

User Manual

Tātai

Māori number learning tool

Version 1.0

Edward Zhang & Zach Huxford

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Installation and Configuration

System Requirements

- Java 1.8_60 or later (Java9 unsupported)
- JavaFX Runtime
- HTK (HVite) and Catherine's Training Files
- Audio Input and Output devices
- Screen Resolution $\geq 1024 \times 768$
- Linux or Windows system (optional HVite.exe required, included in ZIP)

Installation and Usage

Place the `tatai.jar` file in the same directory as Catherine's HTK training files (the HTK folder) and make sure HVite is in your PATH. You should find both in the zip file. Then, run `java -jar tatai.jar` from the same directory as the jar. You should then see the GUI appear. If it doesn't see FAQs below.

Example folder structure

```
somedirectory/
|-- tatai.jar
|-- HTK/
    |-- MaoriNumbers/
        |-- HMMs/
        |   L-- etc.
        |-- user/
        |   L-- etc.
    L-- HVite.exe (Optional: Only if you're running on Windows)
```

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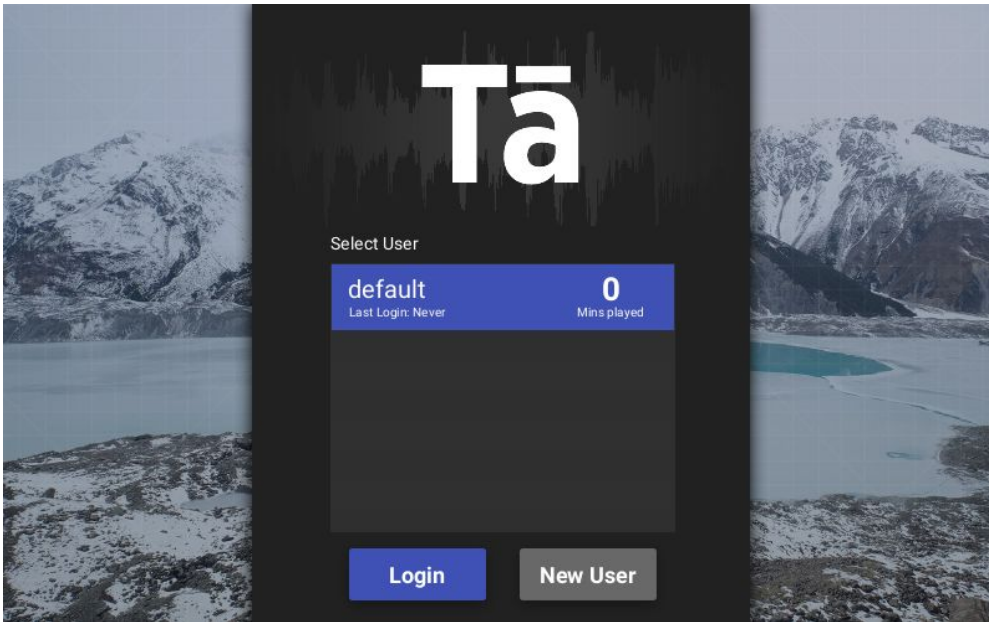
- The HTK Training files included are from Dr. Catherine Watson. The license for these files is unknown.
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Frequently Asked Questions

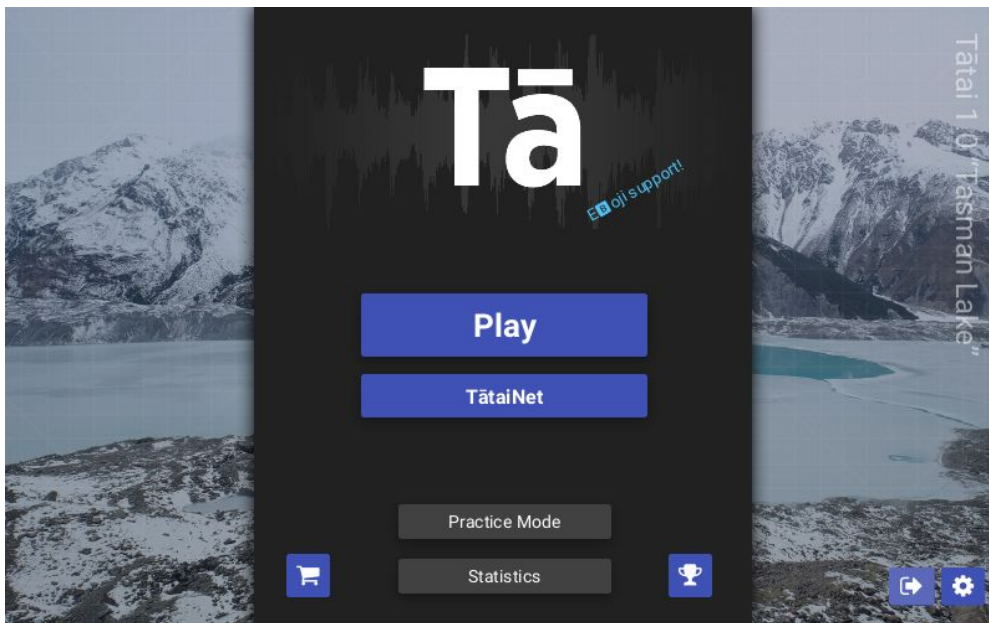
- **The GUI doesn't appear, and I see "Cannot find class tatai.app.Main" in the terminal**
 - JavaFX is probably not installed correctly on your system. This is usually the case if you are using OpenJDK/OpenJRE. Please try executing "sudo apt install openjfx" and try again.
- **The audio recording doesn't work / I can't hear anything when I press play**
 - Tatai automatically uses your default audio recording / playback device. Please check your system settings and try again
- **Tatai's Animations are playing slowly**
 - While ideally you would just get a better computer or stop using a Virtual Machine, we understand this is sometimes unavoidable. In these cases, please enter "Settings" then "General" and enable "Disable Animations"
- **I get the error "HTK Machine Broke: Catherine HTK training Files missing" when opening Tatai**
 - Make sure the HTK folder is in the correct place.
- **What is "tataiData.sqlite"?**
 - This is the database that stores Tatai's save data. Do not delete it unless you want to clear your savedata.
- **I get another type of exception on start**
 - You may have more than once instance of Tatai open, or you are using Java 9, which is unsupported at this time.

Login/User Screen



This screen is the first screen shown when the program is launched. The user can then choose to create their own new user by clicking the button labelled “New User” and login using the button labelled “Login” or simply login using the default user. Should the user forget the username, other information such as the amount of time played or the most recent login are included for more context.

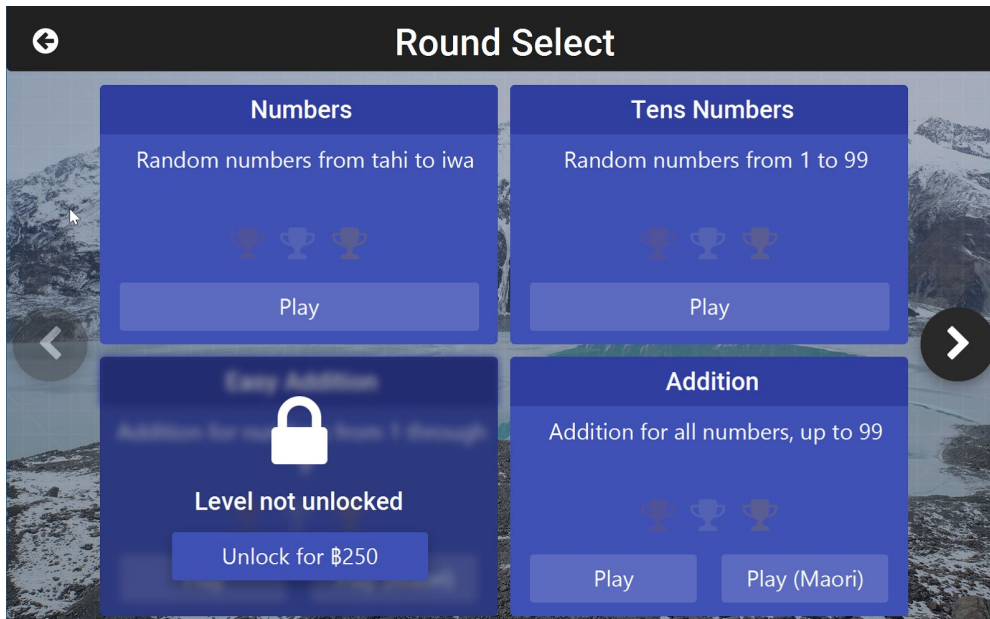
Main Menu



The main navigation screen of the application. Each button leads to an entirely different screen. Here the user can choose to:

- Play a singleplayer game
- Enter the online TātaiNet portal to play a multiplayer game
- Go to the in game store (By clicking on the shopping cart icon).
- Enter Practice Mode to practice saying the numbers in Māori View the historical statistics for the current user
- View the Achievements that have been achieved (or not) by the currently logged in user (By clicking on the trophy icon).
- Logout the current user by clicking the exit door icon (left icon in the lower right corner)
- Configure the application and in game settings by clicking on the cog icon in the lower right corner.

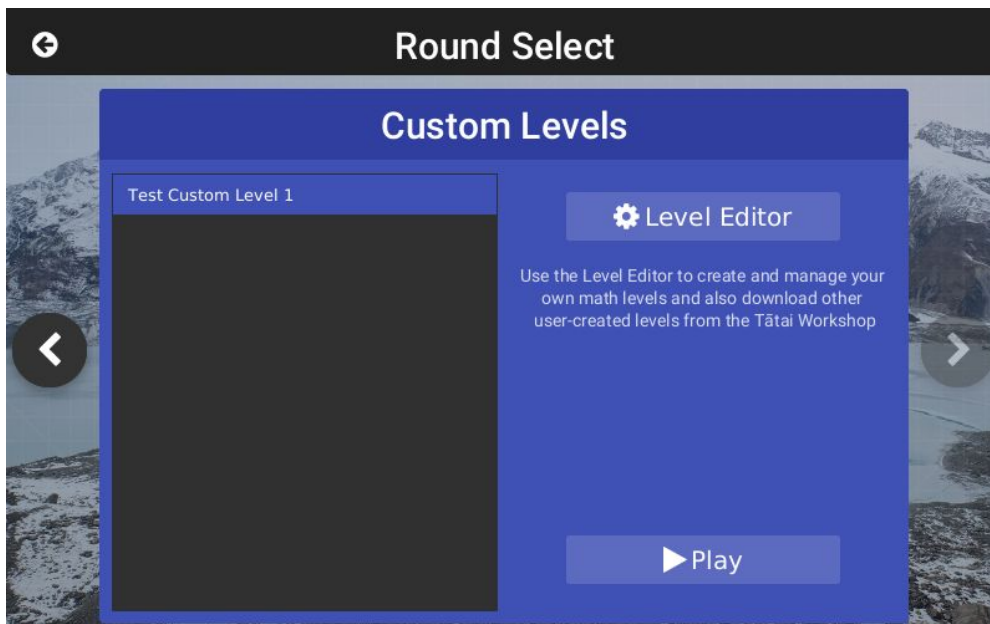
Level Selector



In the Level Selector screen, the user can choose what round type they would like to play in single player mode. Some of the round types are initially locked, but the user can unlock them by playing some of the lower level rounds to earn in game currency and then clicking the Unlock button which is shown on the lower left pane. Some of the game types also have a Māori mode available, which replaces the mathematical symbols such as $+$, $-$, \times , \div with their Maori word equivalents.

The left and right chevron buttons in the middle (vertically) of the screen allow the user to navigate between all of the panes of round types available to the user (you can also use the left and right arrow keys on your keyboard to navigate the panes), and the left arrow button in the top left corner allows the user to navigate back to the main menu.

Custom Level Pane



The rightmost pane in the Level Selector allows the user to choose and play any custom levels they have created using the Level Editor by selecting the custom level in the list on the left of the pane and pressing the play button, or the user can choose to enter the level editor screen by pressing the level editor button.

Question Set Editor

Edit Question Sets

Current Question Sets

Download from TataiWorkshop

- Numbers
- Tens Numbers
- Easy Addition
- Addition
- Subtraction
- Times Tables
- Advanced Multiplication
- Division
- Test Custom Level 1

Delete Upload to Workshop

New Question Set

Generate questions in format

$a + b = c$

where $b \leq$ Enter a number

and $c \leq$ Enter a number

☐ Allow multiplication by 1

☐ Display Questions in Māori

Set Name Create

Please enter a name

The Question Set Editor Screen is a very busy screen. It allows the user to define their own question sets, delete their custom question sets, upload their custom question sets to our online database, or download the question sets from our online database which other users may have made themselves.

1. Define a Question Set

From top to bottom, the user can define a question set with the following parameters:

- The operation between a and b (+, -, ×, ÷)
- The size of b (must be between 0 and 12)
- The size of c (must be between 0 and 12)
- Whether or not the questions can just be a multiplication by 1
- Whether or not to translate the operations into Maori.
- The name of the question generator

Assuming all of the parameters are valid, clicking the create button will add the question generator to the list of the left of the screen, and will appear on the Custom Level Pane in the Level Selector.

2. Delete a Question Set

A custom question set can be deleted from the local database by selecting it on the list to the left, and pressing the “Delete” button in the lower left corner of the screen.

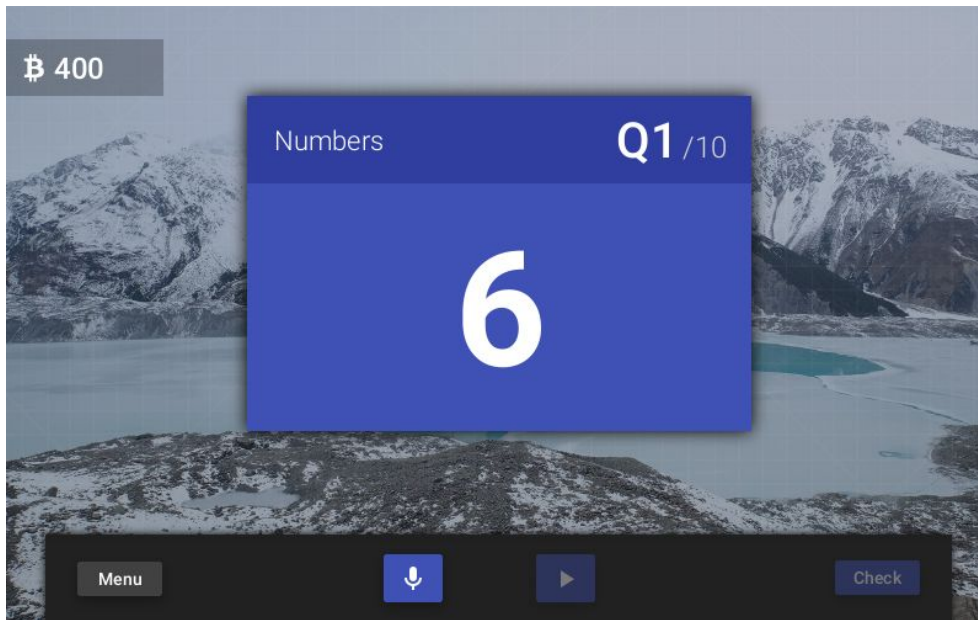
3. Upload a Question Set

A custom question set can be uploaded to the remote database by selecting it on the list to the left, and pressing the “Upload to Workshop” button in the lower left corner of the screen.

4. Download a Question Set

A custom question set can be downloaded from the remote database by clicking the “Download from TataiWorkshop” button, selecting a generator from the presented list, and clicking the “Download” button which will cause the new generator to appear on at the lists of custom generators in the Question Set Editor and the Custom Levels Pane.

Question Screen



The Question Screen is the crux of the application and hopefully where the user will be spending the majority of their time. Here the user is given Questions of the desired type in Rounds of 10.

A small in game tutorial is shown to the user on first run to show them how the game works.

The user is expected to record themselves saying the answer to the question, optionally play it back, and ask the program to check their pronunciation. If the program detects they have pronounced the number correctly (in this case by saying “ono”) then the user is allowed to progress to the next question until they reach the end of the round in which case they will be asked to progress to the end of round screen. If the program detects the user has not answered the question correctly, they are given a second attempt, after which they are forced to move on to the next question or complete the round. The user can choose to abort the round by clicking the “Menu button in the lower left hand corner and return to the main menu at any point (after asking for confirmation), however the progress mid round will not be saved.

1. Record an Answer

Recording an answer can be done several ways. By clicking the microphone button, the application will record for a full two seconds while showing a red progress bar to the user so they know when it is completed. Additionally, the user can use push to talk by pressing and holding the button for up to two seconds to get a shorter recording and quicker response time. Using the hotkey “R” works in the same way as clicking the microphone button.

2. Playback an Answer

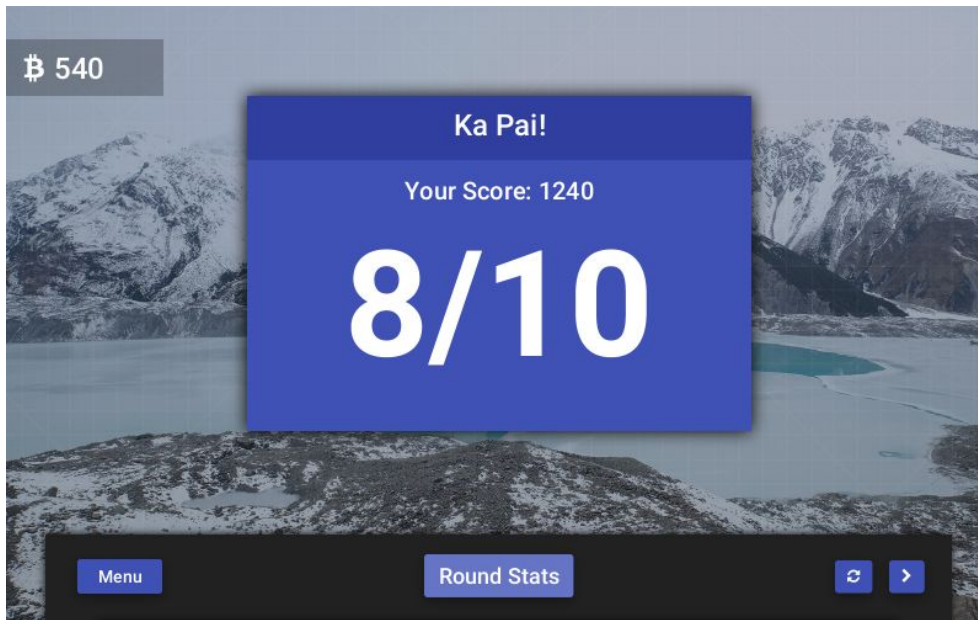
If the user wishes to hear their pronunciation before they check it, they can playback the recording by pressing the play button after they have made a recording or use the hotkey “P” to achieve the same effect.

3. Checking an Answer

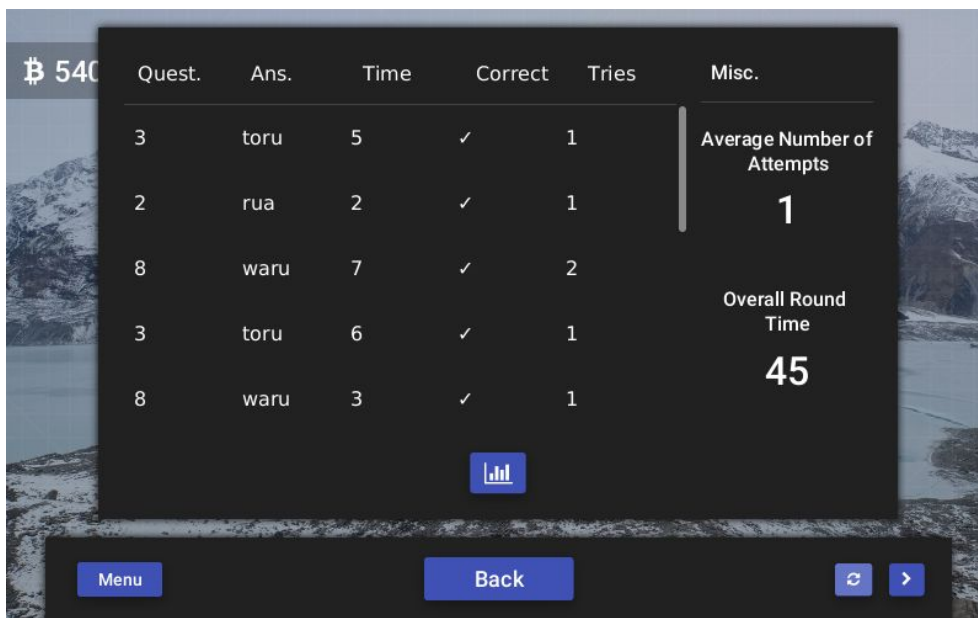
Checking an answer can be done after an answer has been recorded by clicking the check button in the lower right hand corner. If the user gets the answer correct, they will be allowed to progress to the next question, otherwise they will be given another attempt. As questions are answered correctly, it is possible for the user to gain streaks or get other achievements which will pop up with a small green popup in the middle of the screen and possibly provide a monetary reward in form of in game currency, represented by the counter in the upper left corner of the screen.

Complete Round Screen

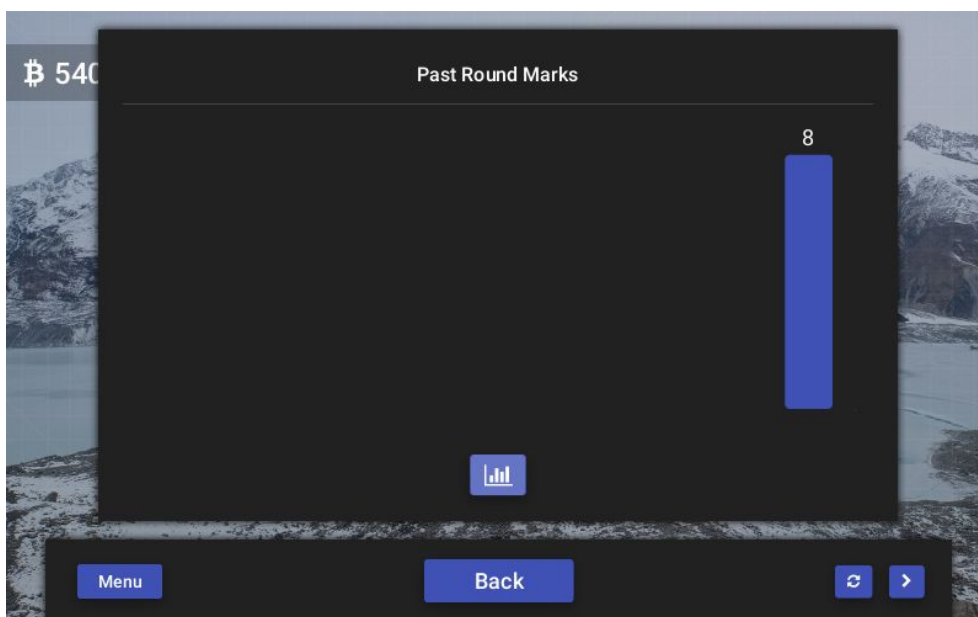
Many elements in the Complete Round Screen are very similar to the Question screen so I'll only mention the ones that are different. Basically the screen gives the user either a very basic overview of their performance in that round or a very detailed analysis if they want it. The message updates based on the mark out of 10 while the round score is calculated based on factors such as the time to answer, number of attempts, and how many answers they got correct.



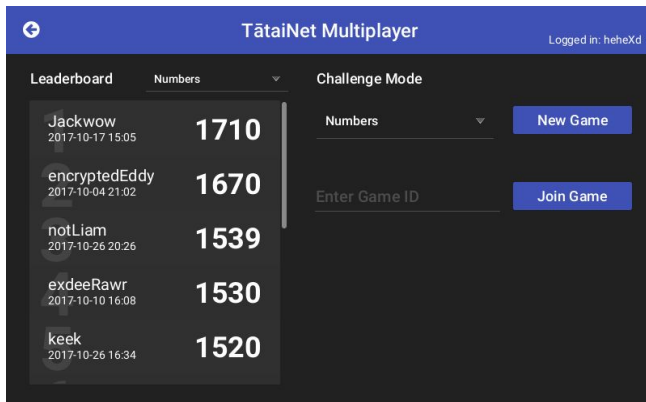
Pressing the "Round Stats" button will bring up an advanced statistics pane showing detailed round performance in a table format as well as some generated miscellaneous statistics from the previous round.



Pressing the bar graph icon will toggle the table with a bar graph showing a history for the 10 most recent round marks out of 10 starting with the most recent on the right



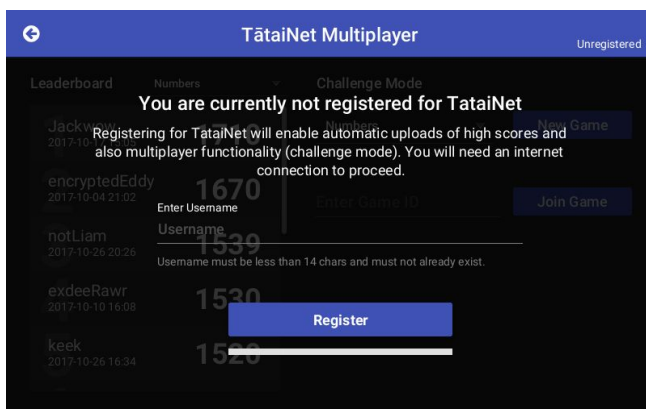
TātaiNet (Multiplayer and Leaderboards)



TātaiNet allows the user to share their best scores online and compare them to that of other players with the online leaderboard, and also allows them to challenge other players over the internet in real time with challenge mode.

Viewing the leaderboard

To view the leaderboard for a game mode, simply select the game mode using the drop-down box next to "Leaderboard" and the list below will update with the appropriate leaderboard. The top 20 scores are shown.



Signing up

If you don't have an account then the registration screen will show. To register, enter a username into the username box and press register. If it doesn't meet the criteria an error will be shown. Otherwise, the register screen will close and you will be logged in and your online username will be displayed in the top right. Please note that there are separate online usernames attached to each local user.

Starting a challenge mode game

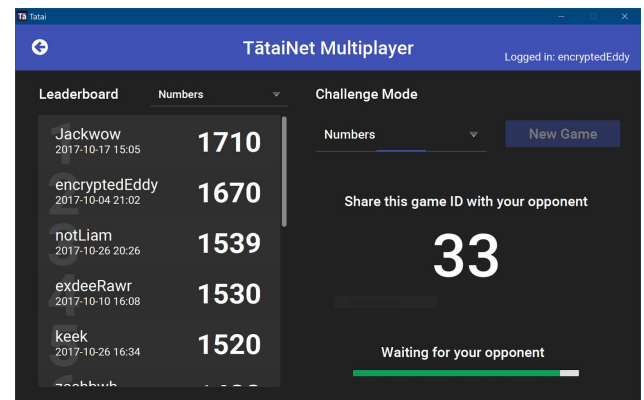
To start a game in challenge mode simply select the game mode you wish to play and press "New Game". A game ID will be shown which you need to share with your opponent. They will have 60 seconds to join before the lobby closes

Joining a challenge mode game

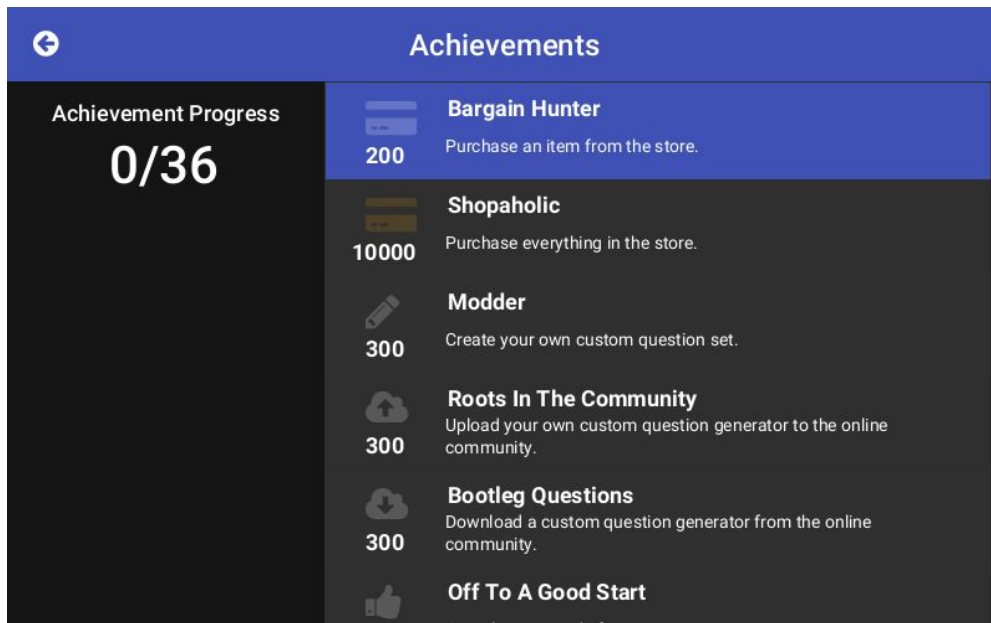
Simply enter the Game ID provided by your opponent into the Game ID field and press "Join Game". If the ID is invalid an error will be displayed. Otherwise the game should automatically start (note the game data may take a second or two to download before the game starts). Once the game finishes it will either show the score of both users and whether you won, or, if your opponent hasn't finished yet, a countdown waiting for them to finish. If they don't finish within 60 seconds from you then they default and you win.

Uploading a high score

Once you have signed up and have an online username, all of your scores will be automatically uploaded assuming you have an internet connection. If the score is higher than your old high score, then it will be overwritten on the server.



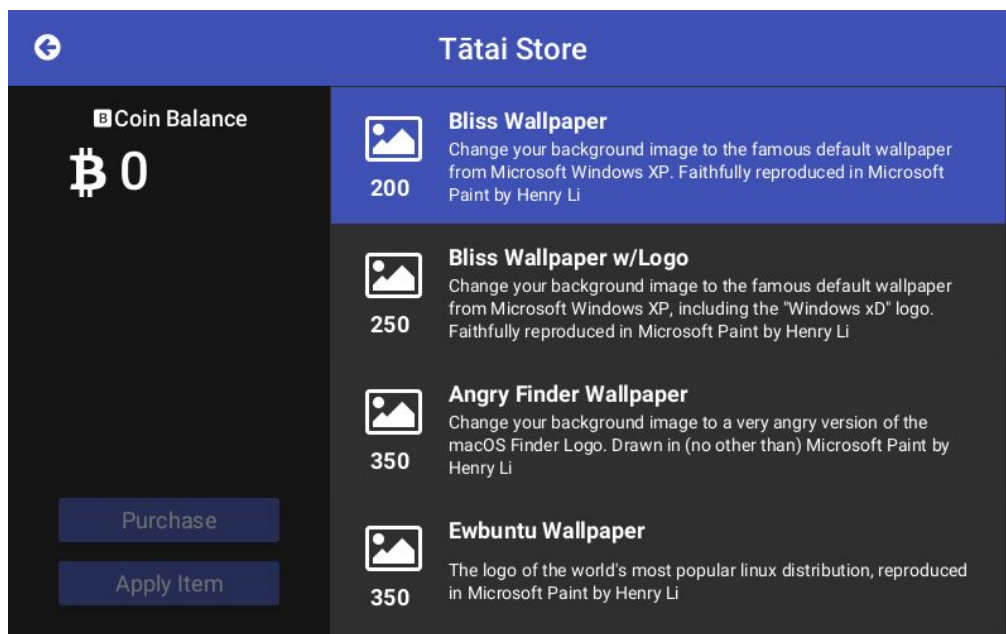
Achievements Screen



The Achievements serve as an incentive for the user to explore all different aspects of the game and to play the game sufficiently to learn Maori numbers fluently. As the achievements are earned, a green popup will appear letting the user know they have unlocked the achievement and will give them a monetary reward if applicable. The Achievements Screen lists all of the achievements, fades out the icon if it isn't achieved and gives a brief description of

how the user can gain the achievement.

Store Screen

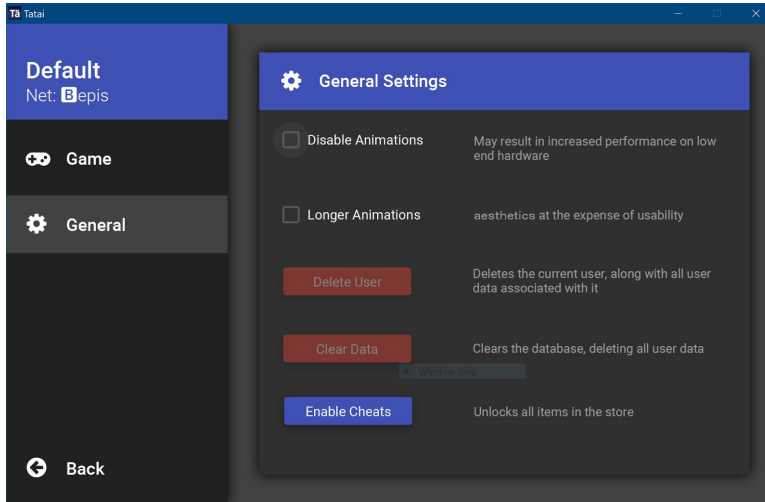


The Store and in game currency (Bcoin) serve as a way to further gamification and increase user engagement. Most of the store items currently consist of different wallpapers at different prices. Some of the wallpapers have parallax.

An item can be purchased by selecting it in the list on the right and clicking the "Purchase" button on the left assuming the user has enough in game currency. Some items need to be

applied by selecting the item and clicking the "Apply Item" button so the user can actually use them (e.g. wallpapers).

Settings Screen



The settings screen shows your current user and TataiNet username. It currently has the following options available;

- **Tutorial:** This allows you to re-enable the tutorial mode of the game if you had already played through it or disabled it earlier
- **Disable Animations:** This mode disables animations in the game, which may increase performance on slower machines or ones without hardware accelerated graphics rendering support by JavaFX (eg. Virtual Machines). Some features may not appear as expected if animations are disabled.
- **Longer Animations:** Extends the length of animations throughout the game so you can admire them.
- **Enable Cheats:** Try to click it and find out :)

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