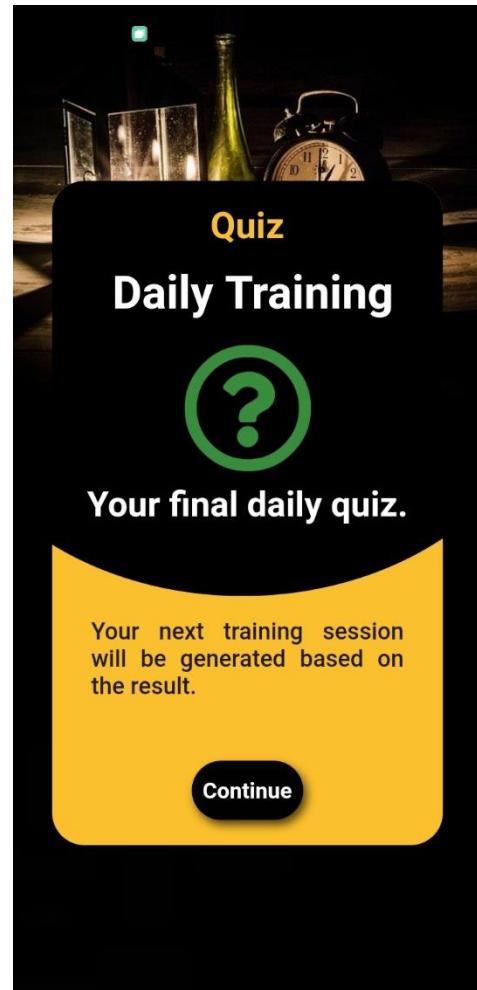


In the end, the spelling test is graded and the result is shows like this ->



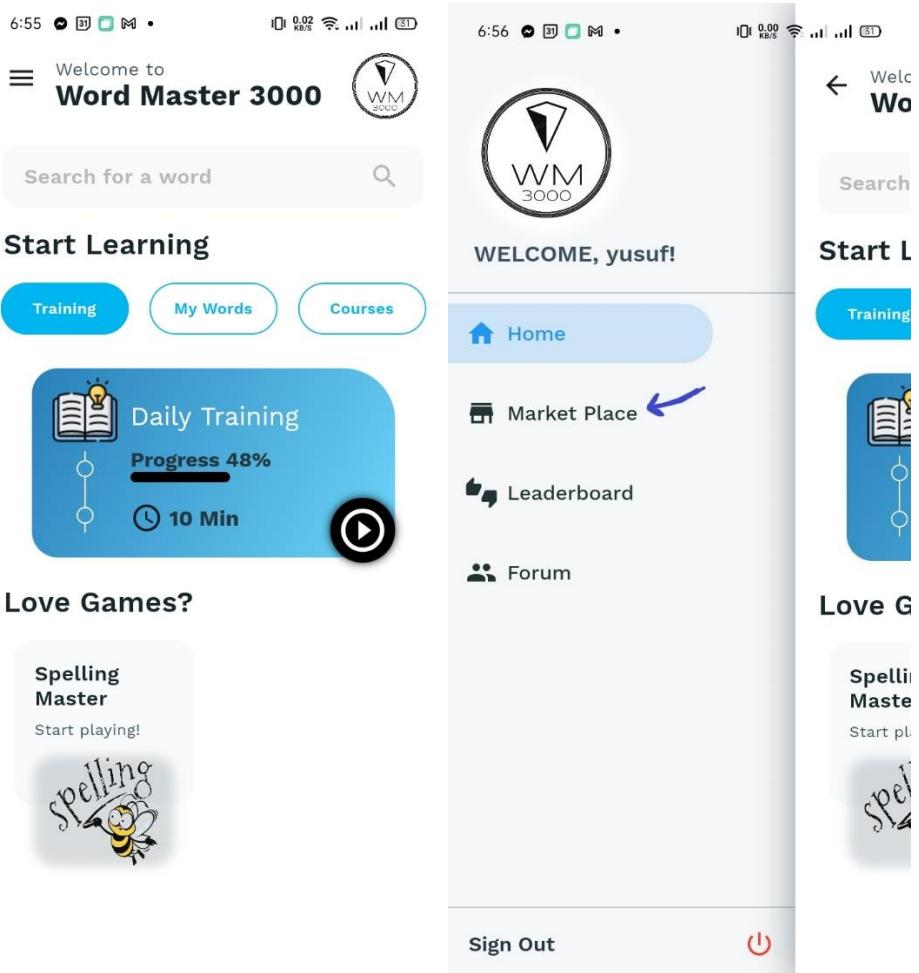


Training with word-lists is done now. The daily test has now been unlocked. This test can only be taken once a day.



But before taking the test, let's say the user decides to enroll in a course and train with it.

Course Training -



Choosing and enrolling in a course -

The image consists of two side-by-side screenshots of a mobile application interface.

Screenshot 1 (Left): MarketPlace

- Header:** MarketPlace
- Categories:** Word List, TOEFL, IELTS, GRE
- Courses:**
 - Practice**: hunter@gmail.com, Practice regular words, Total words: 2, Download 5. A blue arrow points from this card to the second screenshot.
 - Words of the day**: hunter8@gmail.com, From merriam webster's dictionary, Total words: 4, Download 3.
 - My Frequent Word**: hunter@gmail.com, My recent search appear here.
- Bottom Navigation:** New Courses, My Contribution

Screenshot 2 (Right): Words of the day

- Header:** Words of the day
- Card 1:**

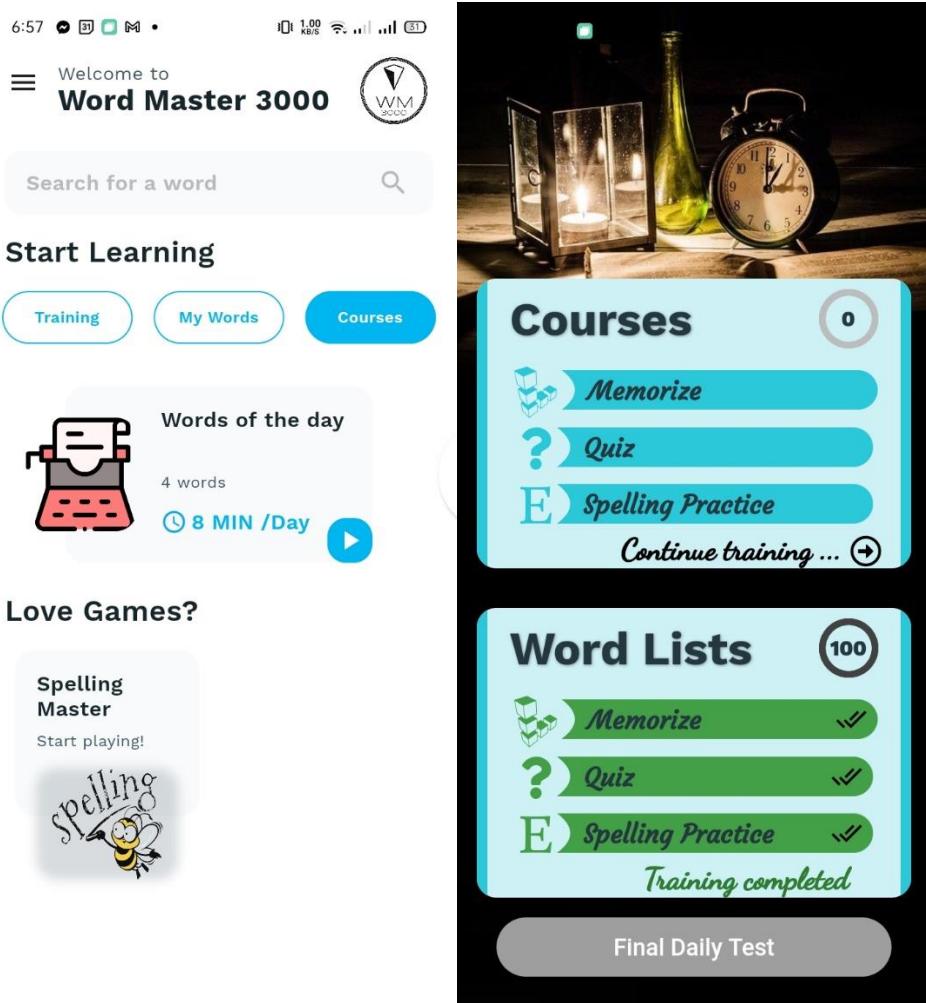
Tousle
To make someone's hair untidy, for example by rubbing it, or, of the wind, by blowing it:
- Card 2:**

Winnow
To reduce a large number of people or things to a much smaller number by judging their quality:
- Card 3:**

Liminal
Between or belonging to two different places, states, etc.:
- Card 4:**

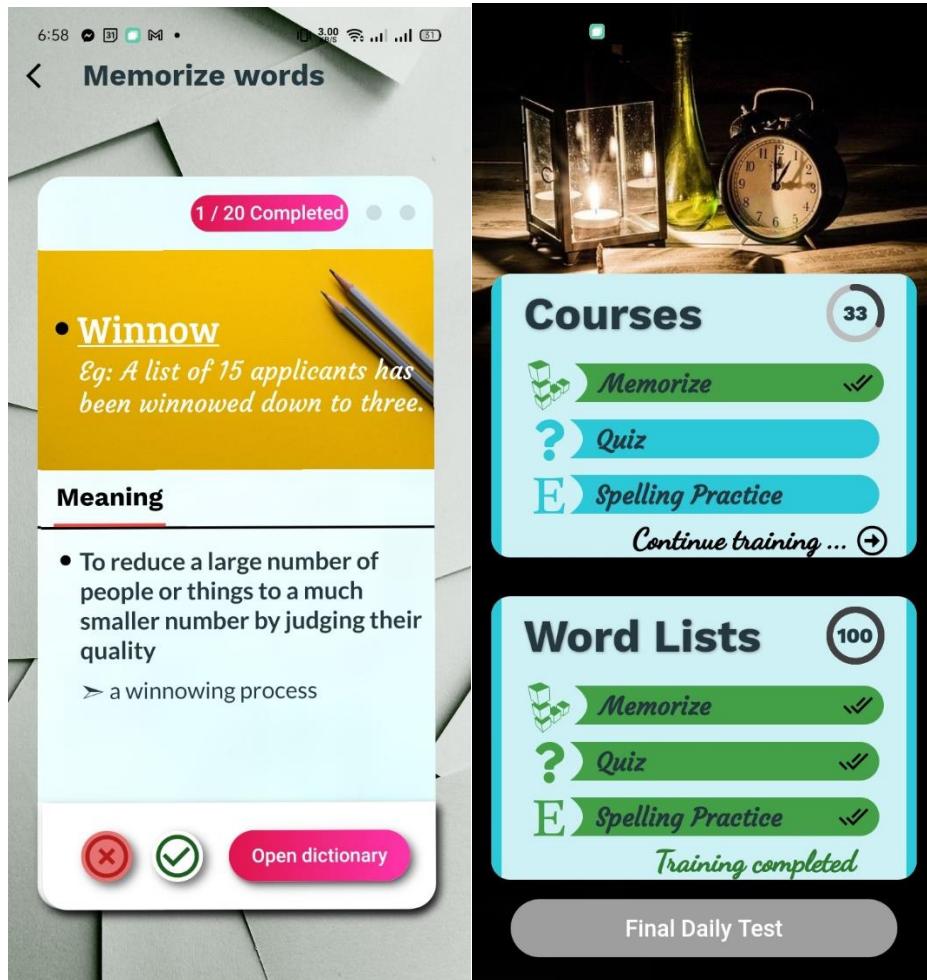
Sophistry
The clever use of arguments that seem true but are really false, in order to deceive people
- Bottom Bar:** Enrollment successful!, View, Enroll

The course has been added, and daily course training has been unlocked –



But the final test has been disabled. This is because more words have been added to the daily training. The final test will unlock after course training is done.

Course training is very much like word-list training. Starting with memorization –



Then quiz –

The image displays two screenshots of a mobile application interface, likely a language learning or vocabulary app.

Left Screenshot (Quiz Screen):

- Header: "Quiz" with a back arrow icon.
- Section: "1 / 20 Completed".
- Text: "• Meaning of "Winnow"?"
- Text: "Eg: A list of 15 applicants has been winnowed down to three."
- Section: "Options"
- List:
 - the activity of travelling regularly between work and home
 - a chemical substance used to kill fungus or prevent it from growing
 - To reduce a large number of people or things to a much smaller number by judging their quality
 - the process in which something such as information, money, or goods passes from one person to another
- Button: "Continue" (pink button).

Right Screenshot (Courses and Word Lists):

- Courses:** Shows a list of three items:
 - Memorize**: Status: ✓✓
 - Quiz**: Status: ✓✓
 - Spelling Practice**: Status: ✓✓

Count: 66

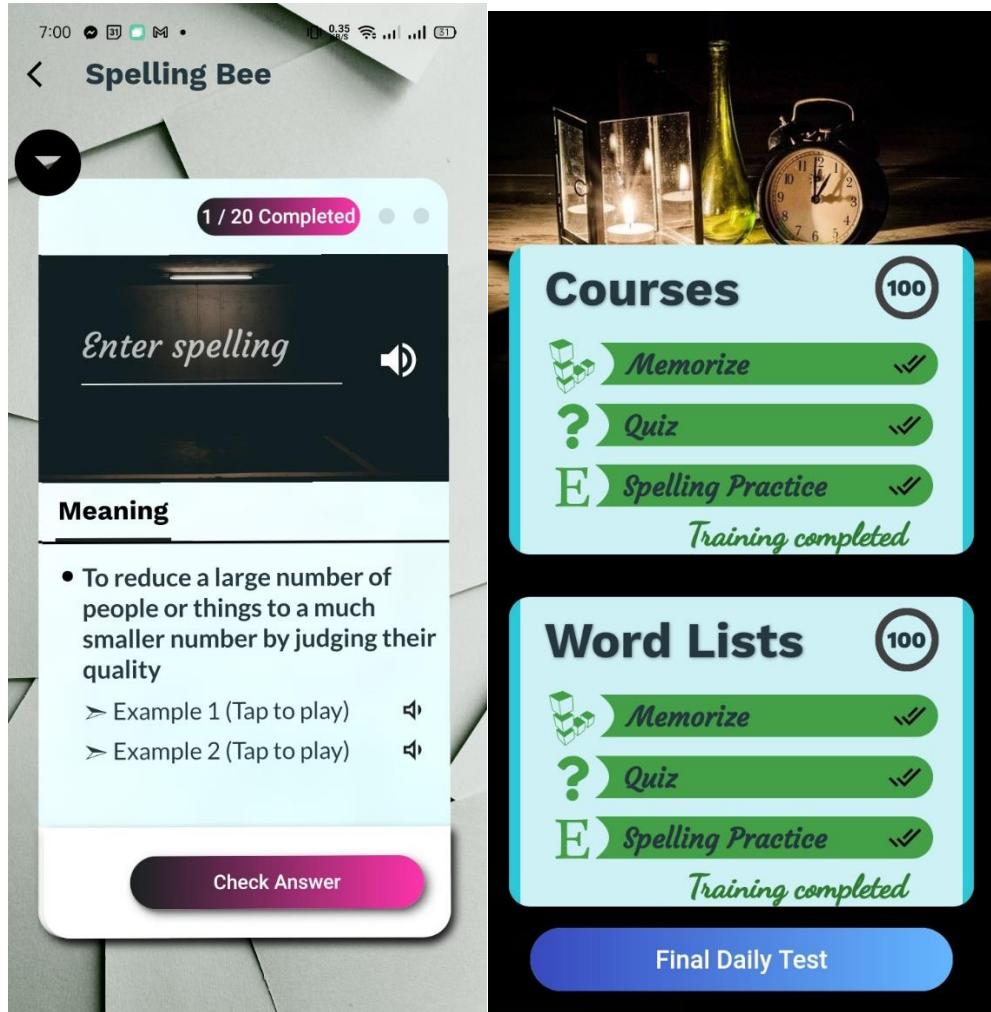
Button: "Continue training ..."
- Word Lists:** Shows a list of three items:
 - Memorize**: Status: ✓✓
 - Quiz**: Status: ✓✓
 - Spelling Practice**: Status: ✓✓

Count: 100

Text: "Training completed"

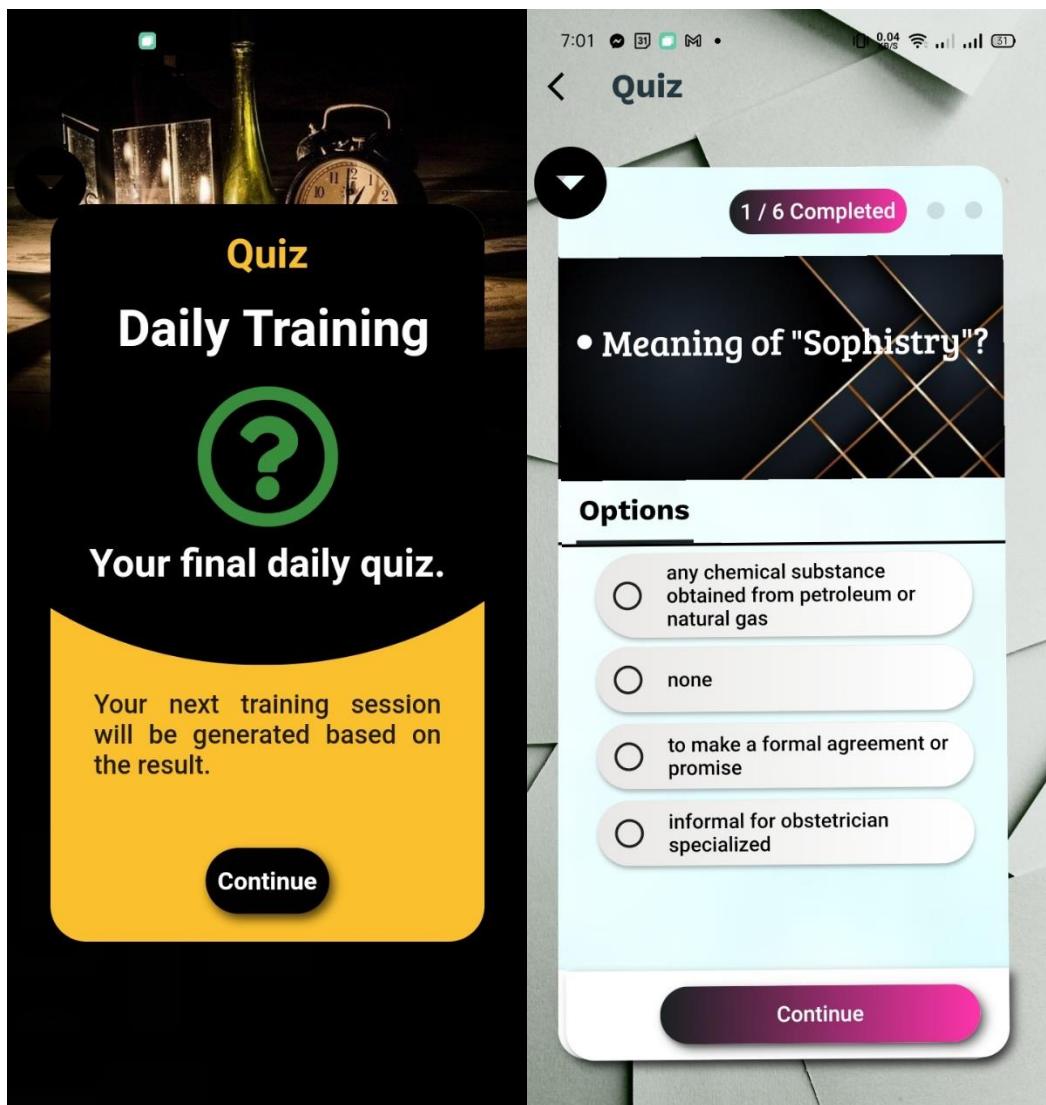
Button: "Final Daily Test"

And finally spelling practice –



Now final daily test has been unlocked. The test is a quiz on the words learnt this day.

Final daily test -



When done, the test is graded and stored in cloud. Training for the next day will be generated based on this result.



Courses 100

- Memorize** ✓
- Quiz** ✓
- E Spelling Practice** ✓

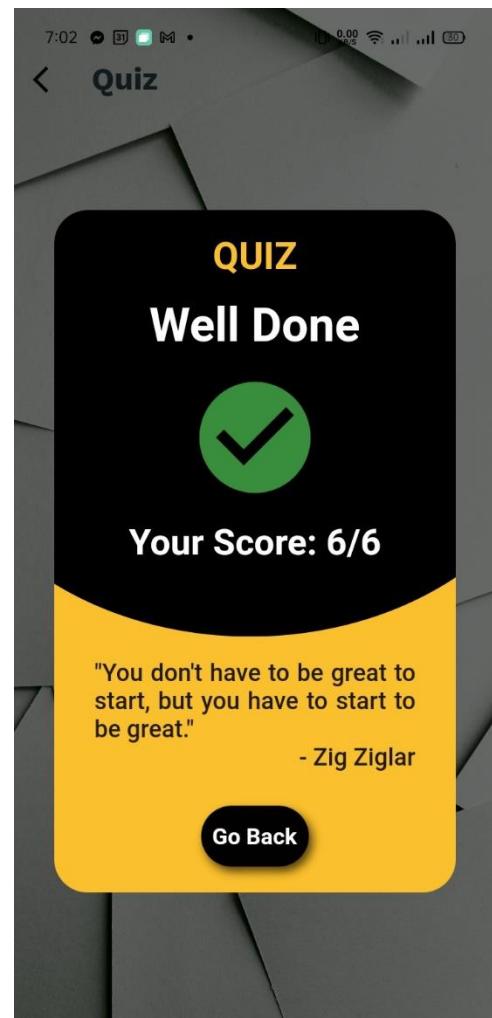
Training completed

Word Lists 100

- Memorize** ✓
- Quiz** ✓
- E Spelling Practice** ✓

Training completed

Test Completed (View)



When done, the user can tap on the green button at the bottom to see the training summary containing all the words learned this day

If the user wishes, he can review these words again, or practice them further. For further practice, he has the option to access memorization and quiz feature like he can for any word-list.

7:02 0.00 KB/S •

Welcome to
Word Master 3000



Search for a word

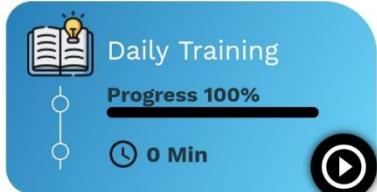


Start Learning

Training

My Words

Courses



Love Games?

Spelling
Master

Start playing!

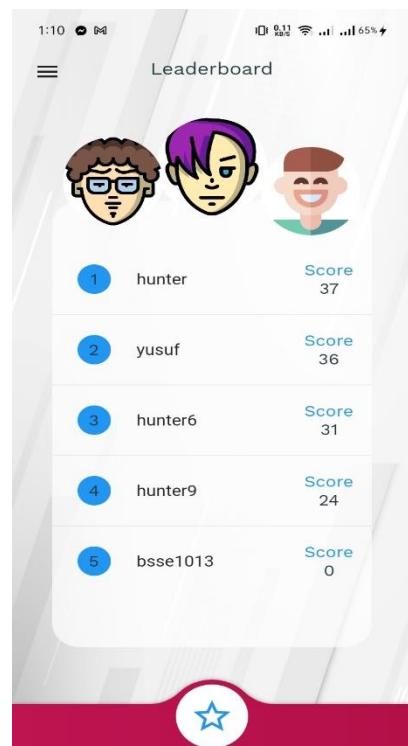
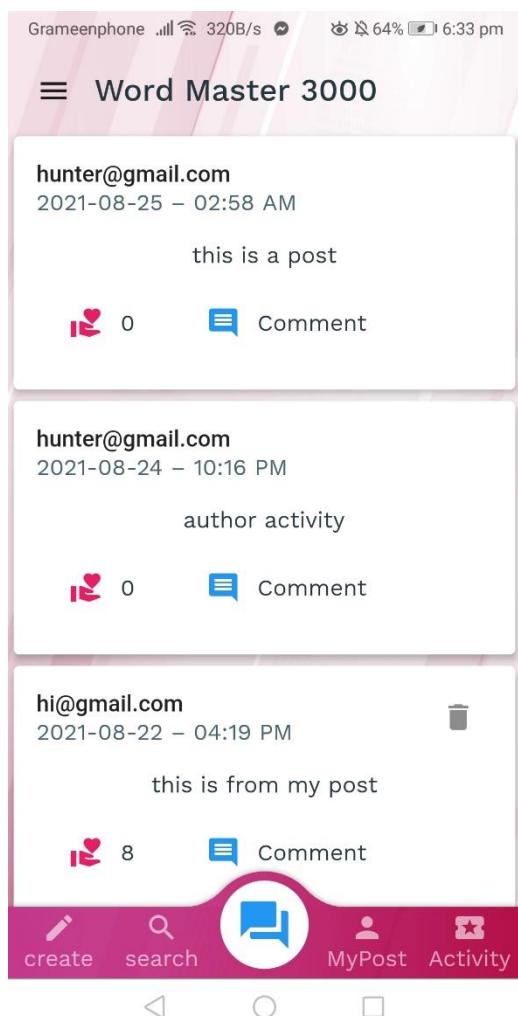


Training progress bar shows 100% since it is complete for this day. On the next day, a new training routine will be generated and the training can be started again.



Leaderboard

The user can see top performers from the leaderboard. It can be accessed via the drawer on the home screen.

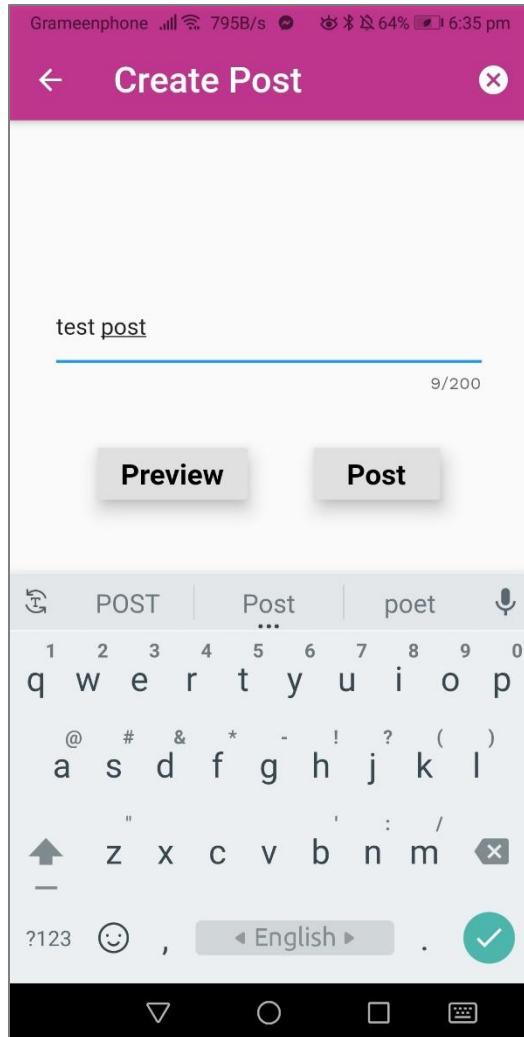


Forum

Forum is a platform for open discussion between the users, where they can share their ideas and thoughts and post problems. It is a public place. Upon pressing the 'Forum' option from the home screen drawer the user will be entered into his feed where he can see, appreciate and comment on others post.

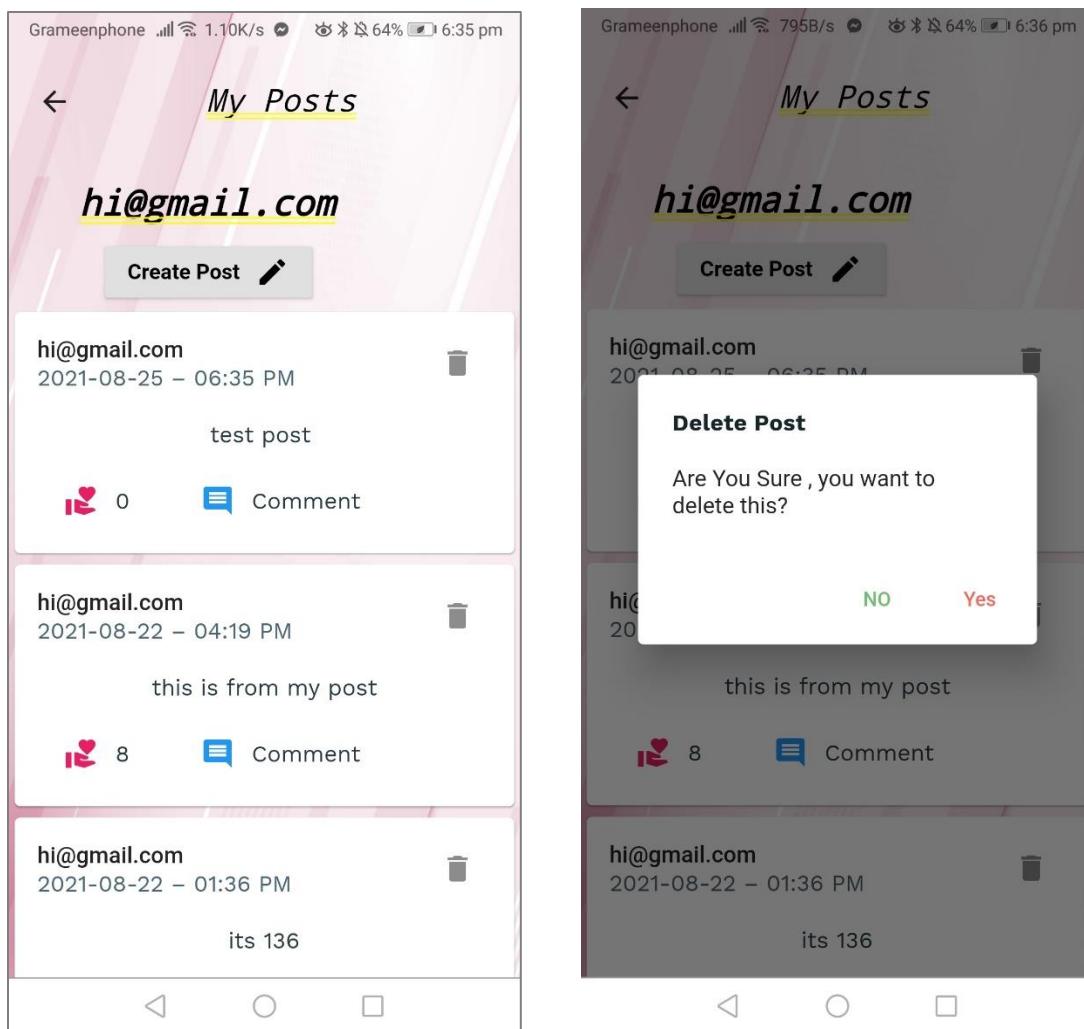
Create Post

Upon pressing the create option from the bottom bar, the user will be taken to the create post page where he can create a new post, he can preview the post if he wants.



My posts

Upon hitting the ‘my post’ option the user will be taken to a page where he can see all of his posts. There is an option to create a new post. The user can also delete a post if he /she wants

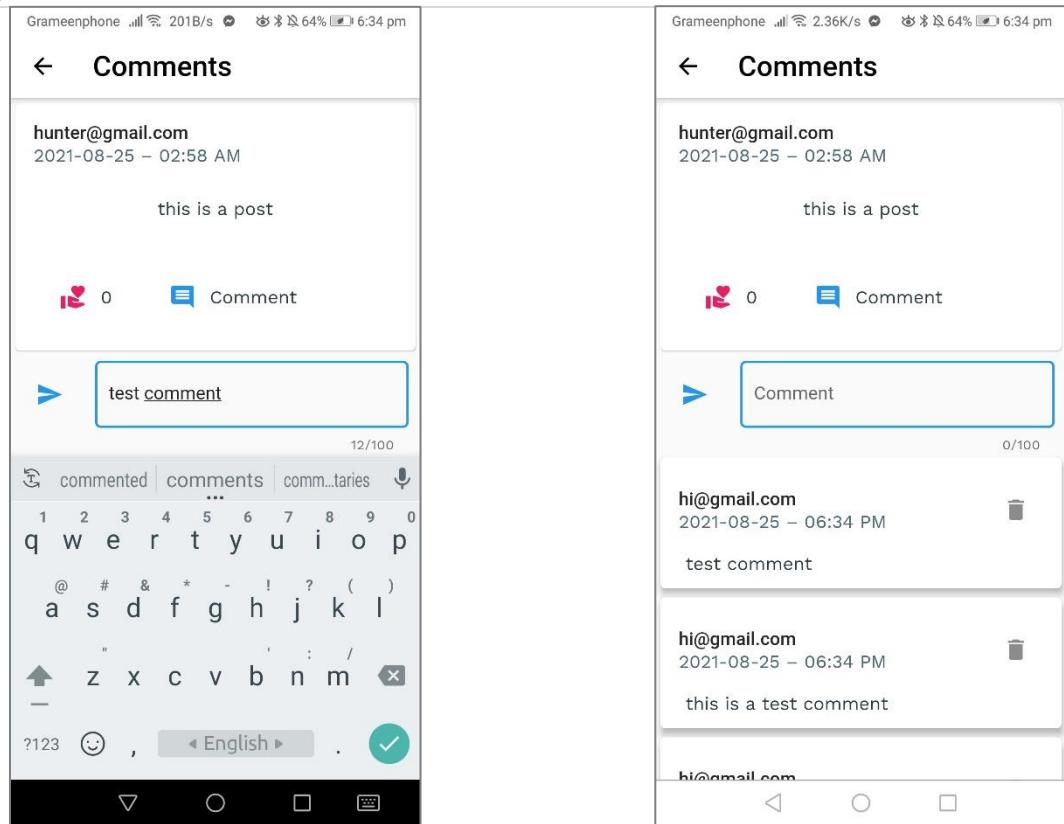


User can delete a post by pressing the trash bin icon, and confirming in the popup. A user can only delete their own post.

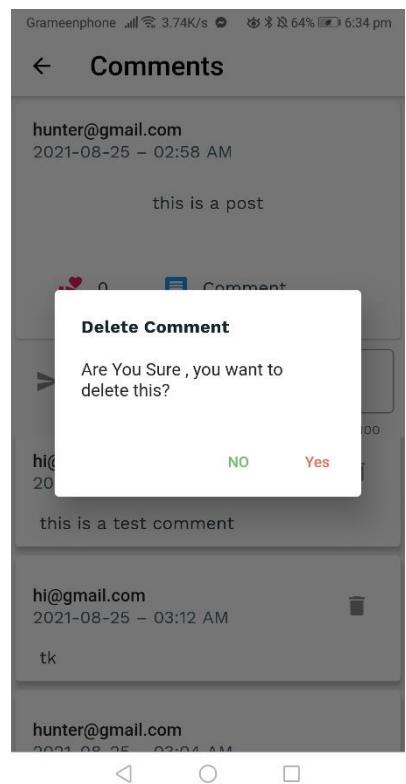
A user can also show appreciation to a post by clicking the pink icon. Appreciation count will be visible.

Comment

User can also post comment to their own or others post.



First the user will have to press comment button of a post which will take them to comments page. Then the user can write his comment and post it.

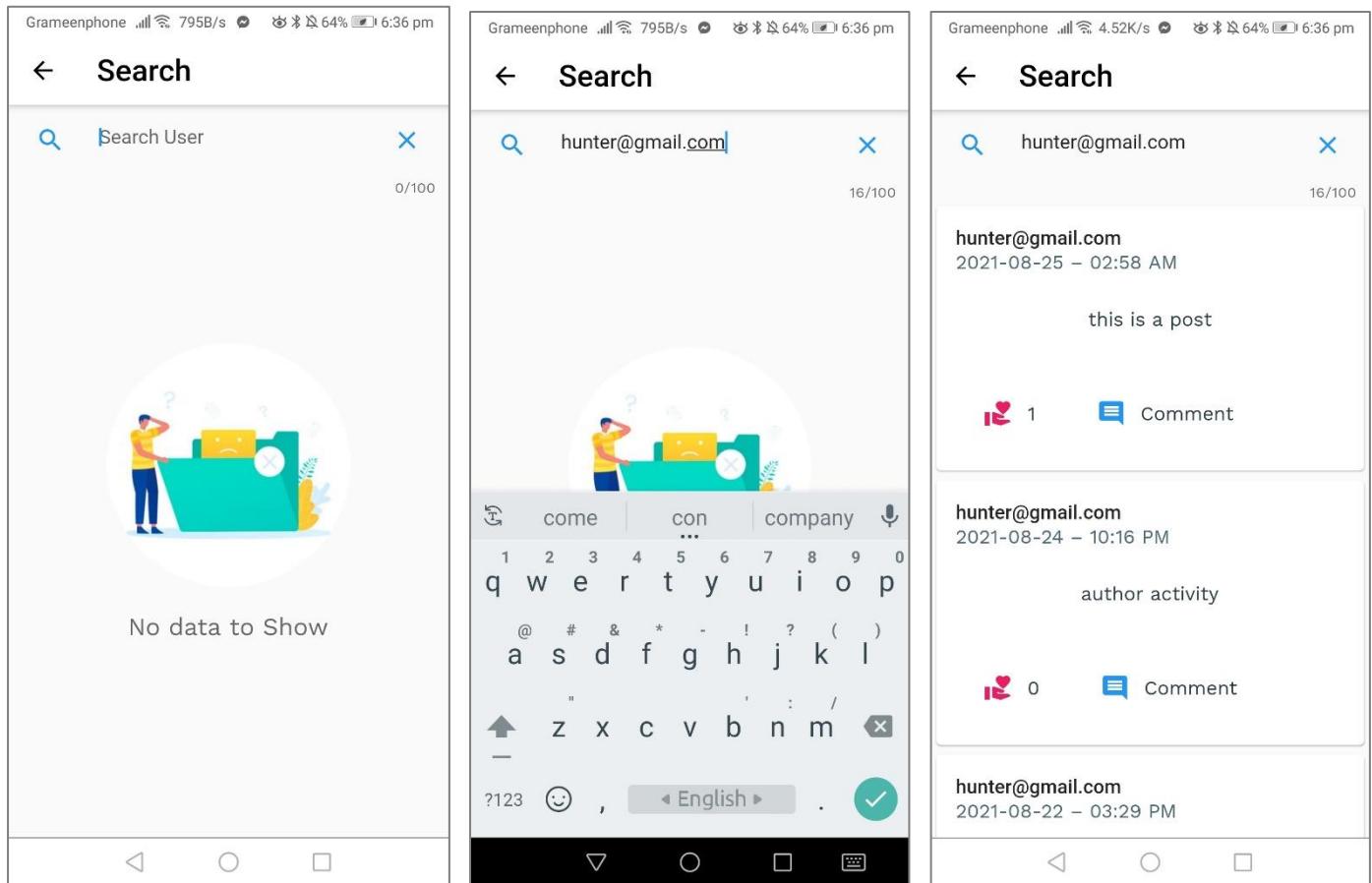


Delete Comment

A user can delete his or her comment. The user will have to press the trash bin icon and confirm it. The comment will be deleted

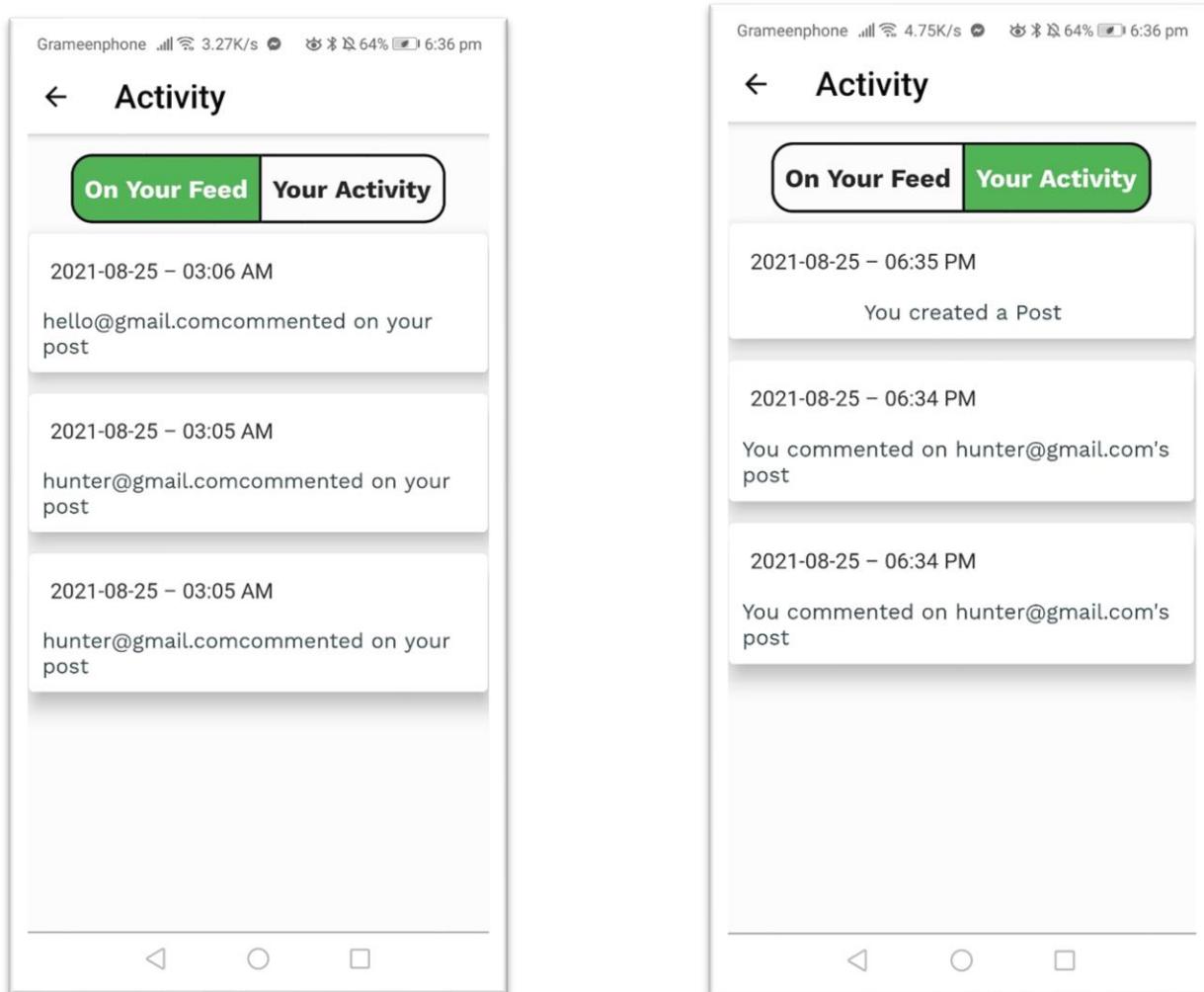
Search User

The user can search for another user by email. The user will have to go to the search page from feeds bottom bar. Enter the user email and press search. If data is found, it will be shown.



Activity

The User can see list of activities that might concern him. In the *on your feed* tab, the user sees how others are reacting to his posts. This includes the list of users who commented on his post. In your *activity* tab, the user can see the list of posts that he has created and the places where he has left comments.



Search On Copy

At the very beginning the user gives a permission and allows a small bubble to display over other apps. The bubble helps the user to lookup any word meaning along with parts of speech from any application. The user just needs to copy the word and its meaning will be showed in the bubble. At the same time if the user copies anything large or any special character then it will be detected and no pop up will arise.

Grameenphone 4G 5.17K/s 63% 6:38 pm

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IIT University of Dhaka

The admission test exam has been postponed until further notice. Application process will resume after the test day. Click [here](#) to apply.

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Professionalism

 IIT's primary vision is to plant the seed of professionalism amongst its students to ensure they lead a successful life. IIT firmly believes that people who act professionally, encourage their colleagues and friends to conduct themselves in a manner that supports success.

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Excellence

Grameenphone 4G 1.17K/s 63% 6:38 pm

IIT University of Dhaka

The admission test exam has been postponed until further notice.

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professionalism

{ noun [U] } :

the combination of all the qualities that are connected with trained and skilled people:

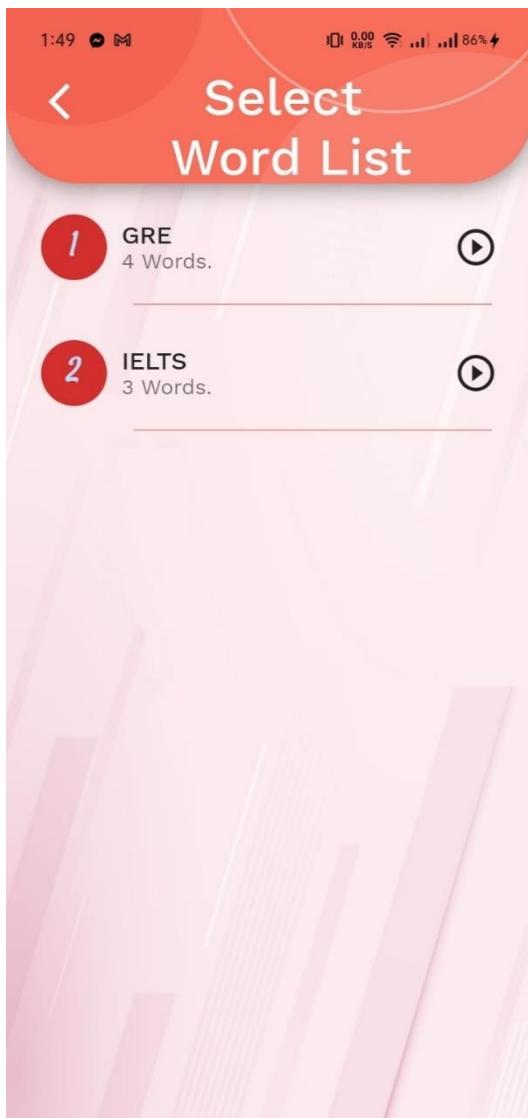
[CLOSE](#)

their colleagues and friends to conduct themselves in a manner that supports success.

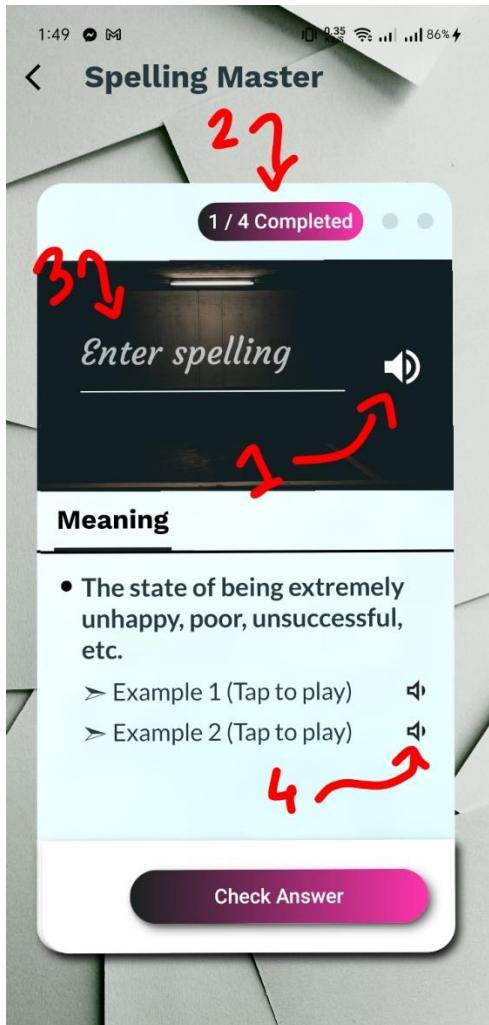
Excellence

Spelling Master

User can play spelling master where they can practice word spelling. User can access the game from the home screen.

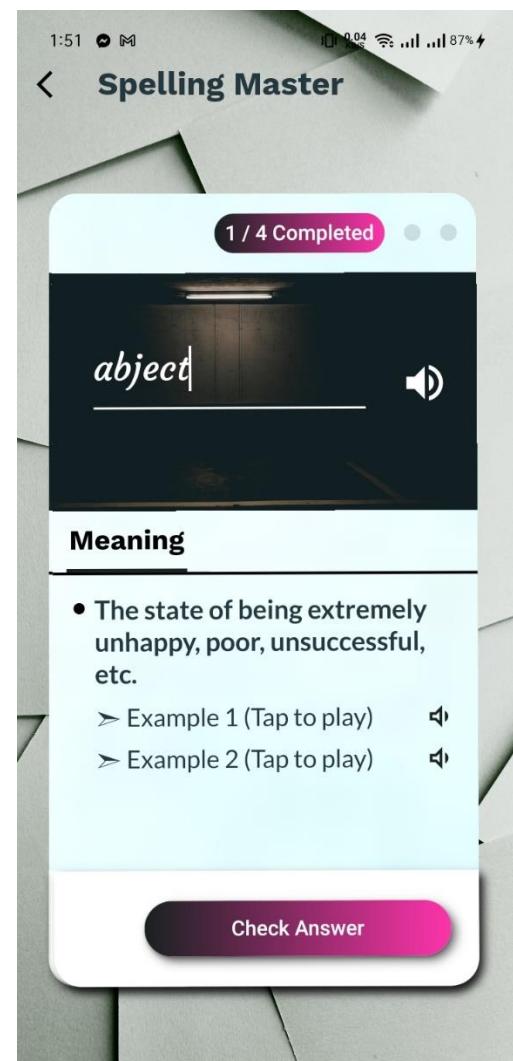


The user selects one of his word-lists for which he wishes to practice spelling.



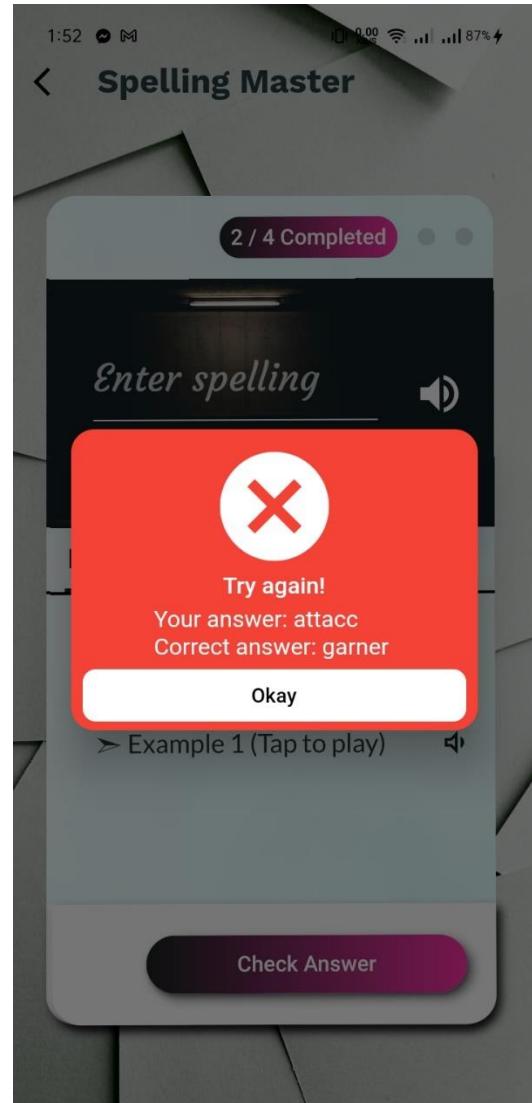
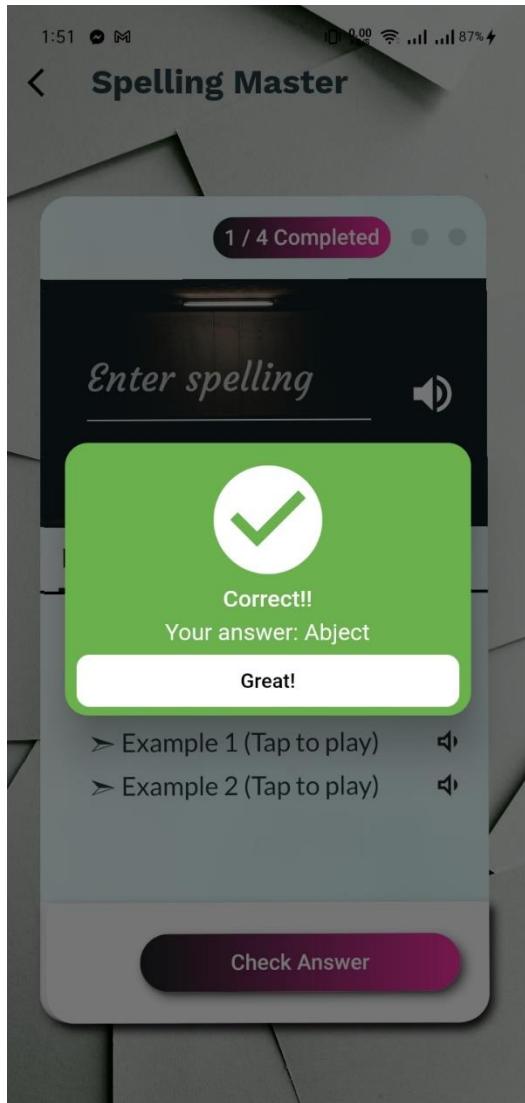
Here he is given the pronunciation, meaning and examples of the word. Users can tap the speaker icons to listen to the pronunciation of the word and its use in a sentence.

1. To listen word's pronunciation
2. Progress indicator
3. User types answer here
4. To listen to word's use in sentences



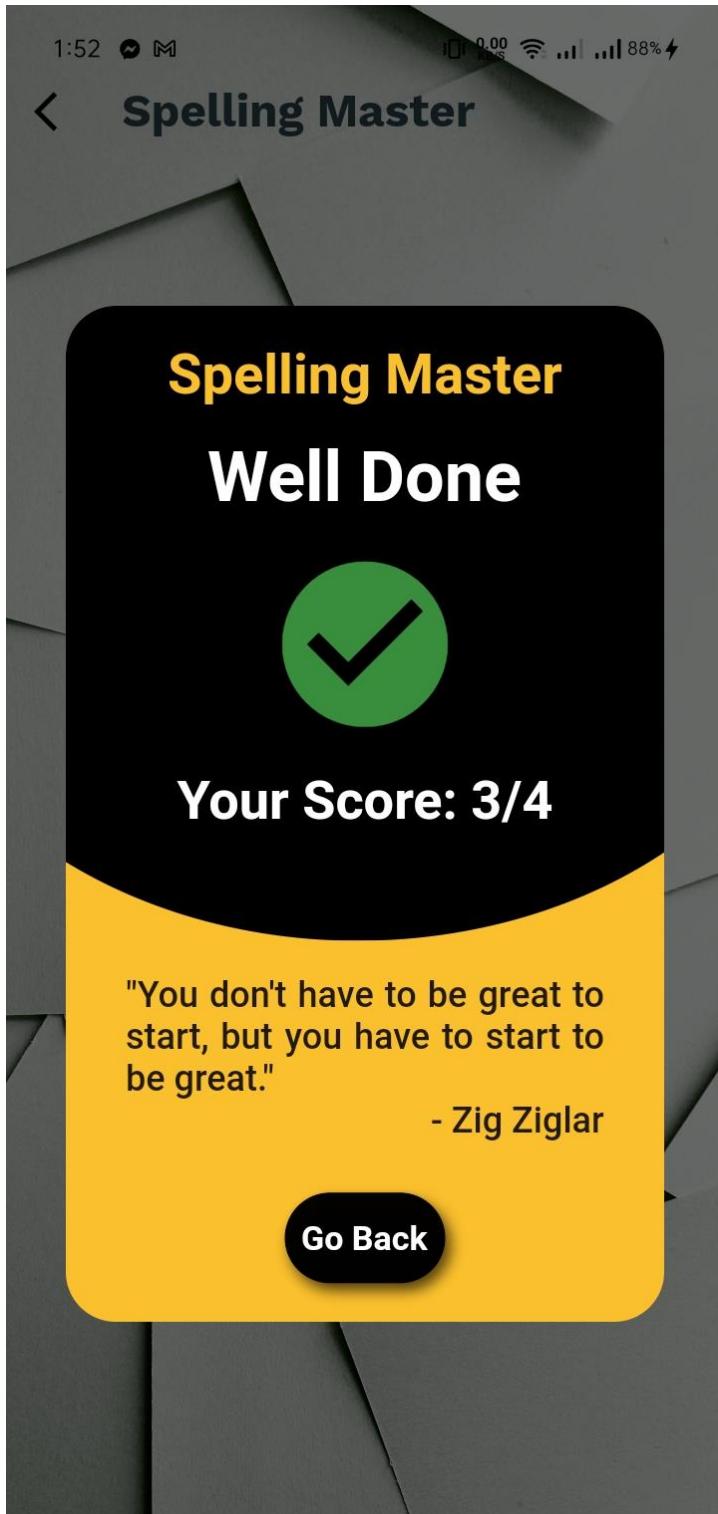
Answer

User types his answer and taps "Check answer"



The user sees this when his answer is correct

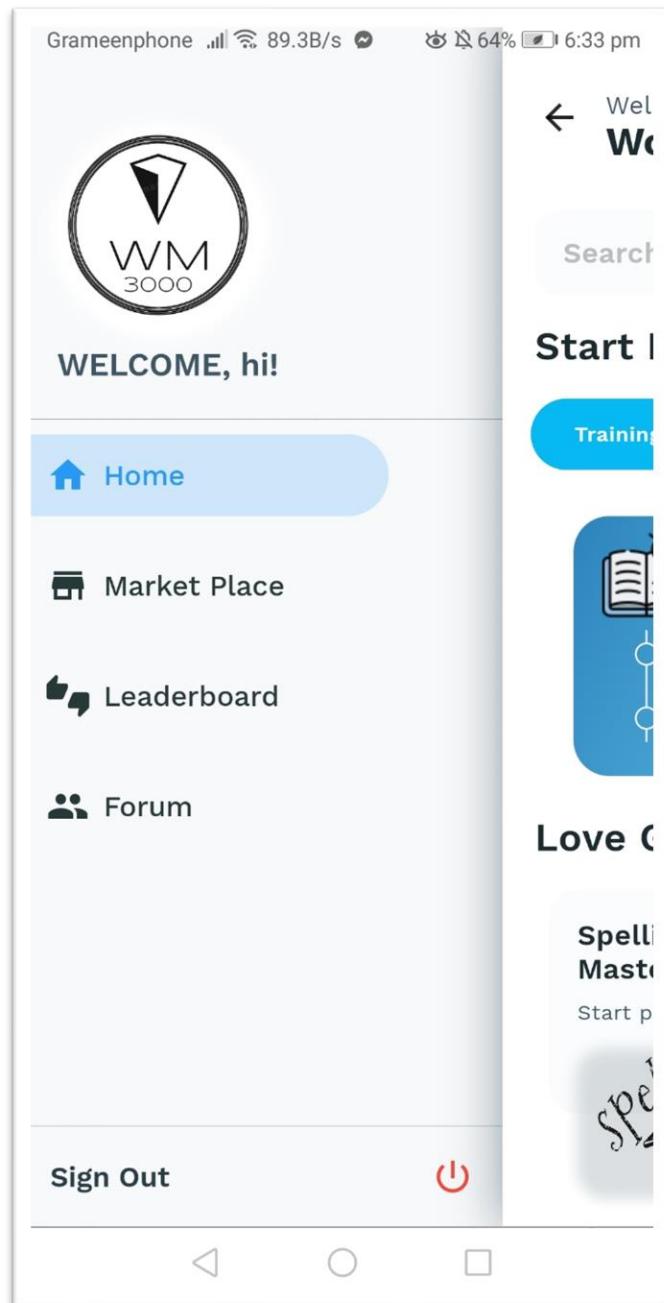
The user sees this when his answer is incorrect.



Finally, the user can see his/her achieved score from the game.

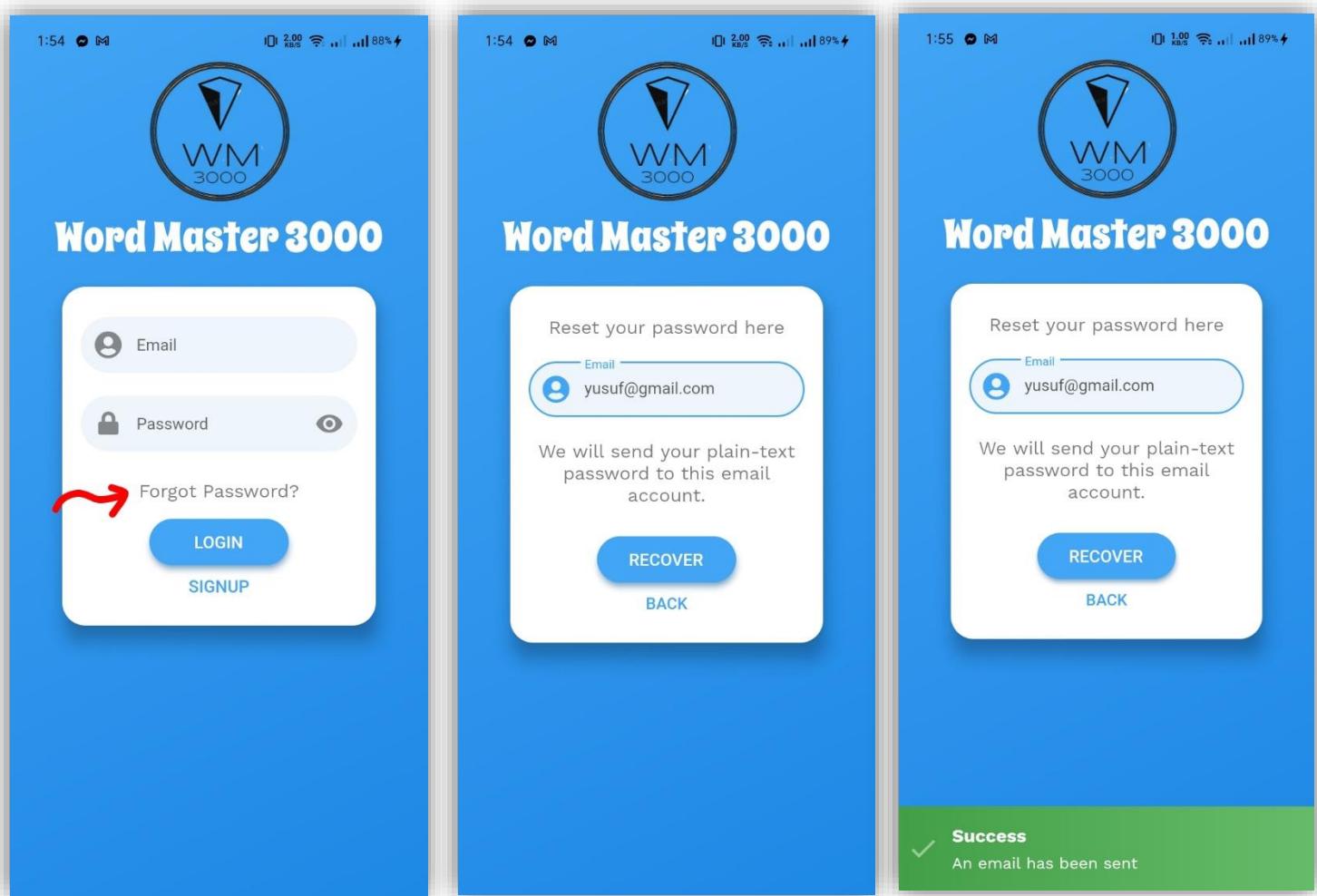
Sign Out

The user can press the sign out button from the main screen drawer, and the user will be signed out from the app.



Account Recovery

If the user has an account but cannot remember the password then the user can press the forget password button and enter his email address. An account recovery mail will be sent to the user.



PROJECT SET UP

To run the current version of our application, pull source code from the current folder. Open the folder with android studio. The host must have flutter 2.0 installed in his/her machine. Then, get all dependencies running ‘flutter pub get’ and then run the application.

Achievements

- Compiling an independent, offline dictionary database of Cambridge Dictionary containing word meanings, parts of speech, examples, synonyms and related words, idioms and phrases, etc.
- Learning the mathematics of ELO rating system and adapting it to the context of this project for AI generated training sessions.
- Exploring UI/UX design.
- Gaining a practical experience of extracting, analyzing, and refining requirements from stakeholders.
- Planning, implementing, and maintaining a large project.
- Understanding project management and team work.
- Learning android development.

Challenges

- Designing professional grade UX and lucrative UI with vibrant colors, original design and fluid animations.
- Preventing background services from being killed by Android OS.
- Connecting flutter project with native android channel for native functionalities.
- Lack of dictionary database with satisfactory quality; No comprehensive list of all words in English Language.
- Running dictionary database compiler code continuously for days and managing unexpected stops.

Future plan

- Releasing the app to the play store.
- Analyzing all user's daily training data to create a neural network AI for best predictions.
- Analyzing all user's daily training data to identify what factors affect memorization ability and how.
- Implementing more games with 2D and 3D graphics, multiplayer options, etc.

Conclusion

This project was our first attempt to develop a full scale mobile based application. In this journey, we faced many obstacles from generating dictionary database to proper implementation of training mechanisms. We have learnt how to deal with unseen problems and come up with proper solutions. The end result is that we have a complete android application that fulfills the requirements in the SRS. Now our future aim is to make this app reachable for all users so that they can use it in their day-to-day life and gain the intended benefits from our application.

GitHub links

<https://github.com/yusf1013/wordmaster3000>