

Tātai – User Manual

A MĀORI NUMERACY LEARNING AID

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First Use

Welcome to Tātai, an application built to help you learn Māori numbers.

This application is built to work on GNU/Linux, please make sure your system is compatible with this. Other requirements include an installation of Java 8+ (with FX), FFmpeg, and HTK, these are all free to install and use. More can be found about these resources below:

Java: <https://www.oracle.com/technetwork/java/index.html>

FFmpeg: <https://www.ffmpeg.org/>

HTK: <http://htk.eng.cam.ac.uk/>

These can be installed via the following methods:

Java8 download: <http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

FFmpeg: <https://www.ffmpeg.org/download.html>

HTK: <http://htk.eng.cam.ac.uk/docs/inst-nix.shtml>

Once these are installed, make sure you have a microphone connected (built-in or external) and set the one you wish to use as the default microphone.

Main Menu

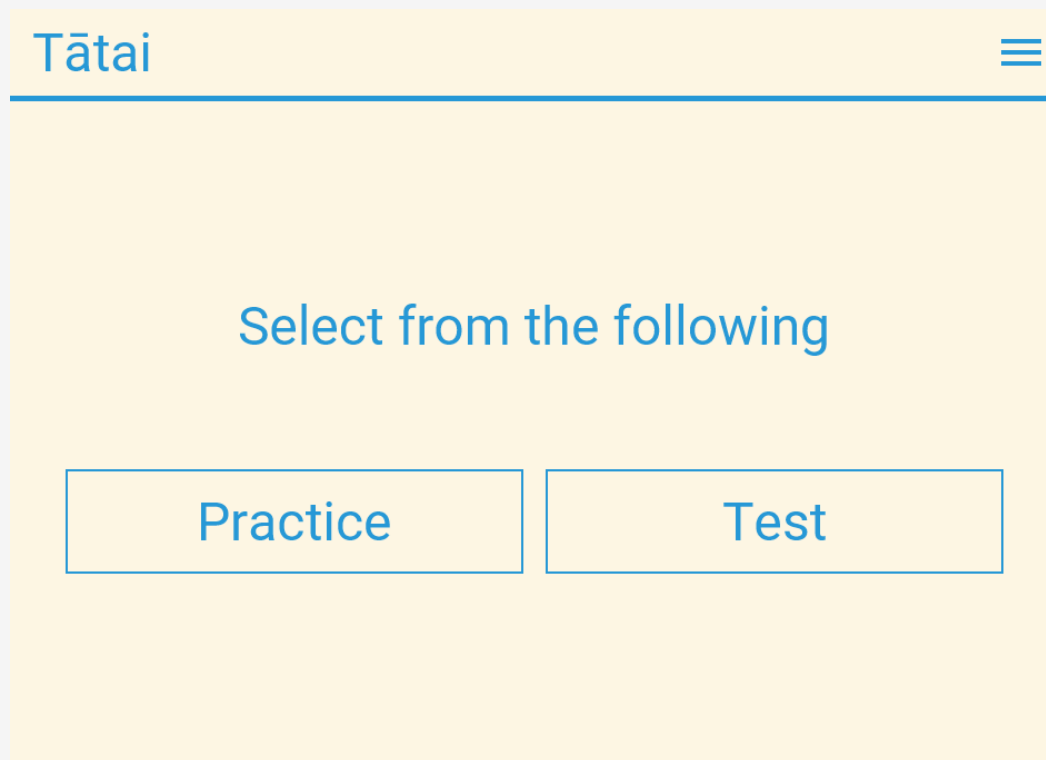


Figure 1 Main menu screen

Upon starting the application, you will see the main menu from Figure 1. This shows the two main options you can choose from, either:

- 'Practice' Māori numbers
- 'Test' yourself on Māori numeracy

Buttons that your mouse hovers over will be indicated by changing colour as an example, Figure 2 shows what you would see upon hovering over the 'Practice' button in the main menu.

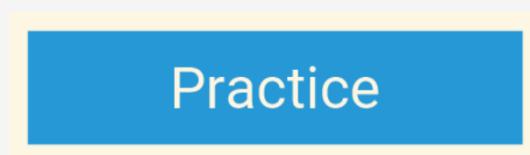


Figure 2 Hovered button

By clicking 'Practice' you will be brought to the next page.

Using the Application

The arrow pointing left on the left of the navigation bar at the top of the application allows you to return to the previous page, this can be pressed at any time.

Warning: if you have started a round be careful of losing the round's progress if exiting.

You will also notice another button on the navigation bar, this opens up to some extra functionality which will be later explained in [Additional Functionality](#).

Practice

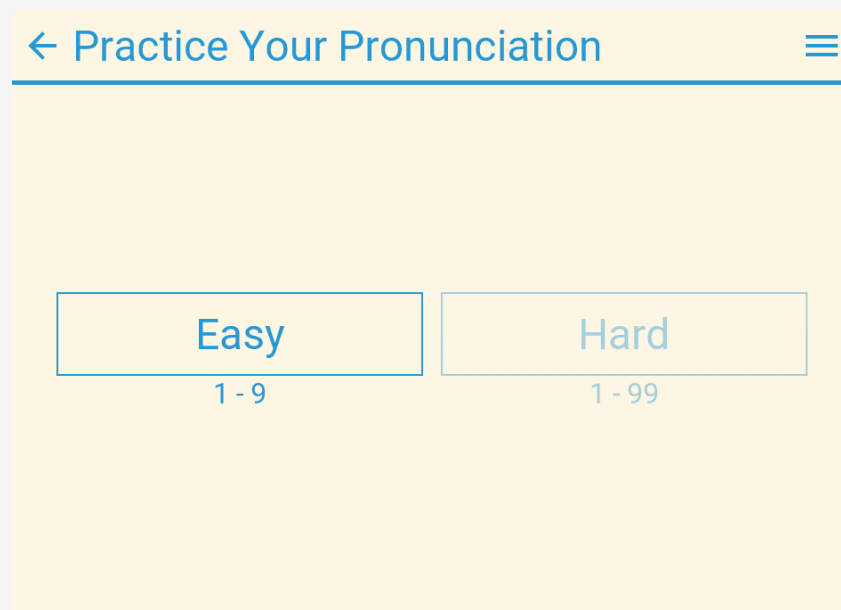


Figure 3 Selecting a Difficulty to practice

The 'Practice' module allows you to practice pronouncing Māori numbers with either easy or hard difficulty as can be seen in Figure 3.

- Easy consists of numbers from 1 to 9
- Hard consists of numbers from 1 to 99

Initially, the hard difficulty is locked. To unlock hard, you must first achieve a score of 8 or greater in the corresponding module (practice or test) on easy difficulty.

How to play

After choosing a difficulty you will be brought to the page shown by Figure 4:

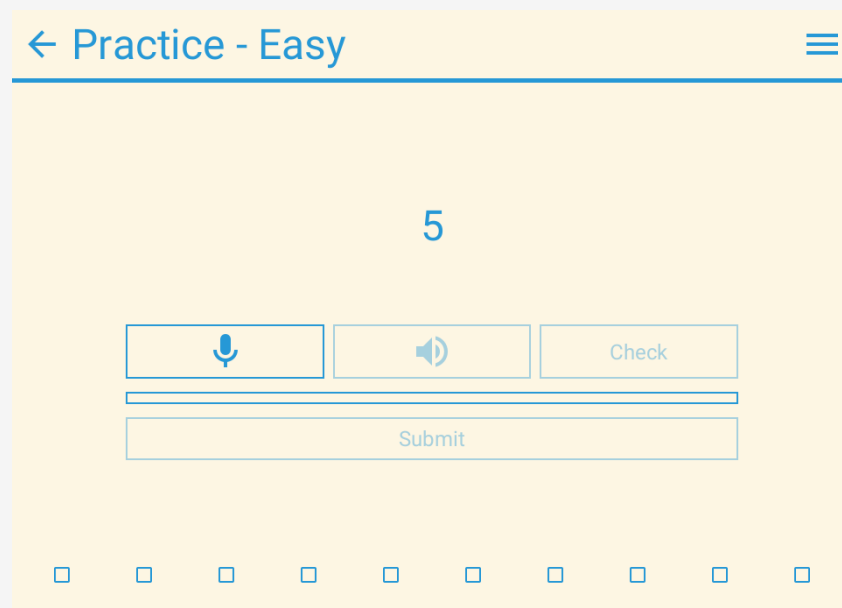


Figure 4 Practice mode's recording screen

Each round consists of 10 random numbers, with your progress indicated at the bottom with the 10 boxes. You will have two attempts to pronounce each number before the round progresses to the next one.

Click on the record button (microphone icon) to begin recording once you know the number. The application will record for 3 seconds so you can still think about the answer if you forgot.

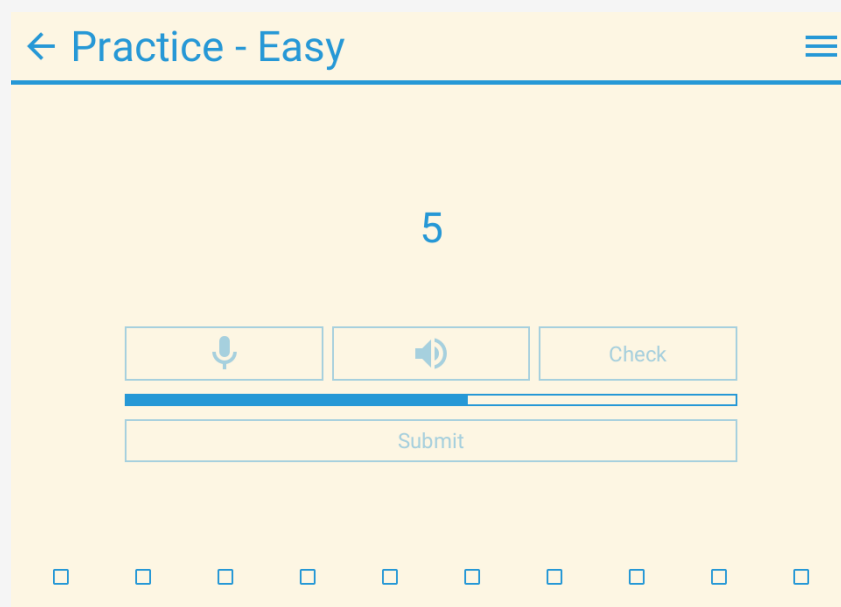


Figure 5 Recording in progress

The progress of the recording process is indicated by the bar in Figure 5.

Once the recording finishes, you can click the 'Check' button in Figure 6 to see what the application recognised. If the recognised answer looks wrong or you remember that the answer is different you can re-record the answer with the record button again.

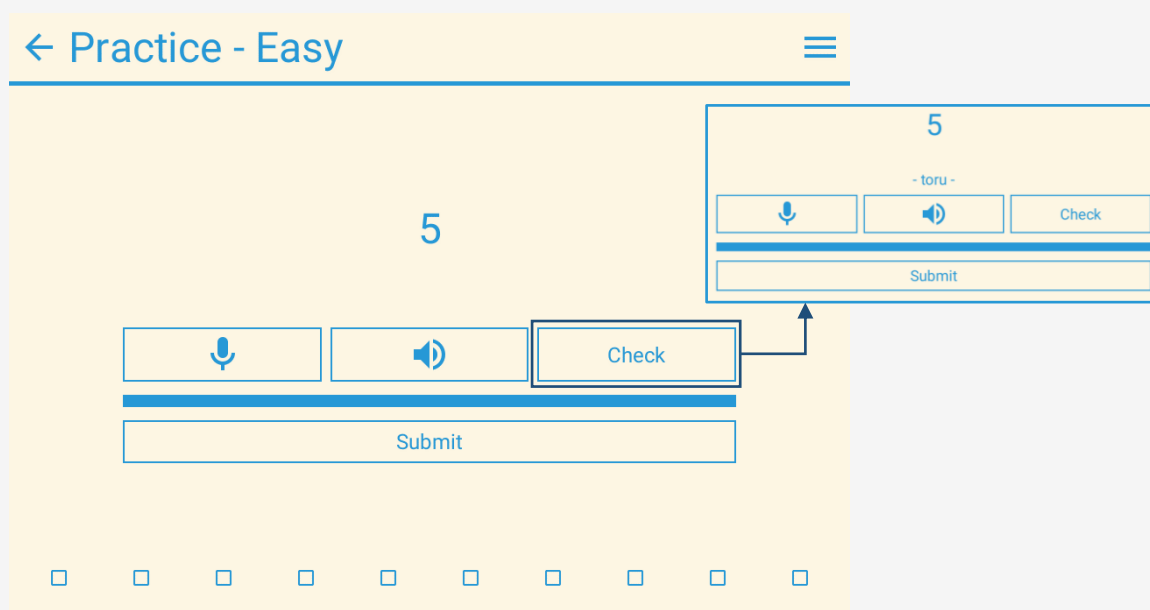


Figure 6 Checking your recording

You can also click the playback button (speaker icon in Figure 6), if you wish to hear back what you said.

Click 'Submit' to submit your answer, the application will then check if you pronounced the correct answer, either:

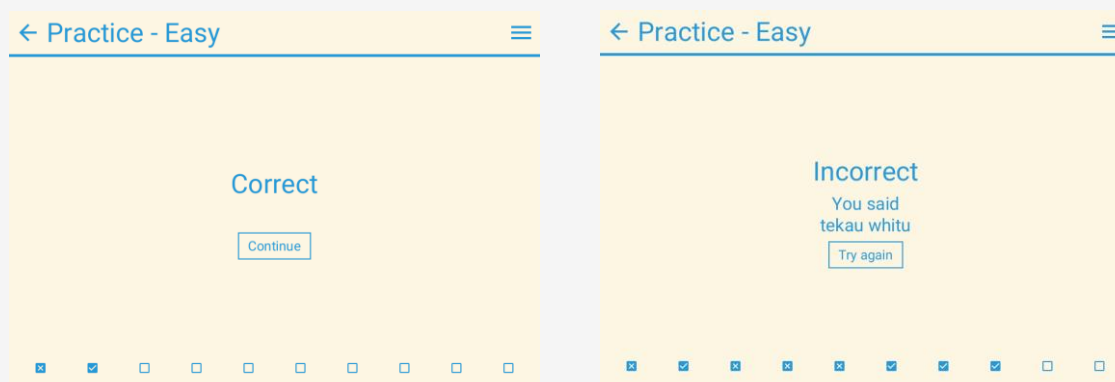


Figure 7 Feedback for each number

You will see one of the screens in Figure 7 depending on your answer.

The rounds progress is indicated at the bottom as shown in Figure 7 with the left image having completed two numbers and the right with 8 numbers completed.

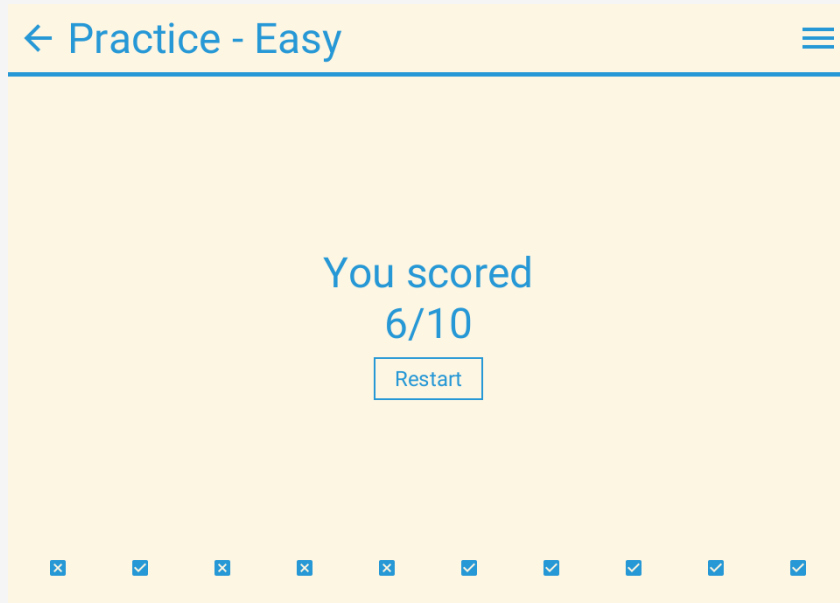


Figure 8 Final score screen

After completing the 10 questions you will be shown your score for that round as shown in Figure 8. Your score is the amount of correctly pronounced numbers, out of the total numbers given during the round.

'Restart' will take you back to the beginning of a new round, likewise if you wish to change modules or difficulties you can directly press back. However if you press back in the middle of a game the following popup will be shown:

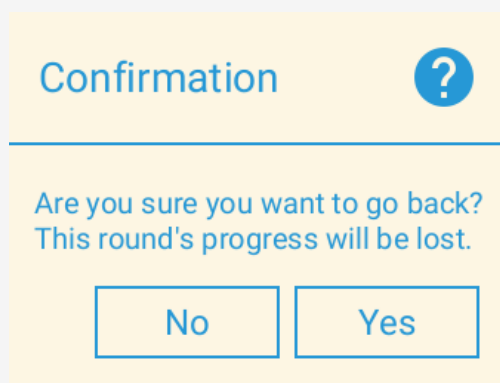


Figure 9 Warning before exiting during a round

NB: To ensure that the recogniser correctly hears what you said, we recommend that you record in a quiet environment, free from excess background noise or other sounds.

Test

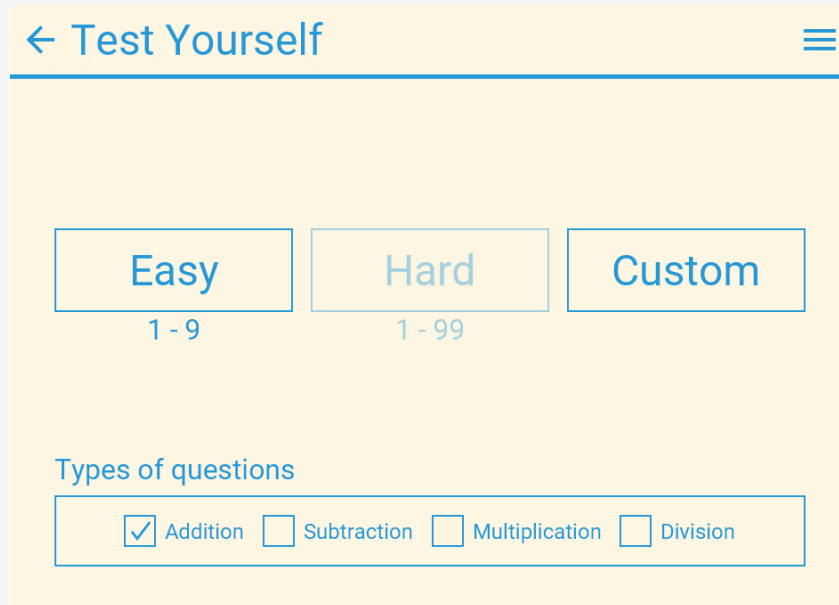


Figure 10 Test options screen

The test module is similar to practice in that it will test you on numbers from 1 to 9 or 1 to 99 for easy and hard respectively; the custom option is explained in [Custom](#).

However instead of just a number itself being presented, an equation is shown. You will need to first solve this equation and then say the answer in Māori as you can see below in Figure 11.

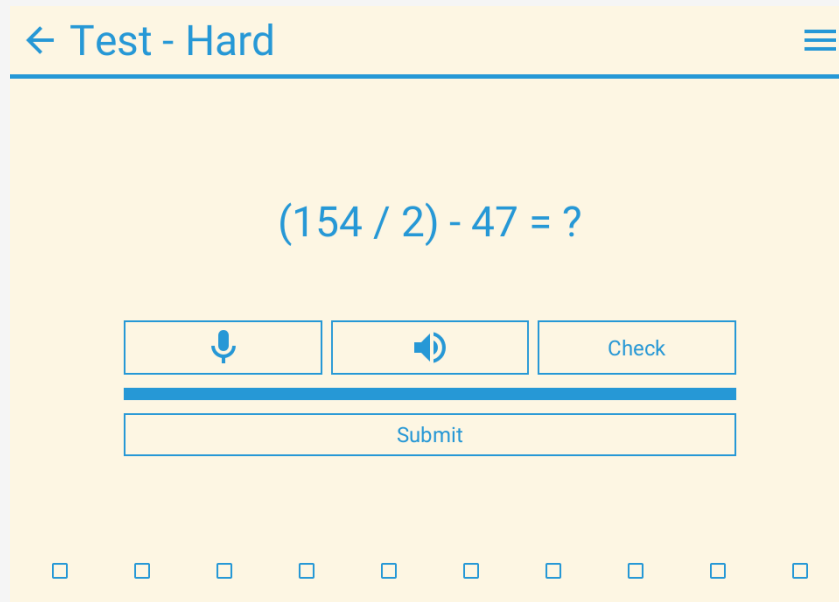


Figure 11 Test module equations

You can choose which operations you want to include in the equations as shown in Figure 10; select the operators by clicking the checkboxes.

By default, only addition is selected but you can choose this to include all operators, addition, subtraction, multiplication, and division. If none are selected, the application will default to include all operators. The rest is the same as the practice module.

Custom

In the test module, you also had the option to select 'Custom' this will take you to the following screen:

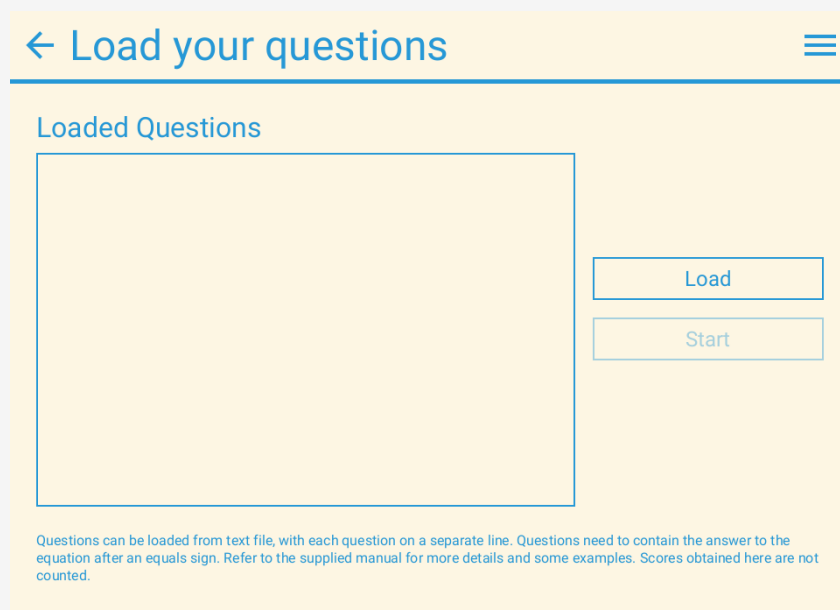


Figure 12 Custom questions screen

From here you can import your own questions to answer by clicking load in Figure 12.

Any questions that are not in the correct format are not imported, this includes questions with answers greater than 99. Note the following format in Figure 13 for equations the application will accept:

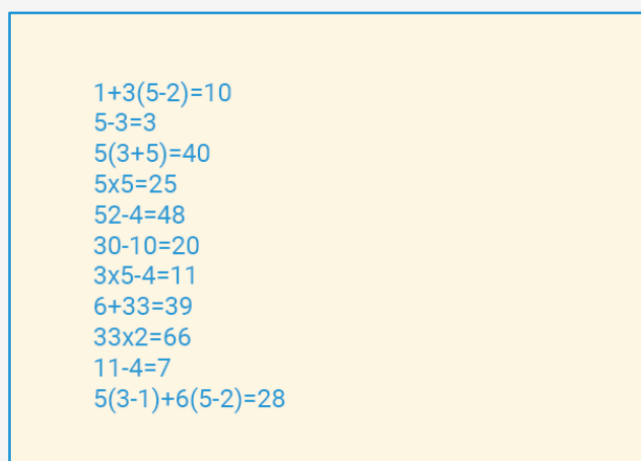


Figure 13 Custom question file accepted equation format examples

NB: Please check that the answer you write is actually correct as the application will not check for this.

Figure 14 shows the example questions loaded in, after loading in questions you can click 'Start' to begin the question set.

← Load your questions

Loaded Questions

$1+3(5-2)$
$5-3$
$5(3+5)$
$52-4$
$30-10$
$6+33$
$11-4$
$5(3-1)+6(5-2)$
$3-1$

Load

Start

Questions can be loaded from text file, with each question on a separate line. Questions need to contain the answer to the equation after an equals sign. Refer to the supplied manual for more details and some examples. Scores obtained here are not counted.

Figure 14 Custom questions loaded in

After clicking 'Start', the questions you loaded will be shown to you one at a time in a random order as can be seen in Figure 15. You will be scored out of the number of questions successfully loaded in from your list, however note that scores obtained in custom mode are not counted towards your overall statistics.

← Custom Questions

$5-3 = ?$

Check

Submit

Progress: 4 correct, 4 incorrect

Figure 15 Custom question progress in random order

Additional Functionality

To access additional Tātai functionality, click the options button as shown in Figure 16.

This button opens a side menu which you can then select from, clicking outside the side menu will close it.

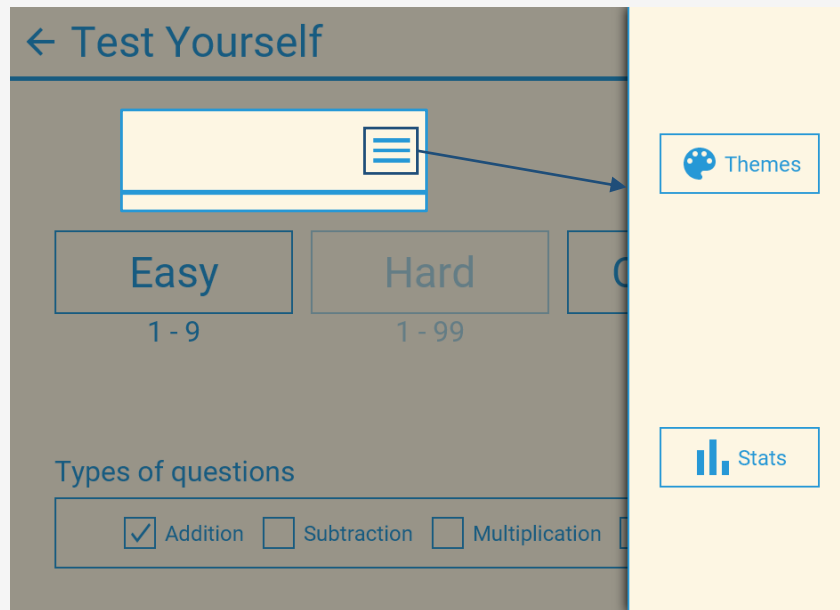


Figure 16 Extra functions - options menu

These extra functionalities can be opened at any time with the three bars icon, they will not cause you to lose any progress even if you are in the middle of a round.

Themes

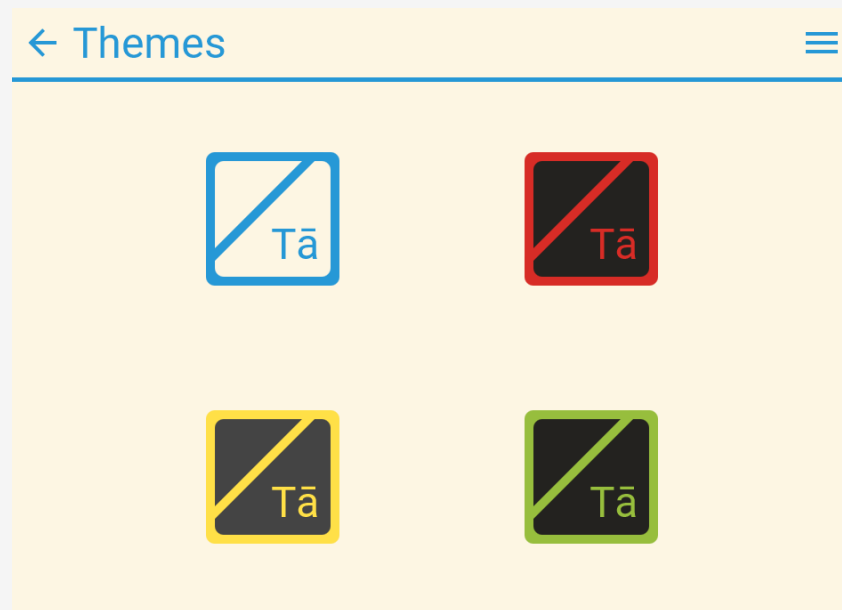


Figure 17 Themes picker

Clicking the 'Themes' button in Figure 16 will take you to the themes page in Figure 17. From here, you can choose any one of the four provided themes. These update the application's appearance instantly so you can see which theme suits you best. The available themes are:

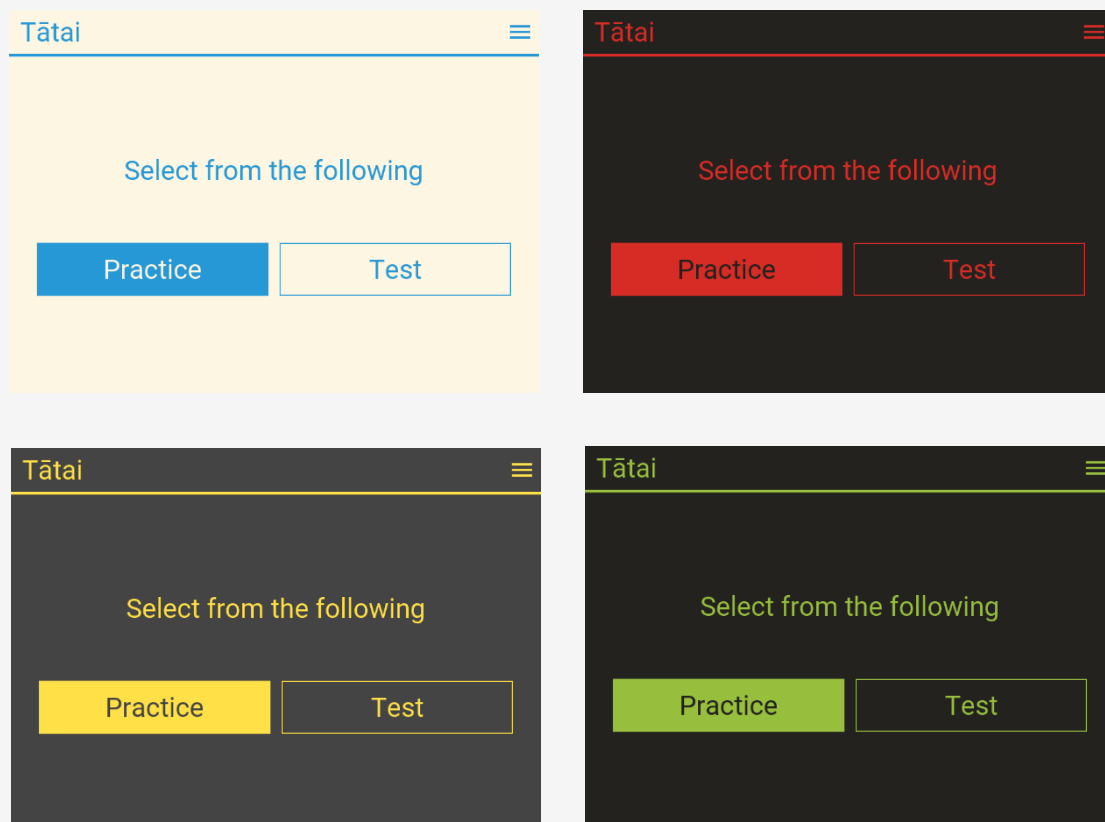


Figure 18 Preview of the four themes

By default, "BeachSide" is selected, this is the top left theme in Figure 18. Your selected theme will also be saved across sessions.

Statistics

The statistics page offers some insight to your progress in learning Māori numbers through use of Tātai.

The first page shows a bar chart, with more options on the left. The bar chart displays the top scores you have achieved in each of the modes: Practice - Easy, Practice - Hard, Test - Easy, and Test - Hard; as shown in Figure 19.

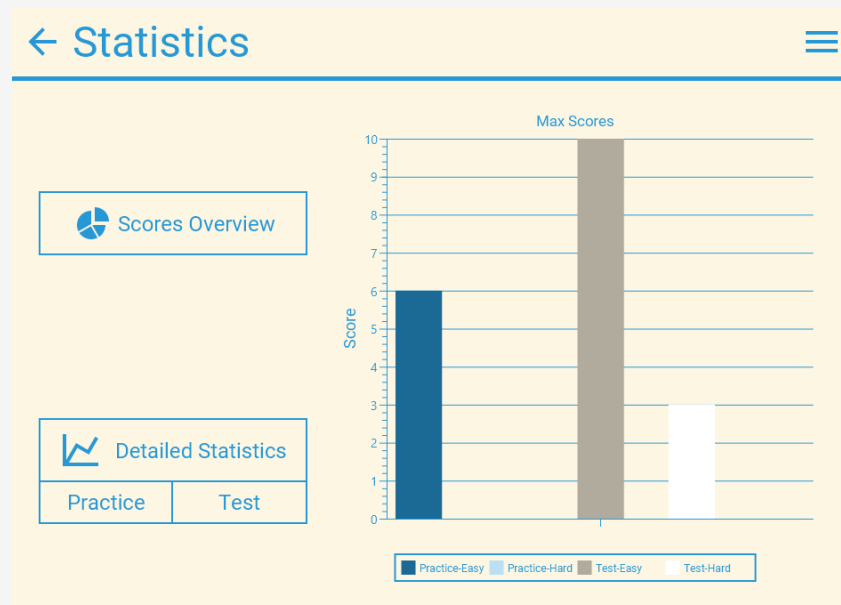


Figure 19 Statistics screen

On the left side, there are two other features. On the top is a 'Scores Overview' button which shows an overview of your overall scores in the form of a pie chart. And the bottom 'Detailed Statistics' option allows you to see more detailed representations of the scores you have obtained over the lifetime of using Tātai.

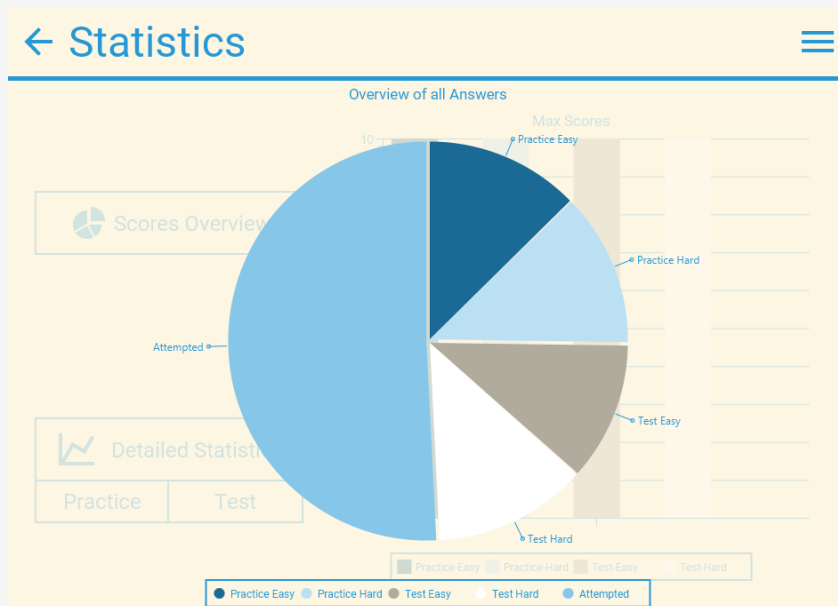


Figure 20 Pie Chart overview

After clicking 'Scores Overview', an overlay is displayed showing a pie chart (Figure 20) with the total number of questions you have gotten correct in each of the modes mentioned prior. This is shown along with the total number of questions you have attempted. You can click anywhere to exit the pie chart view, including the back button (but nowhere else on the navigation bar).

The other option allows you to choose to view more details of either practice or test module, this is selected by clicking their respective buttons as shown in Figure 21. More is discussed in [Detailed Statistics](#) below.

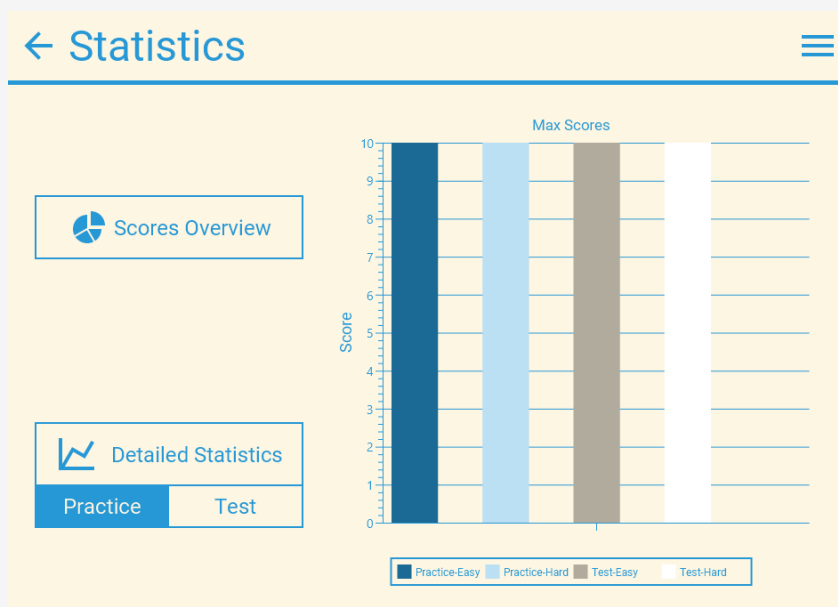


Figure 21 Detailed Statistics module options

Detailed Statistics

Upon choosing a module, you will be brought to the screen below in Figure 22, here you will see a line chart of your most recent scores in both easy and hard difficulties, as well as a list of all scores.

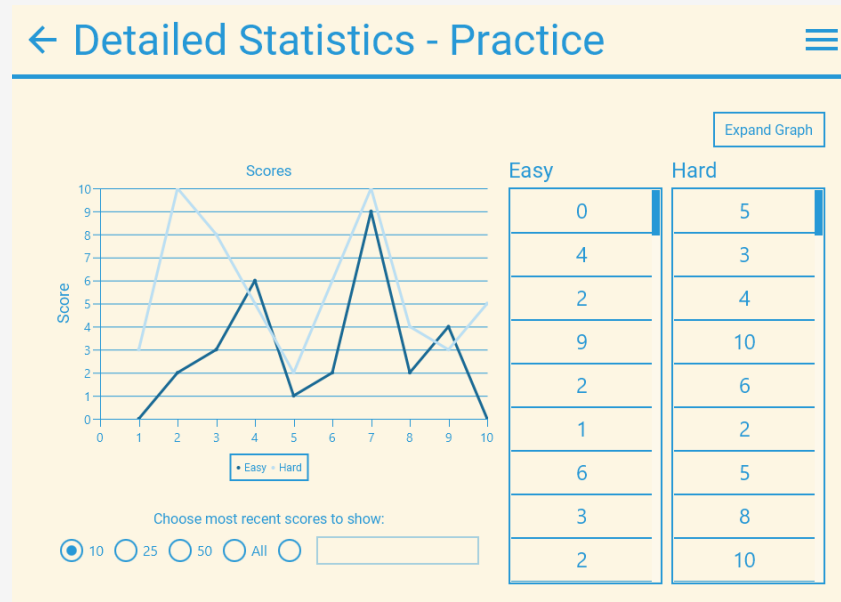


Figure 22 Detailed statistics of practice module

By default, the line chart shows your 10 most recent scores, with the most recent scores on the right-hand side of the chart.

You can choose how many scores to show in the line chart by selecting one of the circles below the line chart. Either 10, 25, 50 (as in Figure 23), all scores, or your own custom number.

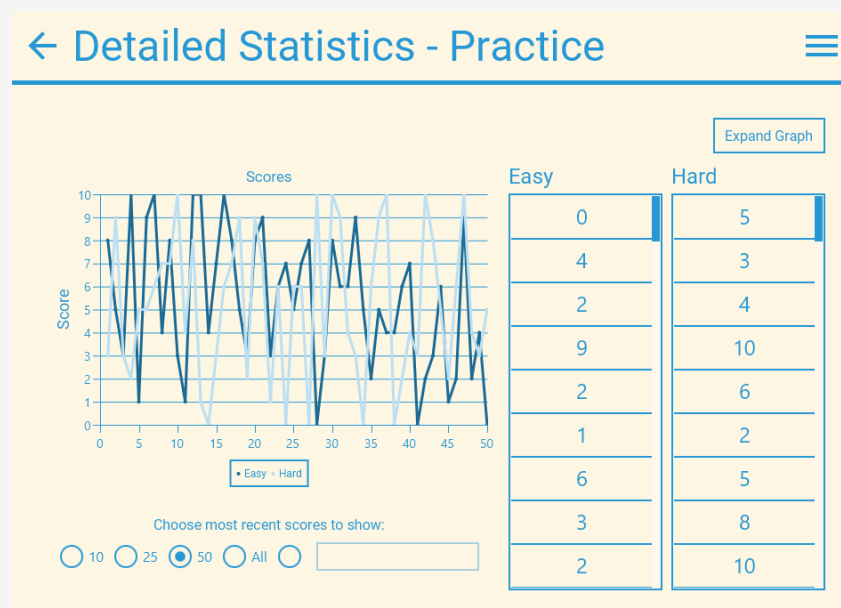


Figure 23 Fifty most recent scores

To choose a custom number of scores to show, first select the circle next to the text field like in Figure 24, this will enable the otherwise disabled text field. You can enter any number up to 9 digits long (we're going to guess you're not going to be playing a billion games, although other issues might arise before you get to that stage).

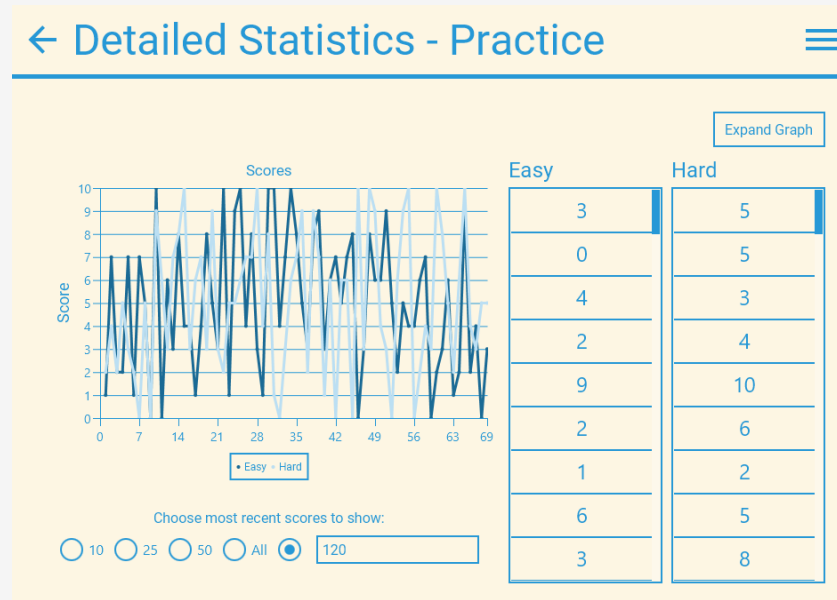


Figure 24 Custom number of scores to show

As you can see, the line chart will only show up to as many scores as there are.

The lists on the right-hand side show all obtained scores in each of their respective difficulties.

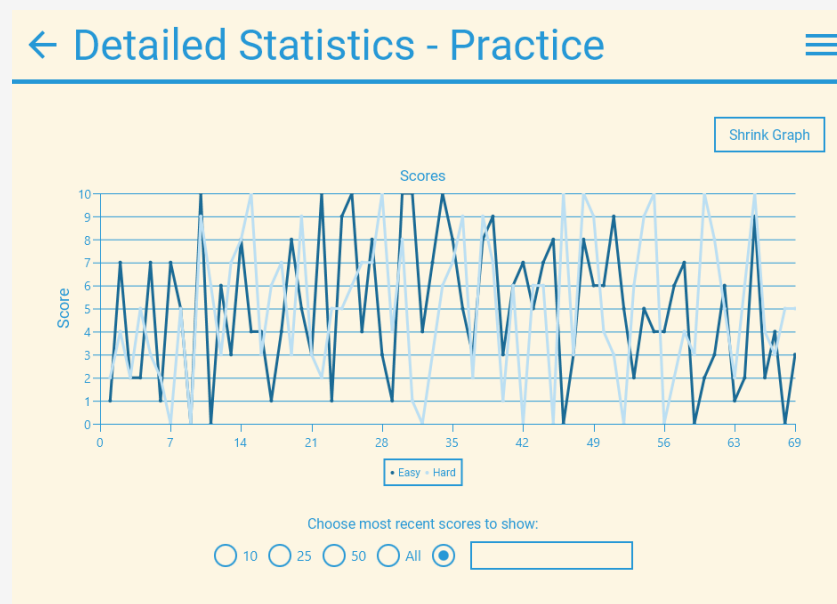


Figure 25 Expanded line chart

The 'Expand Graph' button allows you to view a full width line chart shown in Figure 25. After clicking 'Expand Graph', the button will change to 'Shrink Graph' which returns it to its normal size, showing the lists again.