User Manual

Custom Keyboard Generator

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Concepts

Flow of the project:
We have three phases for the creation of the custom keyboard distribution:

Creations of Alphabet -> Creation of Transitions -> Creation of Keyboard

First, you need to create an Alphabet where you decide which characters will have the keyboard. It's important to introduce ALL the characters you want (like spaces, commas, dots, etc…).

Then you can create the Transition. We give two options to use as inputs, Text and Word Frequency List.
- Text: the input must be a text made by the characters of the Alphabet specified.
- Word Frequency List: the input consists of two lists: one with all the words made with the characters of the Alphabet, and the other with the frequency of each word being an integer (it works as a multiplier).

Once you have an existing Transition, you can create a custom Keyboard. We supply two algorithms that decide the most efficient distribution.

Some functions or actions may have requisites or **warnings**. These are treated during the execution, if there is an issue, it will be shown from a new window.
Now let's check how the interface application works.

Main View
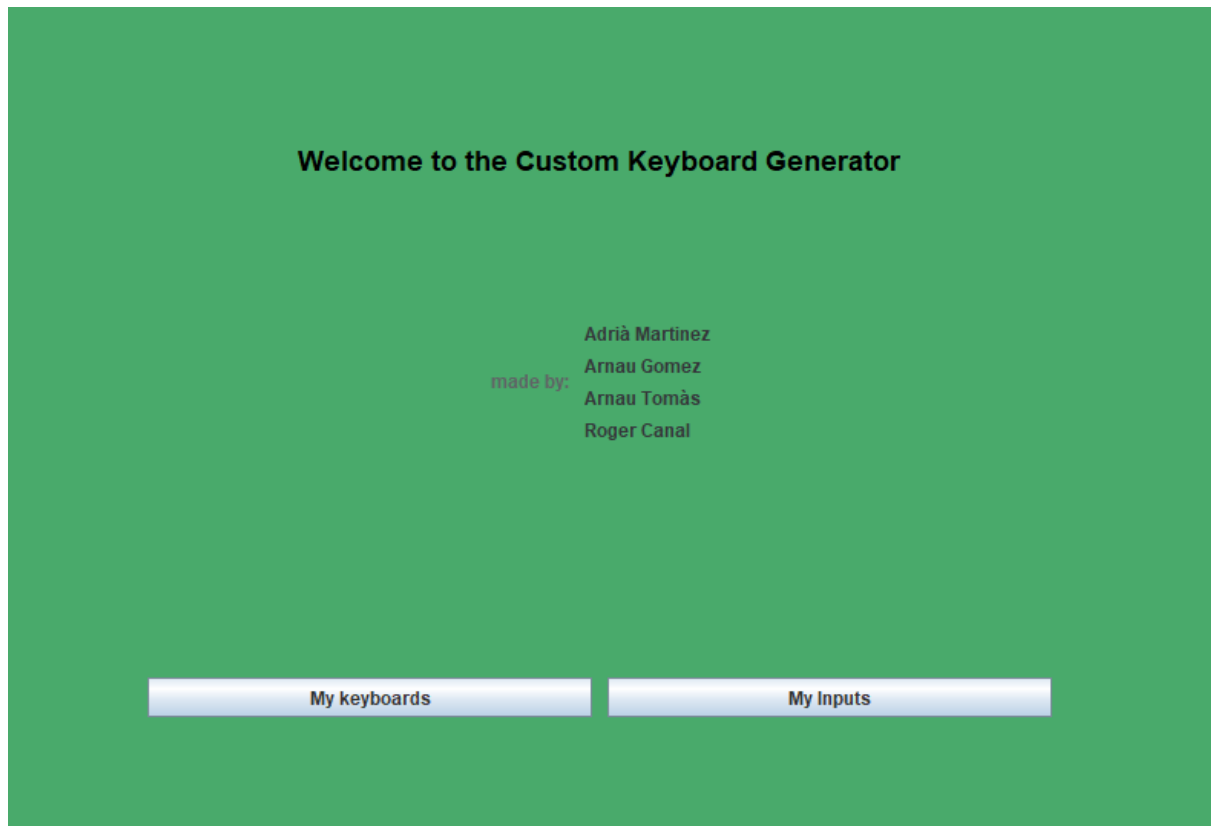
We have two options from the main window:
- List My Keyboards
- My Inputs

List My Keyboards:
This window shows the list of the existing keyboard with all the options for managing Keyboard.
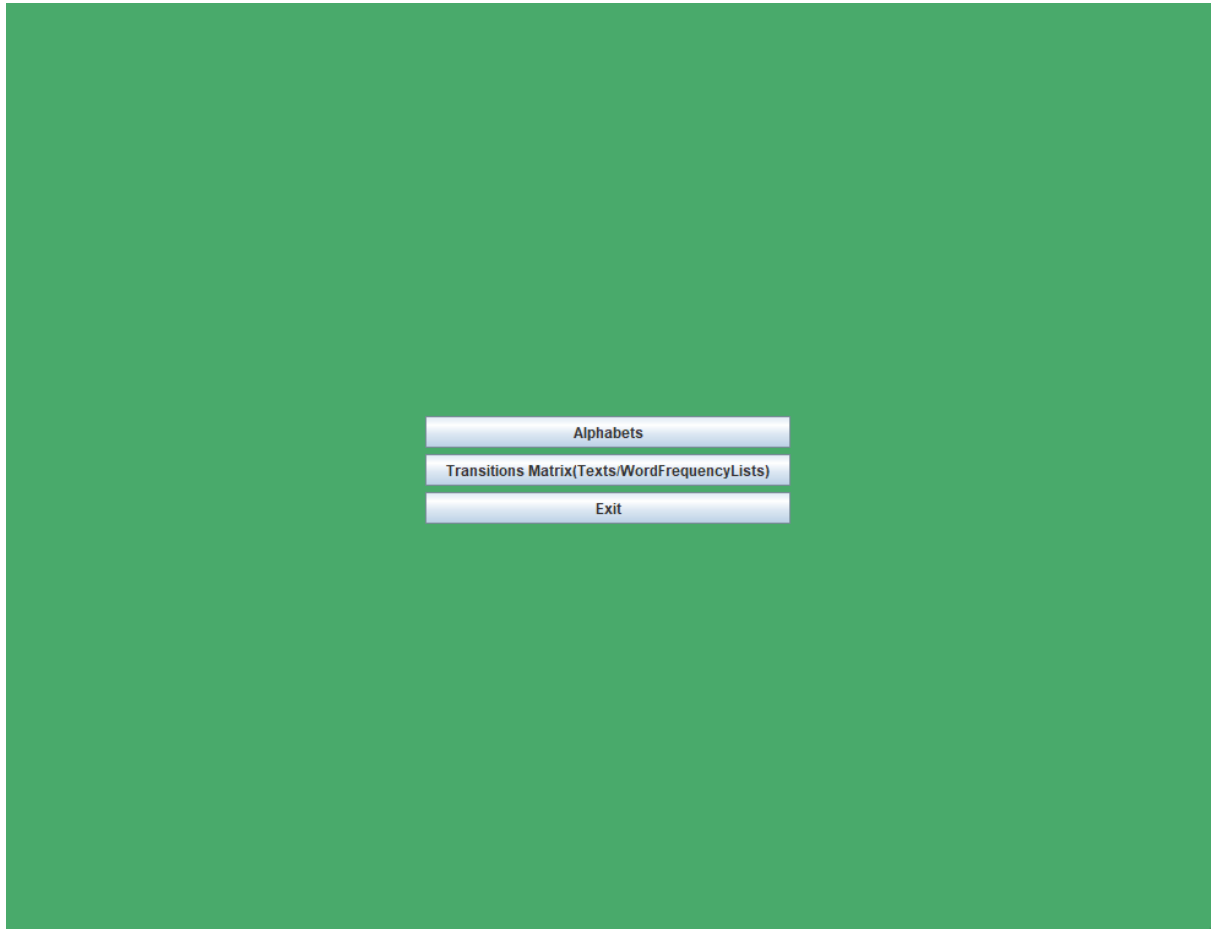
My Inputs:
Window for the manager of the Alphabets and Transitions.

Welcome to the Custom Keyboard Generator

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| My keyboards | My Inputs |

My Inputs

Here you can decide whether you want to manage Transitions or Alphabets.

Alphabets

You can find the list of the existing Alphabets and decide if you want to delete from the list or add a new one.

A
ABCDEFGHIJKLMNOPQÑRSTUVWXYZ 0123456789
Alpha
ASDFGHJKL

Add
Delete
Exit

Add Alphabet

For the creation of an Alphabet you need to specify:
- The ID: that can be any sequence of characters
- List Of Characters which can be obtained from a .txt external file, or be introduced character by character, without spaces (if there are any spaces they will be counted as part of the Alphabet).

Warnings
- ID must not be empty.
- ID must not match any other ID from any existing Alphabet.
- If you decide to upload a file it needs to be a .txt
- List Of Characters must not have any character repeated.

Add an Alphabet

ID. Alphabet	alpha-1
List Of Characters	qwertyuiopasd
Characters from file	Upload

Add

Cancel

Delete Alphabet

You only need to specify the ID of the Alphabet you want to Delete.
The interface has a selection box which only shows the possible Alphabets to be deleted.

Warnings
- If you want to Delete an Alphabet which is used by some Transition, the operation will be canceled. You may first clean up all the uses of the Alphabet in order to delete it.

Transition Matrix

The next input phase of the program is creating the Transition Matrix.
First it shows the existing ones and the options for managing the list.

Transitions are created from texts or from a list of words and their frequencies. Texts or Words must use the Characters of the Alphabet from which you want to work.

So the creation of a new Transition is done from one of this two options:
- creation from text
- Creation from words

Therefore you can Delete some Transitions from the list.

Create Transition Matrix from Text

Creation from a text consists of getting the transitions from the characters of a Text, those characters are part of the Alphabet specified.

In order to create this form needs to be filled:
- ID for the Transition.
- ID of the Alphabet used.
- The Text that can be obtained from an external file.

Warnings
- ID for the transition must not match an existing ID from another Transition.
- Alphabet with the ID Alphabet must exist.
- If you decide to upload a file it needs to be a .txt
- All the characters from the Text must be part of the Alphabet specified.

Creation of a Transition

Using Text

ID. Transition	
ID. Alphabet	Alpha ▼
Text	
Set from file	Upload

Add
Cancel

Create Transition Matrix from Word Frequency List

Creation of a new Transition by using Word Frequency List, works the same way as Text but the input consist of two parts:
- Words: list of Words (one per line) where the characters must be part of the Alphabet specify
- Frequencies: list of numbers (one per word), introduced between spaces, that indicates the frequency for the use of the word. This frequency works as a multiplier in order to calculate the transitions.

Warnings
- ID Transition must not be used in other Transitions previously created.
- The ID Alphabet must match with some existing Alphabet.
- If you decide to upload a file it needs to be a .txt
- Length of number of Frequencies and Words must match.
- All the words must be made by characters which are part of the Alphabet.

Creation of a Transition

Using Word Frequency List

ID. Transition	
ID. Alphabet	A ▼

FrequencyList

Get frequencies | Upload

WordList

Get WordList | Upload

Add
Cancel

Delete Transition

In order to delete a Transition, you only need to select from the Interface the ID of which you want to delete. The selection tool will only show the possible Transitions to delete.

Fact
As a difference from Alphabet, Transitions that are used by some existing Keyboards, can be deleted.
We allow this because once you create a Keyboard, all the objects needed for that creation are no longer useful, so there are no Dependencies between them.
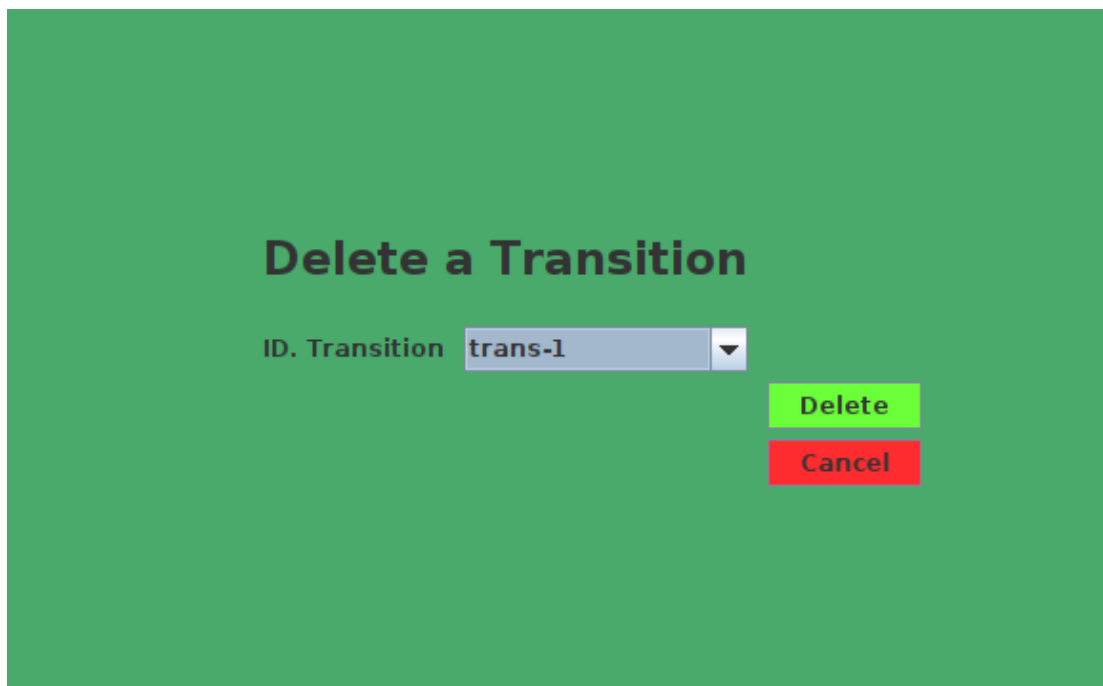
List My Keyboard

Like the input section, here shows the list of Keyboards created and the manage options.

Being actions for the list:
- Create Keyboard
- Delete Keyboard

Or you can select one of the existing Keyboards to treat it individually, modifying its distribution.

In addition there is the Evaluate option, made for testing the Keyboards created.

Create Keyboard

Given the right inputs will create a new Keyboard.
First the program checks that all data is correct, and using the algorithm requested, will create the keyboard, saving the result of the keys order.
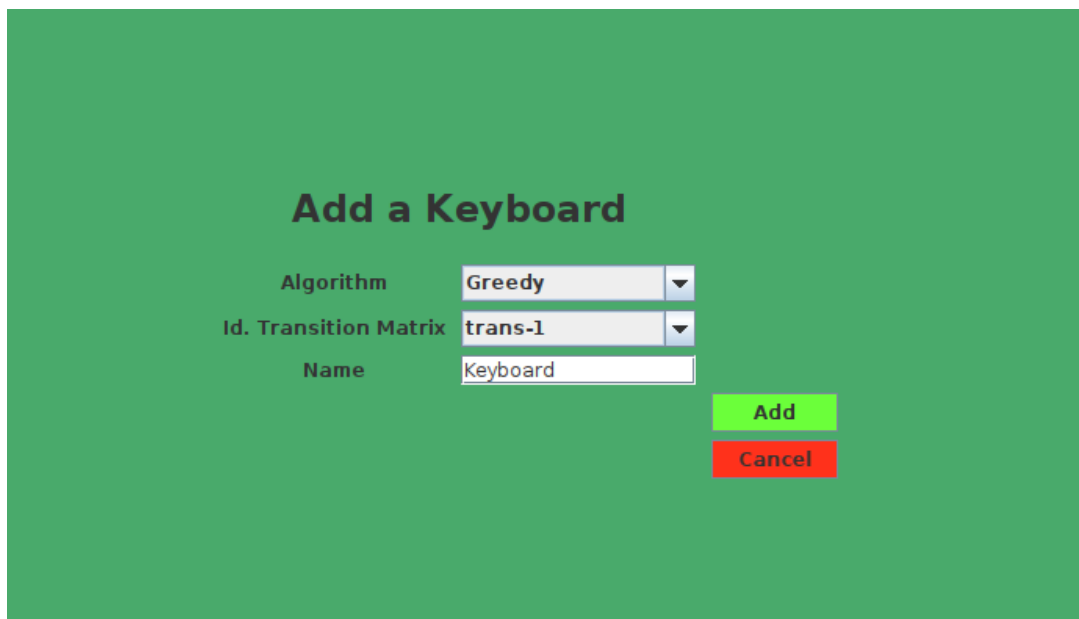
In order to create this form needs to be fill:
- ID of the Algorithm used.
- ID of the Transition Matrix used
- ID for the Keyboard

Warnings
- The specified Transition Matrix must exist.
- Algorithm required must be 'QAP' or 'Greedy'
- The name for the new Keyboard must not have been used previously.

Display Keyboard

This window shows the Keyboard, you can test it and in the right bottom corner there is a button that lets you swap two positions.
While using the Keyboard, you can change whether you would like to use a capital letter or not with the Majus button.

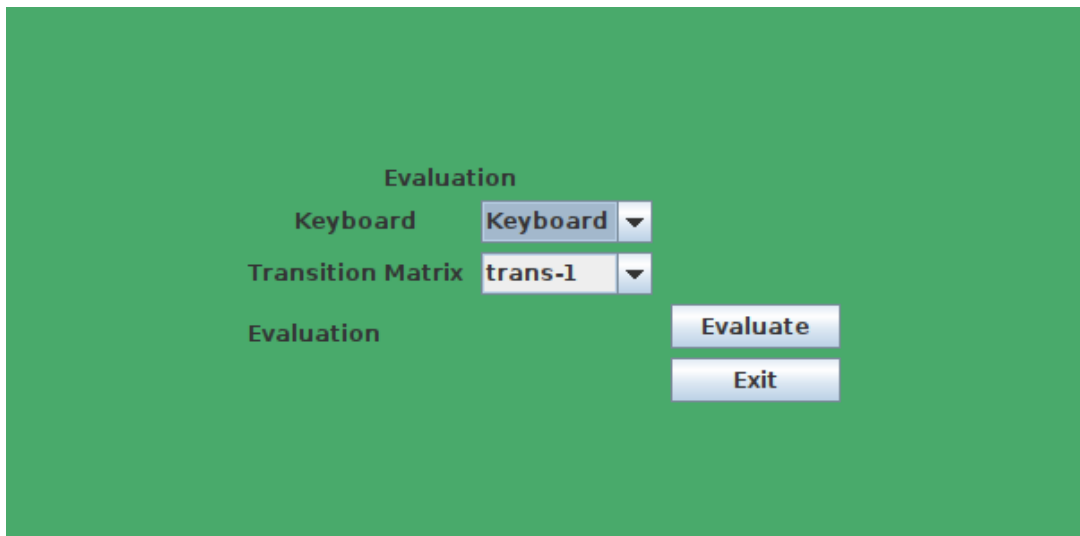Changes will be permanent once you close the keyboard.

Keyboard

S	R	A
E	Q	W
T	D	F
		G

Maj

Editor mode is off

Editor mode

Exit
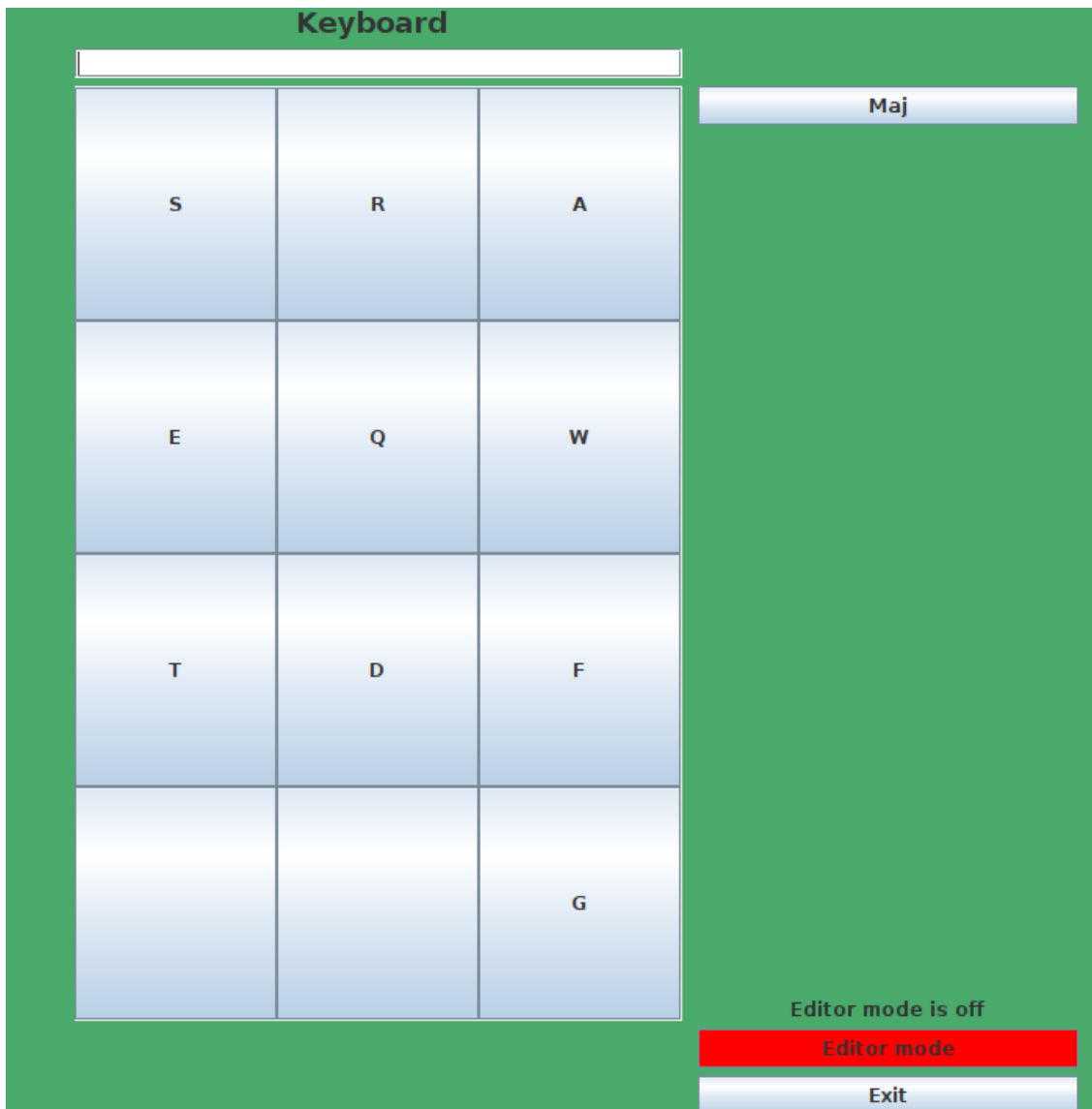
Evaluation

This function is made for testing the custom Keyboard created.
You can enter the ID of the Keyboard and the ID of the Transitions from which will be evaluated.
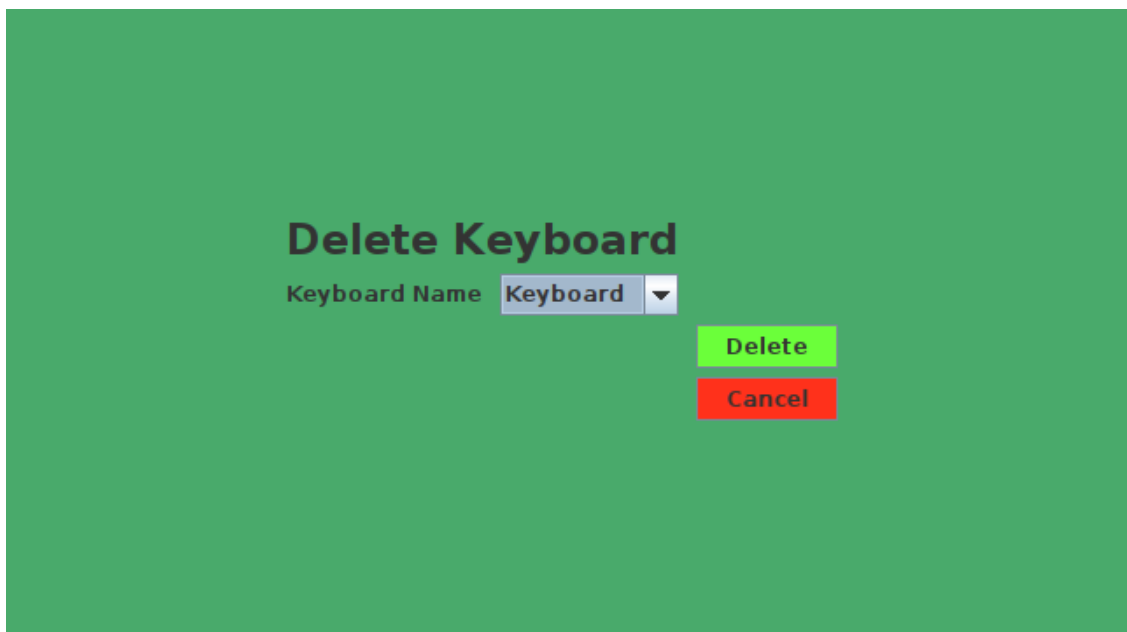
Keep in mind that you can introduce all types of Transitions, meaning that you could evaluate a Keyboard created with a totally different Alphabet from the Transitions for the evaluation. Nevertheless the results will have very low efficiency.

Delete Keyboard

In order to Delete a Keyboard, you will only need to select the ID of the Keyboard that you want to delete.

The interface select option tool will only show the possible Keyboard to be deleted.

Delete Keyboard

Keyboard Name Keyboard ▼

Delete

Cancel