Trace2Learn Phase II

Introduction

Trace2Learn is a mobile application that utilizes interactive tracing functions to assist in the study of languages. It is ideally suited to languages with complex graphical writing systems e.g. Chinese, Japanese, Korean, but can also be used as a utility for children of pre-school age learning to read and write simple words using any alphabet.

Phase I of the Trace2Learn project created a proof-of-concept Android application, which can be considered the 'admin' interface for defining a set of characters and assembling them into words and collections. The goals of Phase II are:

a) To refine the existing feature set and clean up a number of bugs in the Phase I code;
b) To implement a means of exporting a library of characters, as well as a collection of words;
c) To implement a new user-facing mobile application that is able to import a library of characters, as well as collections of words, with maximum reuse of Phase I code.

Review of Existing Functionality

Figure 1 below shows the main screen of the Phase I app. **Figure 2** shows the *Browse All Characters* activity, populated with a set of Chinese characters, and multiple tags defined for each character.

Figure 3 shows a word consisting of two characters, with the second character being displayed in practice mode. In this mode, the strokes are rendered sequentially (in blue), and the user must reproduce each stroke (in red).
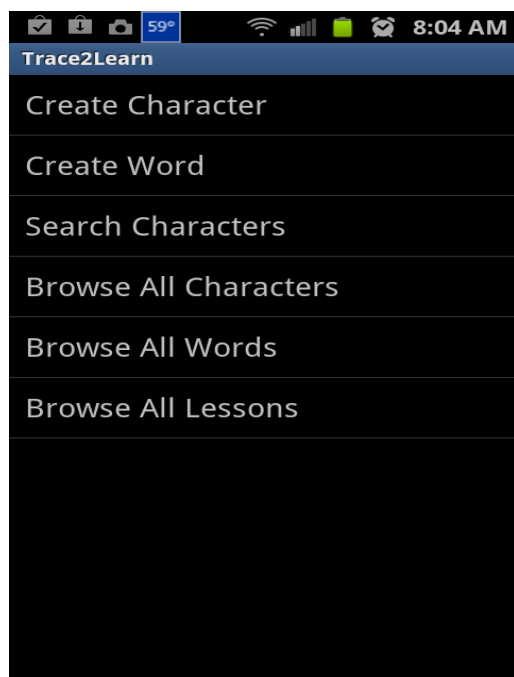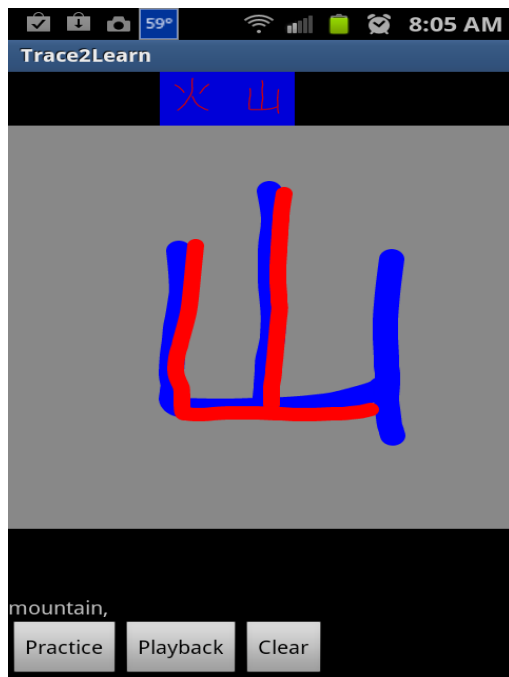
Figure 1

Figure 2

Figure 3

A majority of the effort of Phase I was spent on capture and persistence of a sequence of strokes that make up a character and on the playback and practice modes for rendering characters. These features are solid and can be reused mostly as is, however some enhancements and bug fixes are needed. These are enumerated in the next section.

Requirements for Phase II

A. Enhancements to Existing Features

1. Edit tags (renaming)

USE CASE	OBSERVED	EXPECTED
- *Browse All Characters* activity - Context menu on any character	First option is *Add Tag*	Please rename first option to *Edit Tags*, should open *Edit Tags* page (rename from *Current Tags*).
- *Browse All Words* activity - Context menu on any word	*Edit Tags* option is missing	Please add *Edit Tags* option, after *Add to Collection*, should open Edit Tags page (rename from *Current Tags*).

2. Delete tags

USE CASE	OBSERVED	EXPECTED
- *Browse All Characters* activity - Context menu on any	Can't delete tags	Please add context menu to delete selected tag.

character
- *Edit Tags*

- *Browse All Words* activity - Context menu on any word - *Edit Tags*	Can't delete tags	Please add context menu to delete selected tag.

3. Rearrange characters and words

USE CASE	**OBSERVED**	**EXPECTED**
- *Browse All Characters* activity	Can't rearrange characters	Please add *Move Up / Move Down* options, before Delete, and save order to the database.
- *Browse All Words* activity	Can't rearrange words	Please add Move Up / Move Down options, before Delete, and save order to the database.

4. Enhance search function

USE CASE	**OBSERVED**	**EXPECTED**
- *Search Characters* activity	Current search is case-sensitive and exact match only	Please make search case-insensitive, so that 'FoO' will match on a tag of 'foo' and visa-versa. Please implement partial match if search string is >2 characters. I.e. 'A' should only match tags 'a' or 'A', but 'FOO' should match the tag 'foobar'.

5. Enhance word creation

USE CASE	**OBSERVED**	**EXPECTED**
- *Create Word* activity - Find any character	Only way to browse characters is by scrolling	Please create a *Filter* button, to the right of *Add Tag*. This should bring up a text box. Entered text should be applied as a search string so that only matching characters are displayed. If there is an active filter, change *Filter* button label to *Clear Filter*.

6. Word browsing bug fix

USE CASE	**OBSERVED**	**EXPECTED**
- *Browse All Words* activity - Select any word	Playback mode is broken	Playback should display the character with time delays, same as when viewing an individual character.

7. Collection browsing bug fix

USE CASE	**OBSERVED**	**EXPECTED**
- *Browse All Lessons* activity	Error, requires force close	Please rename *Browse All Lessons* to *Browse All Collections*

- Select any item in list	Display words in collection, with the text "<<Collection Name>> 1 of N" at the top.
	In practice mode, once user enters last stroke in a character, auto-progress to next character in word. Once user completes a word, auto-progress to the first character of the next word.

B. Export/Import Libraries and Collections

Creating character libraries and collections of words is time consuming – this feature will allow libraries and collections to be distributed and shared among mobile users.

1. Export Character Library: New main menu option, exports all characters, including stroke data and tags, to a single file in a shared directory.

2. Import Character Library: New main menu options, imports a character library from a shared directory (browse to location), overwrites existing characters.

3. Export Collection: New context menu option in *Browse All Collections*, exports selected collection, including its name, to a single file in a shared directory.

4. Import Collection: New context menu option in *Browse All Collections*, imports collection from a shared directory (browse to location).

C. User-Facing Application

Please create a new Android application called "Trace This!" This is simply a fork of the Trace2Learn code, with a subset of features enabled. It should support the following activities, with the same behavior as Trace2Laern:

1. Browse All Characters
2. Browse All Collections
3. Search Characters
4. Import Character Library
5. Import Collection