
Luke Wolpert, Naomi Johnson

JDict Foreign Language Tool

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OVERVIEW

We propose building a Japanese learning website. It will be meant for English speakers who want to learn Japanese and Japanese speakers who want to learn English. The Japanese language is unique in that it uses more than one writing system. Kanji symbols are used to represent ideas - they do not correspond to spoken words (there is no English equivalent to this system).

Conversely, the next two writing systems, Katakana and Hiragana, do correspond to spoken word. They are distinct syllabic alphabets, the former being used for foreign words and the latter being used for native words. Then there is Romaji, which is the roman letter form of the Hiragana/Katakana. The two of us have a strong interest in foreign language acquisition and are making this website with the intention of making significant improvements on the available solutions. We will be making use of a Japanese-English word relational database, which we created in advance (modifications will be necessary e.g. the addition of Romaji data).

You can experience our prototype via AdobeXd:

<https://xd.adobe.com/view/2160138f-f0bb-43da-582e-bb91bdd270b8-5751/>

REQUIREMENTS*

1. The home page will contain information about what the site does and who it is for.
2. The home page will contain a search bar, where users can type in either English, Kanji, Hiragana, Katakana, or Romaji, and be redirected to a search results page. The search page will also dynamically display the recent query history upon tapping the search bar.
3. The search results page will display rows of matches. Each row will contain the english word, kanji element, hiragana/katakana, romaji, as well as other information about the word entry. To the right of each row will be a button for adding the word entry to a new or preexisting list. Clicking the button will dynamically display a modal dialog box in which one can select a list to add the word to, or type a name for a new list to which to add the word.
4. The list of lists page will display a list of the existing lists. New users will find a number of predefined vocabulary lists of varying difficulty, whose words correspond to those used in

standard fluency exams. Clicking a list will bring the user to that list's page. Clicking 'edit' will dynamically change the page by adding symbols to the side of each list for deleting the list, and adding an entry at the top of the list for adding a new list. Users can type in the 'type to filter' bar to dynamically narrow the list of vocab lists.

5. Each list's page will display the words in that list and an edit button. Upon clicking the edit button, the page dynamically changes to allow for deleting words and adding new words. There is also a small flash card simulation at the top of this page, which can be scrolled through and clicked to flip the flash cards. Clicking the fullscreen button will direct the user to the flashcard/quiz page.
6. On the flashcard/quiz page, the user can study their words by clicking the arrows to dynamically scroll through the list in a flashcard format. Clicking the flashcard itself will dynamically flip the flashcard, revealing the translated version. A settings area of this page will eventually be implemented.
7. Users can sign up for free accounts so that they can create lists of vocabulary.

*Some of these components, such as validating form data during sign-up, will be handled on the server side, while others, such as filtering the list of vocab lists, will be handled on the client-side.

FRAMEWORKS, TECHNOLOGIES, AND WEB SERVICES

Our frontend will be HTML/CSS with Javascript; we'll be using Angular to meet the requirements of this project. We're planning on using our GoogleCloud credits to host this site. The backend of our site will consist of a MySQL database with ~183,000 Japanese words from Jim Breen's opensource JMdict project.

SCREENS AND USER INTERFACE DESIGN

Target Users

We anticipate most of our users will be high school and university students who are taking language classes at school, so we will design with 15-25 year olds in mind.

Design Process

We began by searching for "best Japanese dictionary app" and "best Japanese flashcard websites". After reading several posts, we took notes of names that came up more than once and began surveying existing dictionary websites (nihongodict.com and jisho.org) and flashcard websites (quizlet.com). We then looked at Android and iOS apps (A Word, Aedict, Akebi, Anki, Brainscape, Busuu, Cram, English Japanese Dictionary, Flashcards, Flashcards Plus by Chegg, GRE Vocabulary by Magoosh, Imiwa?, Lexilize, Jsho, Japanese by Renzo Inc, Rolandos,

StudyBlue, StudyStack, EOW, Takoboto, Tinycards, Vocabulary.com, and Waygo), and Microsoft Phone apps (Tango Master). For most of these apps, we explored how their search page was before and after a query, whether and how they allowed users to store words, and whether there was any kind of flashcard app.

Tango Master and Akebi were the only apps that allowed us to query a dictionary and then add that word to a deck of flashcards. Tango Master's greatest failure is the fact that the app is only available in the Microsoft store. While Akebi does have the ability to create flashcards, the interface does not allow users to automatically add results from a query to a deck of flashcards, and the search results page was not aesthetically pleasing.

Usability

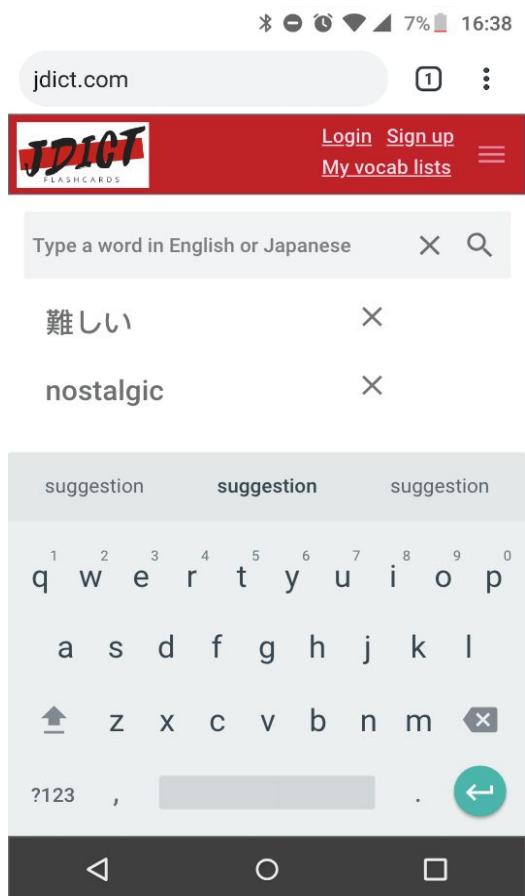
Exploring many different existing apps helped us see flaws in their designs, which gave us points to consider as we designed our apps. We talk about the usability as we discuss each page in the following sections.

Search

The foundation of our website is the dictionary and our search function. In order to maximize efficiency, our home page will contain a search bar. After text is entered into the search bar, users can select a "X" to delete the entire query if they made an error, or they can select a magnifying glass icon to search for the word. After a query is entered, the results will be displayed on the same page.

Each word will be on its own row, and every other word will be on a white or grey background in order to help break up the large amount of text and increase learnability. Each row will have a "+" icon to allow users to add that particular word to one or more vocabulary lists. Each row will have a down arrow symbol that allows users to see more details on that particular word; upon click the arrow will rotate. Upon a second click, users can hide the details of that word.

Front page (Search):



Search Results:



[Login](#) [Sign up](#)
[My vocab lists](#)



delicious



甘い

あまい

delicious
sweet
fragrant



結構

けっこう

delicious
splendid
nice



旨い

うまい

delicious
skillful
clever



美味しい

おいしい

delicious
tasty



デリシャス

delicious



滋味に富む

じみにとむ

delicious
nutritious



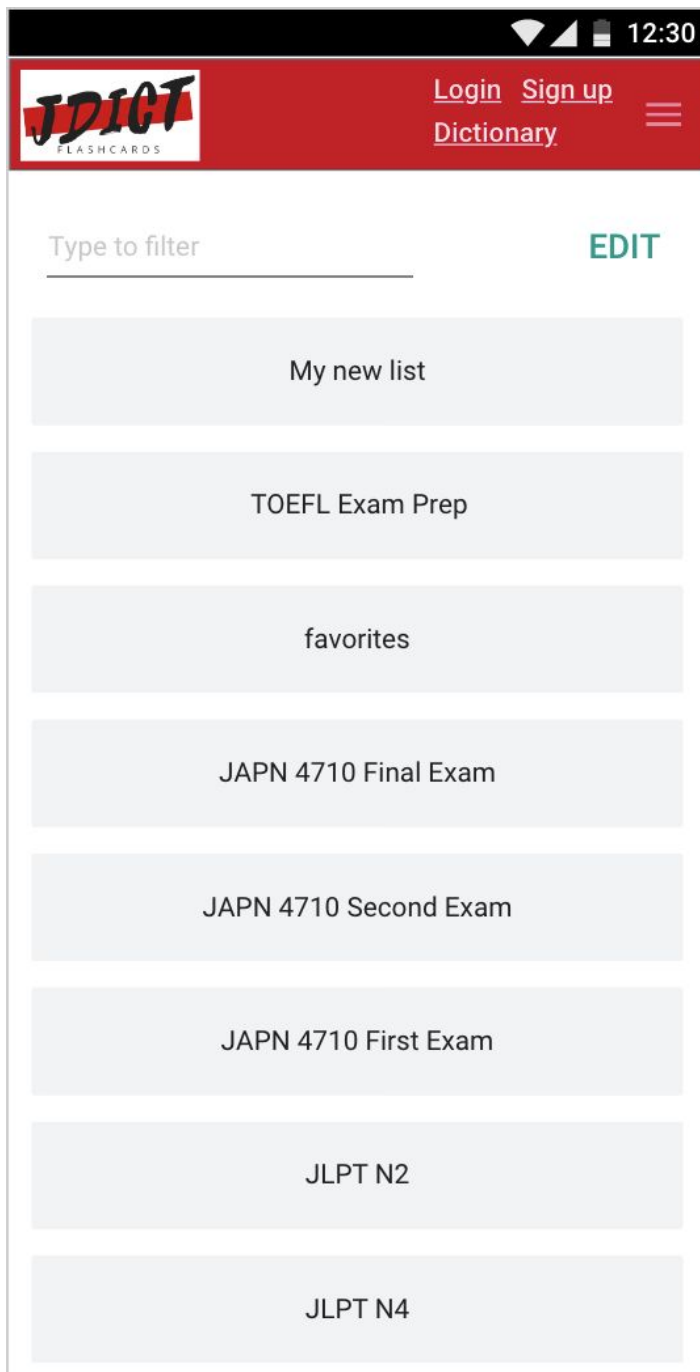
まいゆ

delicious
appetizing
appetising



List of lists (of vocab)

When users click on the “My vocab lists” button, they can see the list of existing vocabulary lists. There is a filter option in case you have many lists, or if you want to see all lists for one class, or one exam (ie, TOEFL or JLPT). When users click “edit”, they are able to delete existing lists or create new lists.



List of vocab

When users click on a single list, they can see all of the words on that vocabulary list, as well as a small flashcard deck. In order to increase learnability, we hide the edit functionality until a user clicks on “edit”. A small simulation of the flash card page is displayed near the top of the page to increase user engagement. Users can scroll through the cards and study with them from here, or they can click the fullscreen icon to be directed to the flash card page.



Quiz functionality

Users can access the flashcard deck. After clicking on the flashcard, they can see the answer on a screen that asks them to self-report whether they got the answer correct. Once a response is given, the next vocab word in the list will dynamically be displayed on the flash card.

Sample flash card (front):



Sample flash card (back):

