



Using Mobile Apps as a Small Step Toward Revitalization

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Overview

- ❖ Background
- ❖ Northern Pomo & Kashaya
- ❖ Jano sho:jin – Hearing Northern Pomo words
- ❖ Kashaya cahno – Kashaya words
- ❖ Technical Issues
- ❖ Open-source Template of the Android app



Background

Motivation



- Many field recordings and field notes collected over 25 years on a language now dormant...
- Desire to make these resources accessible to the community of the descendants
- We decided to first create mobile apps...

Goals

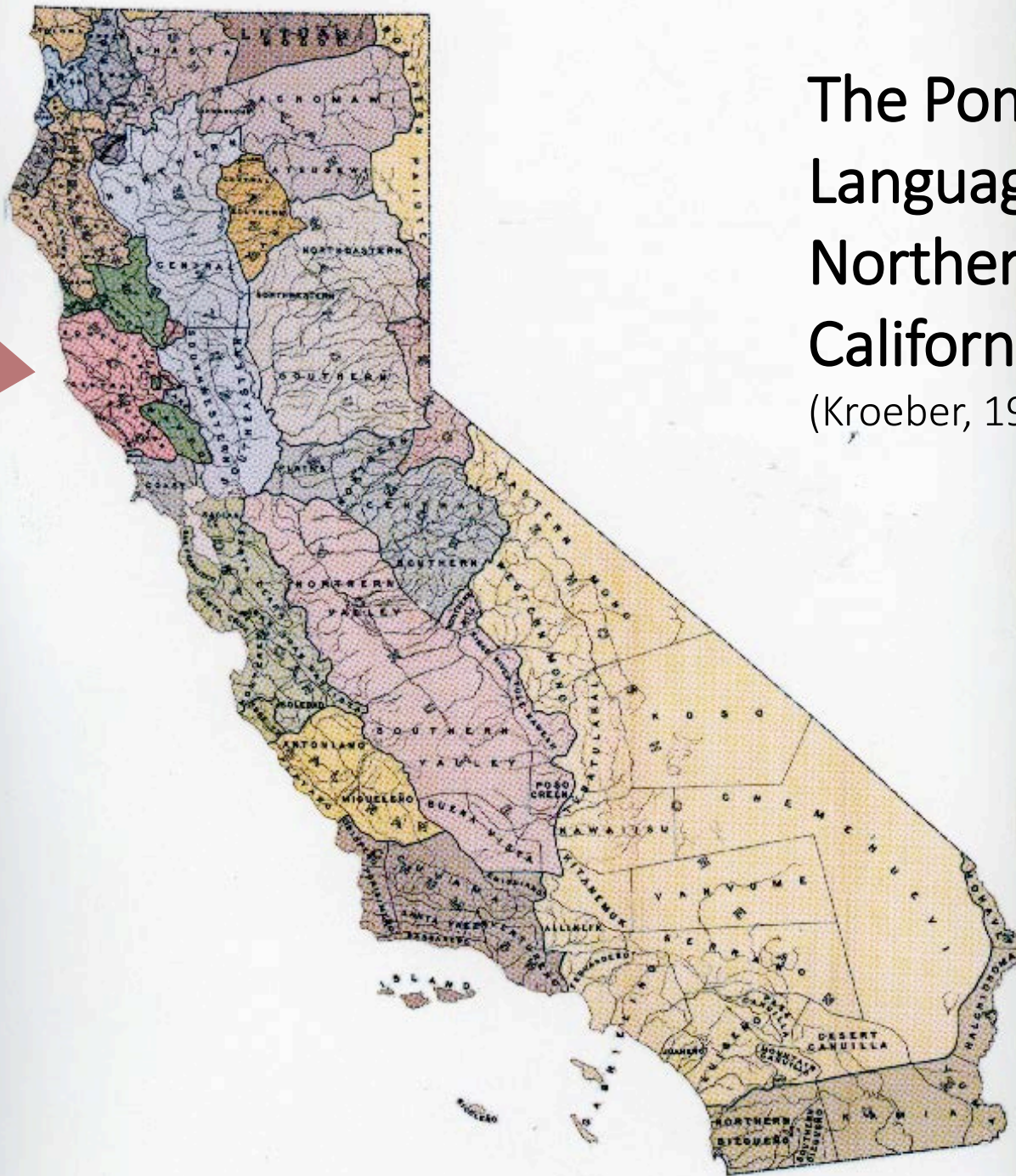
- ❖ Introduce the language to new learners.
- ❖ Provide an enjoyable, user-friendly, and accessible learning experience.
- ❖ Hopefully, allow learners to get something out of the experience.

A black and white aerial photograph of a valley. In the background, a range of mountains rises, covered in dense forest. The middle ground shows a valley floor with a mix of forested areas and open fields. In the foreground, there are several large, rectangular agricultural fields, some of which appear to be planted with crops like grapes or orchards. A few small buildings and structures are visible in the lower part of the image. The overall scene is a rural landscape with a mix of natural and cultivated elements.

Northern Pomo & Kashaya

The Pomoan Languages in Northern California

(Kroeber, 1925)



Northern Pomo

- Currently no living fluent speakers
- But, there is still a community that identifies with the language
- EGIDS Level 9: Dormant:
“The language serves as a reminder of heritage identity for an ethnic community, but no one has more than symbolic proficiency.”



Edna Campbell Guerrero



Elenor Stevenson Gonzales

Kashaya

- Also known as Southwestern Pomo.
- There are perhaps two dozen speakers.
- UNESCO: Critically endangered:
“The youngest speakers are grandparents or older, and they speak the language partially and infrequently.”



Essie Parrish



Isabelle Johnson



Milton 'Bun' Lucas



Jano sho:jin

iOS App

- Designed and developed by Elodie Paquette.
- Currently, only the iPad app is available for download.
- The iPhone version is under development.



Android App

- The main focus of the talk.
- Available on most Android devices.
- Similar to the iOS app.
- Contains a word-learning quiz.





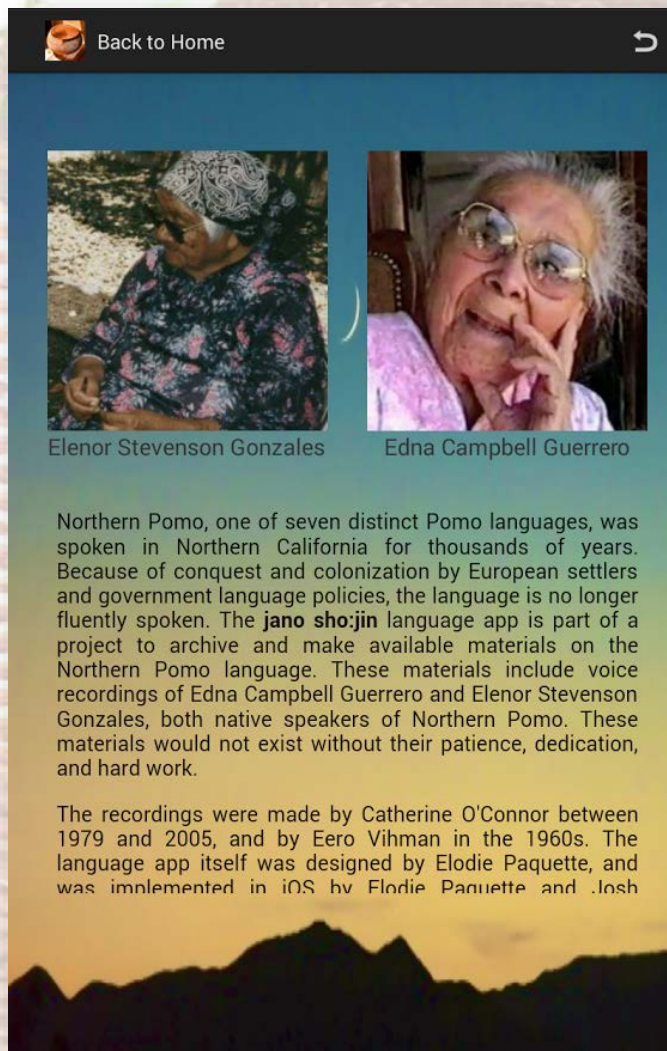
- **Jano** means ‘word’ or ‘language’ and **sho:jin** means ‘hearing’.
- The Pomo basket was made by Clara Williams in 1943.
- Organized in four components:
 - About
 - Words
 - Quiz
 - Contact

About



About

About View



- About the language, its speakers and where it is spoken.

Words



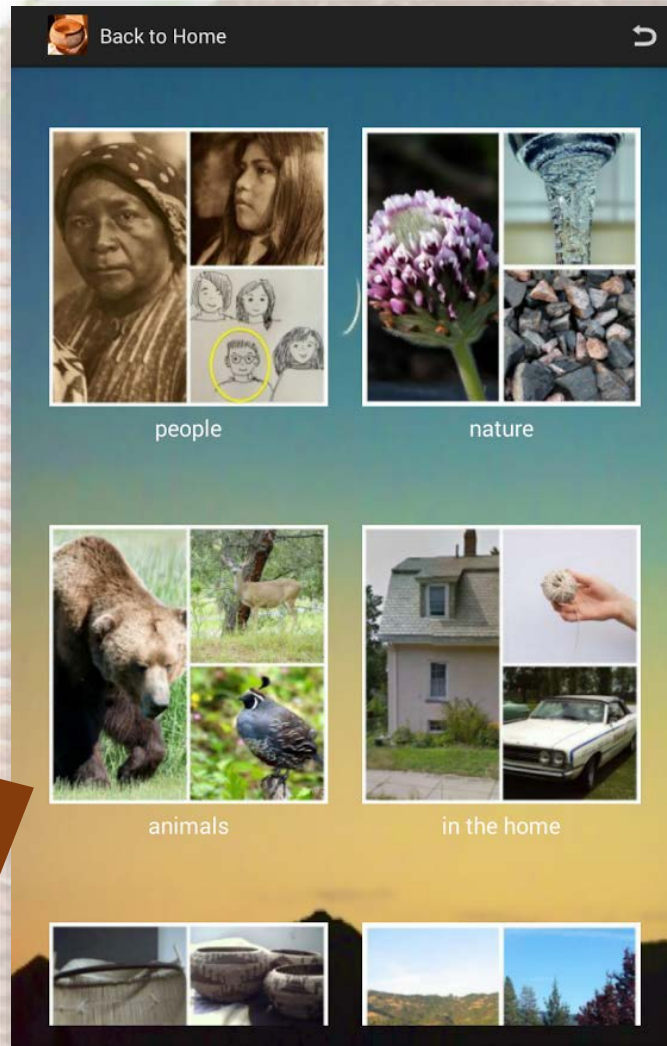
Words

Category View



- Organized into seven categories:
 - People
 - Nature
 - Animals
 - In the home
 - Traditional
 - Places
 - Food
- Includes an 'all' category.

Words



Words

Word List View



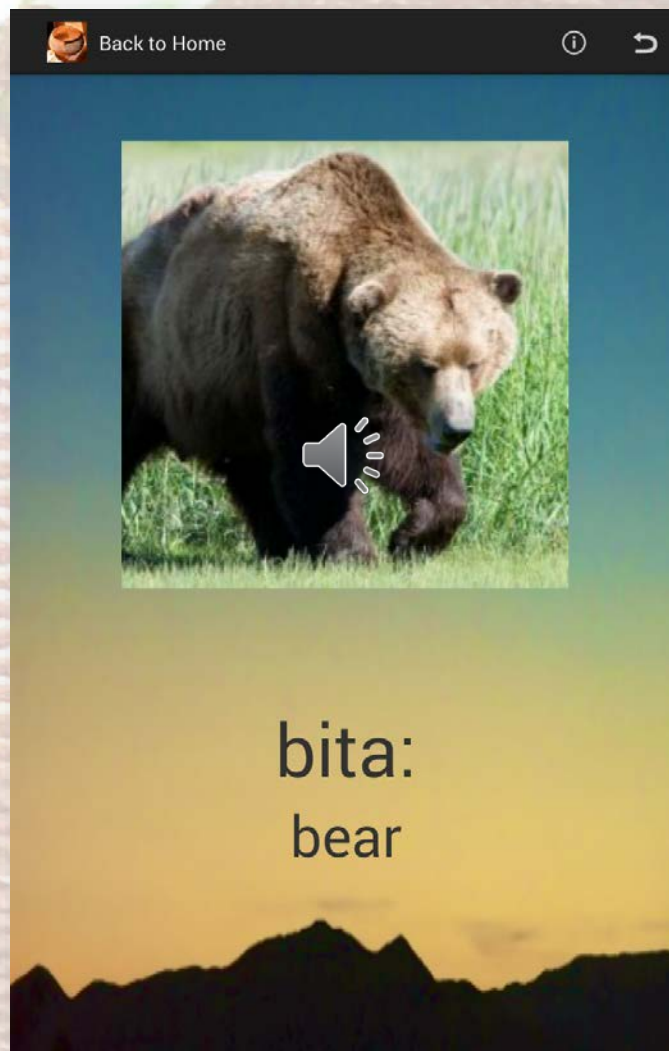
- Provides a list of all the words within the category.
- Each word is accompanied by a picture or an illustration.
- Users can scroll to view more words.
- There are 85 Northern Pomo words featured in the app.

Words




Words

Detailed Word View



- Automatically plays a recording of a native speaker saying the Northern Pomo word.
- Displays a word on its own with the English and Northern Pomo orthography.
- Clicking on the image plays the recording again.
- The ⓘ icon provides the source or/and description of the picture.



A large, round, woven basket with a heart-shaped cutout on its rim, containing a small plant with a white heart-shaped flower. The basket is made of brown and tan woven material. The background is a soft-focus green, suggesting foliage.

**How does the app know
how to retrieve the
relevant data?**

Retrieval of Relevant Words

- Like a spread sheet, or a database.
- Columns are like fields.
- Each entry is represented by the row.

Category	English	Northern Pomo	Sound File	Image Name	Description	Category Image	Quiz Image
food	abalone	t ^h em	abalone	abalone	abalone	pic_food	pic_food_quiz
food	acorn mush	t ^h oʔo:	acorn mush	acorn_mush	acorn mush	pic_food	pic_food_quiz
in the house	bed	xati	bed	bed	bed	pic_house	pic_house_quiz
in the house	door	hodaw	door	door	door	pic_house	pic_house_quiz
traditional	whistle	libu:	whistle	whistle	whistle	pic_traditional	pic_traditional_quiz
...

Category View

- The Category View pulls data from relevant columns.
- In this case, the **category** and **category image** columns.

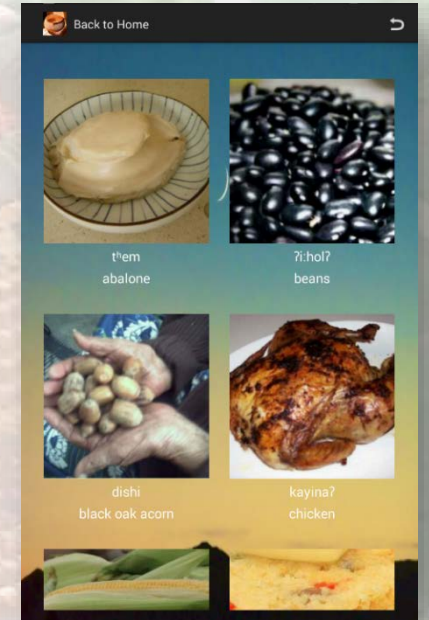


Category	English	Northern Pomo	Sound File	Image Name	Description	Category Image	Quiz Image
food	abalone	t ^h em	abalone	abalone	abalone	pic_food	pic_food_quiz
food	acorn mush	t ^h oʔo:	acorn mush	acorn mush	acorn mush	pic_food	pic_food_quiz
in the house	bed	xati	bed	bed	bed	pic_house	pic_house_quiz
in the house	door	hodaw	door	door	door	pic_house	pic_house_quiz
traditional	whistle	libu:	whistle	whistle	whistle	pic_traditional	pic_traditional_quiz
...



Word List View

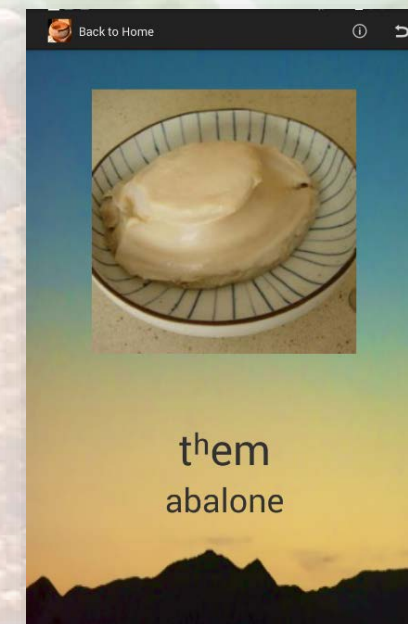
- The Word List View for **food** pulls data from relevant columns, and relevant rows.



Category	English	Northern Pomo	Sound File	Image Name	Description	Category Image	Quiz Image
food	abalone	tʰem	abalone	abalone	abalone	pic_food	pic_food_quiz
food	acorn mush	tʰoʔo:	acorn mush	acorn_mush	acorn mush	pic_food	pic_food_quiz
in the house	bed	xati	bed	bed	bed	pic_house	pic_house_quiz
in the house	door	hodaw	door	door	door	pic_house	pic_house_quiz
traditional	whistle	libu:	whistle	whistle	whistle	pic_traditional	pic_traditional_quiz
...

Detailed Word View

- The Detailed Word View for **abalone** pulls data from relevant columns, and from the row containing **abalone**.



Category	English	Northern Pomo	Sound File	Image Name	Description	Category Image	Quiz Image
food	abalone	t ^h em	abalone	abalone	abalone	pic_food	pic_food_quiz
food	acorn mush	t ^h oʔo:	acorn mush	acorn mush	acorn mush	pic_food	pic_food_quiz
in the house	bed	xati	bed	bed	bed	pic_house	pic_house_quiz
in the house	door	hodaw	door	door	door	pic_house	pic_house_quiz
traditional	whistle	libu:	whistle	whistle	whistle	pic_traditional	pic_traditional_quiz
...

Quiz



Quiz

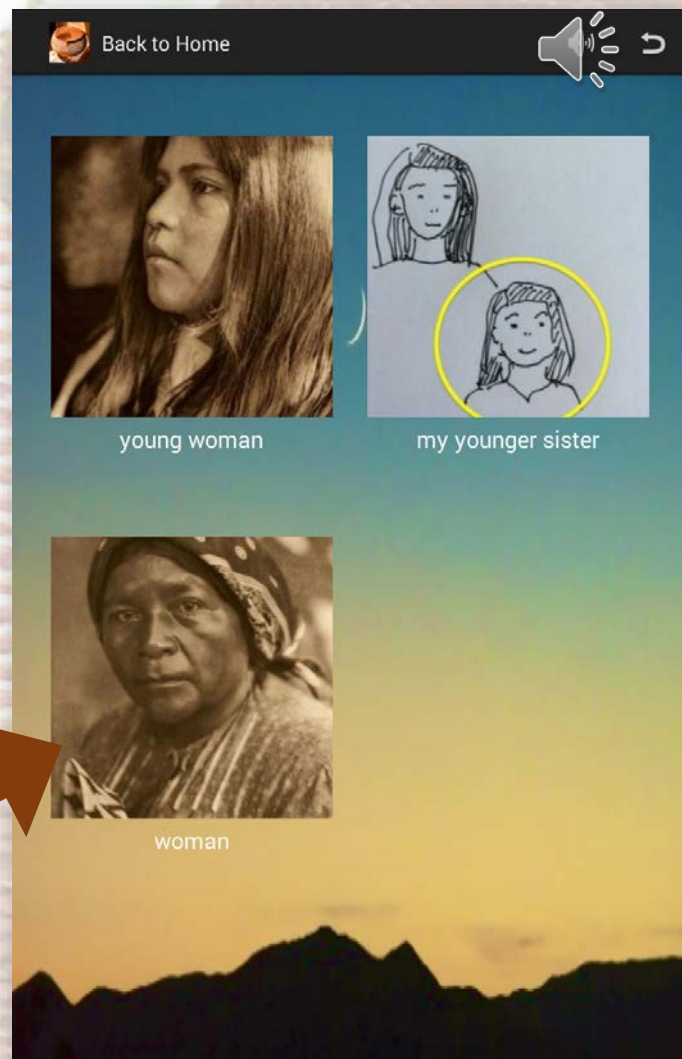
Category View



- Organized into the same categories.
- Allows users to reinforce their learning within a category, or all the words across all the different categories.

Quiz

Quiz View

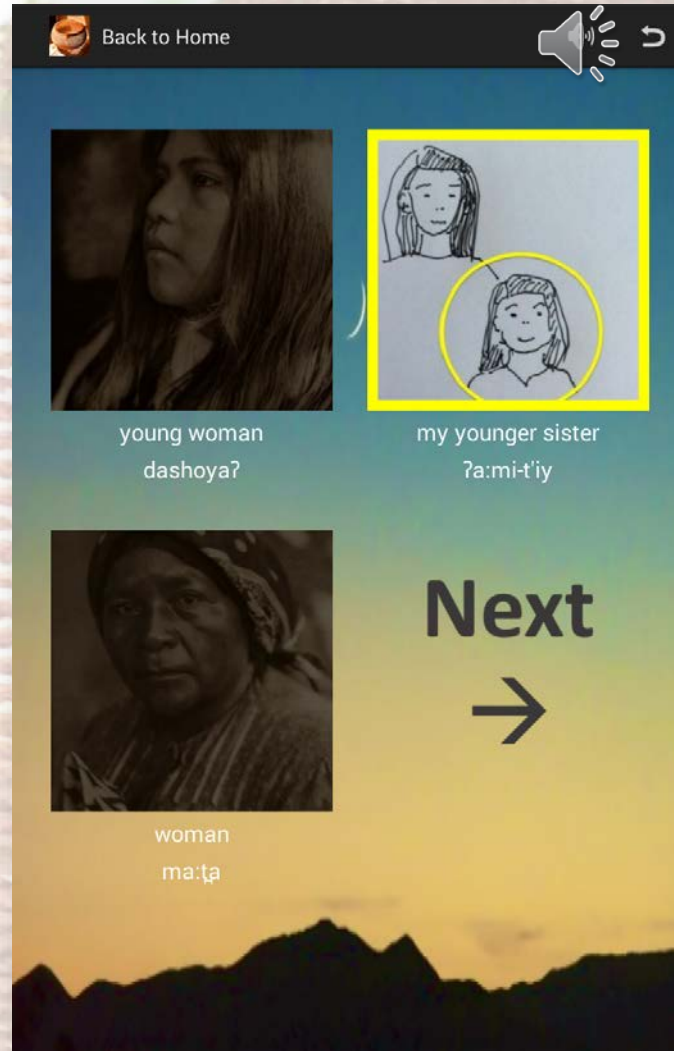


- This view automatically plays a recording.
- The Quiz View pulls words either from a single category, or words from all categories.
- Users are shown three pictures corresponding to three randomly selected words.
- The recording corresponds to one of these words, and the user is prompted to tap on the picture that matches.

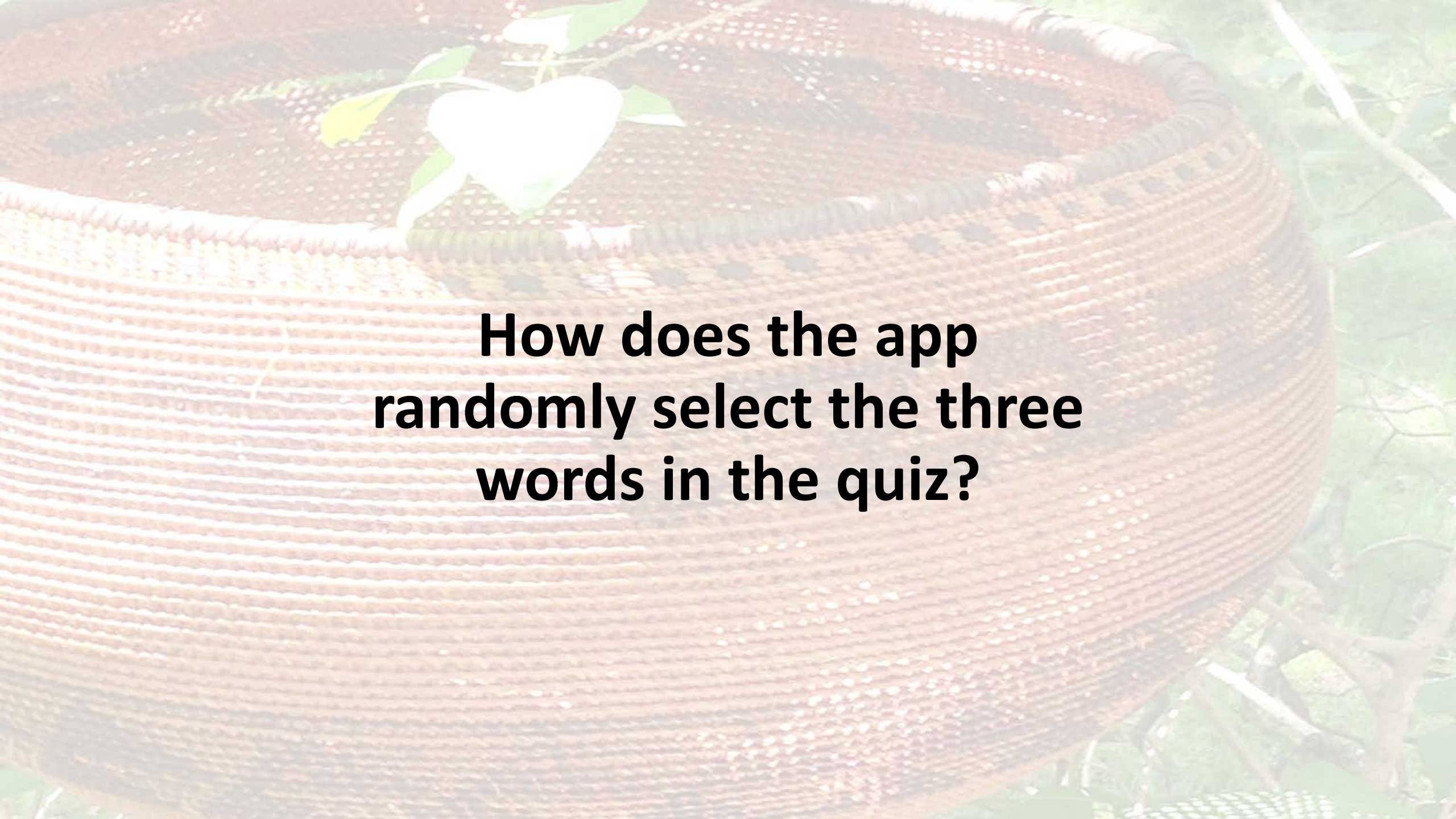
Quiz

Result View

- Selecting any one of the three illustrations, correct or incorrect, will:
 - Grey out the incorrect responses.
 - Trigger a yellow border around the correct answer.
 - Play the recording again, to reinforce the link between the image and the word.



- Our approach provides a gentle reinforcing experience.
- Community members have expressed appreciation for the lack of error buzzers.

A large, round, woven basket with a heart-shaped cutout on its rim, containing a small plant with a white heart-shaped flower. The basket is made of brown and tan woven material. The background is a soft-focus green, suggesting an outdoor setting.

**How does the app
randomly select the three
words in the quiz?**

Design of Quiz

- Each entry occupies a specific row in the *table*.
- Random number generator allows the app to “randomly” choose three of these rows.

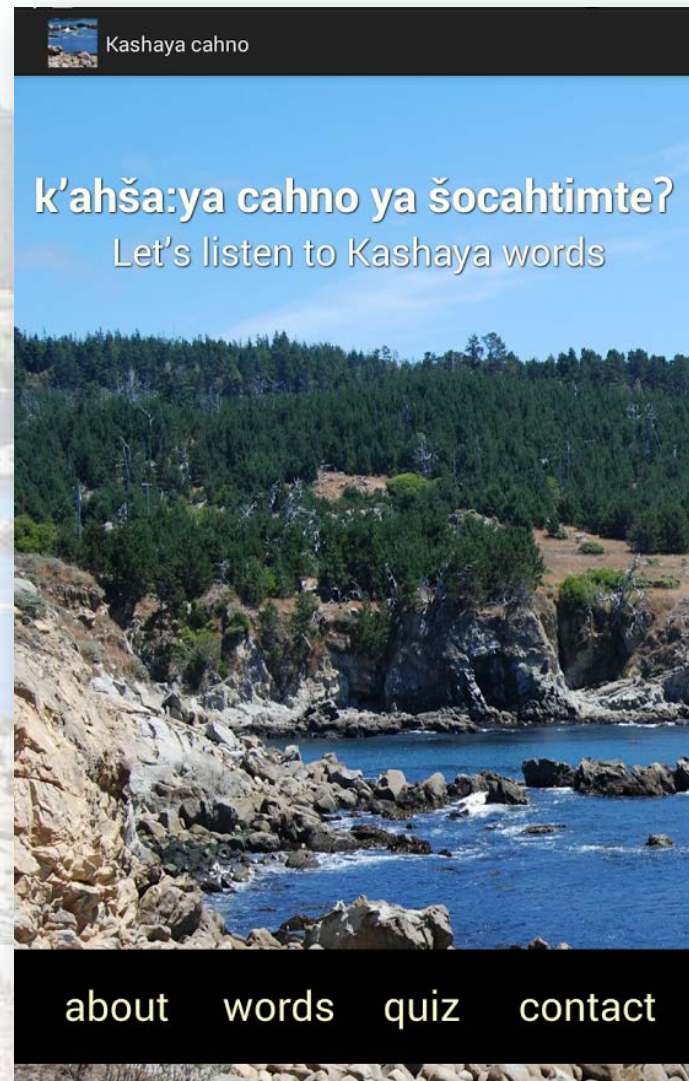
[illegible]



A scenic coastal landscape. In the foreground, there's a rocky shore with light-colored, layered rocks and some sparse, dry vegetation. The water is a deep blue, with some white foam from small waves breaking against the rocks. In the background, a steep, forested hill rises from the water's edge. The hill is covered in dense green trees, with some bare, greyish branches visible, suggesting a mix of living and dead trees. The sky is a clear, pale blue with a few wispy clouds. The overall scene is peaceful and natural.


Kashaya cahno



Using the code for jano
sho:jin, we then made
an app for Kashaya...



- **Cahno** means 'word' so **Kashaya cahno** means 'Kashaya words'.
- The backdrop is of Gerstle Cove in Sonoma County, CA taken from Wikimedia Commons.

About

 Back to Home 



Essie Parrish

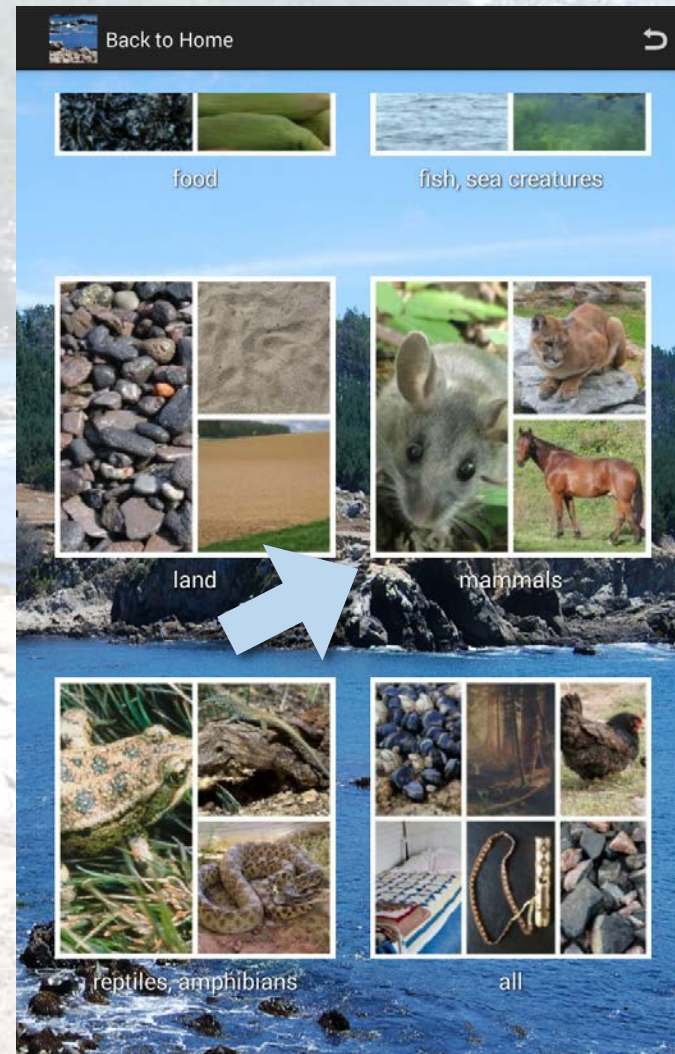
Milton 'Bun' Lucas

Kashaya, also known as Southwestern Pomo, is one of seven Pomo languages spoken north of San Francisco, in Sonoma, Mendocino, and Lake Counties. The name of the tribe is also spelled Kashia. Their territory is on the Sonoma coast, from the Gualala River in the north down to Duncan's Point below the mouth of the Russian River. It includes Fort Ross, the site of a Russian settlement from 1812-1842. The Kashia reservation is located at Stewart's Point, also called s'u?nu?nu šinal, "Huckleberry Heights".

The most important linguistic study of Kashaya was conducted by Robert Oswalt, beginning in the late fifties. He worked mainly with Essie Parrish, the spiritual leader of the Kashaya people from 1943 until her death in 1978. Many of the words to be heard in this app were spoken by Mrs. Parrish. The other woman's voice here is Isabelle Johnson.

Words

Category View



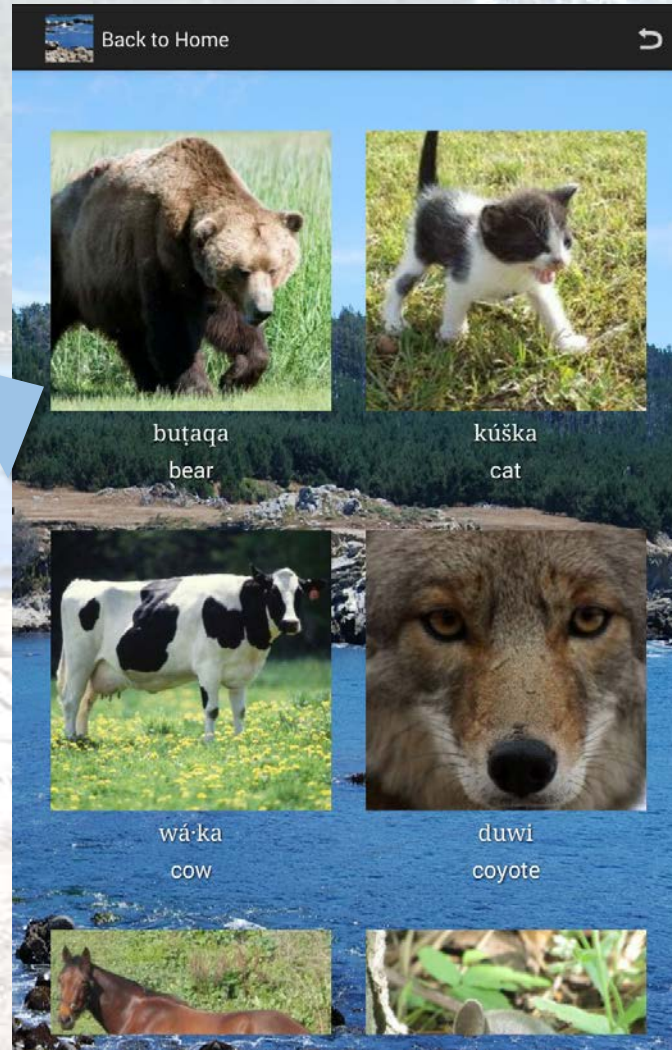
➤ Organized into thirteen categories:

- Birds
- Home
- Trees, Plants
- Water
- Weather, Sky
- Traditional
- Body Parts
- Insects, Spiders
- Food
- Fish, Sea Creatures
- Land
- Mammals
- Reptiles, Amphibians

➤ Includes an 'all' category.

Words

Word List View



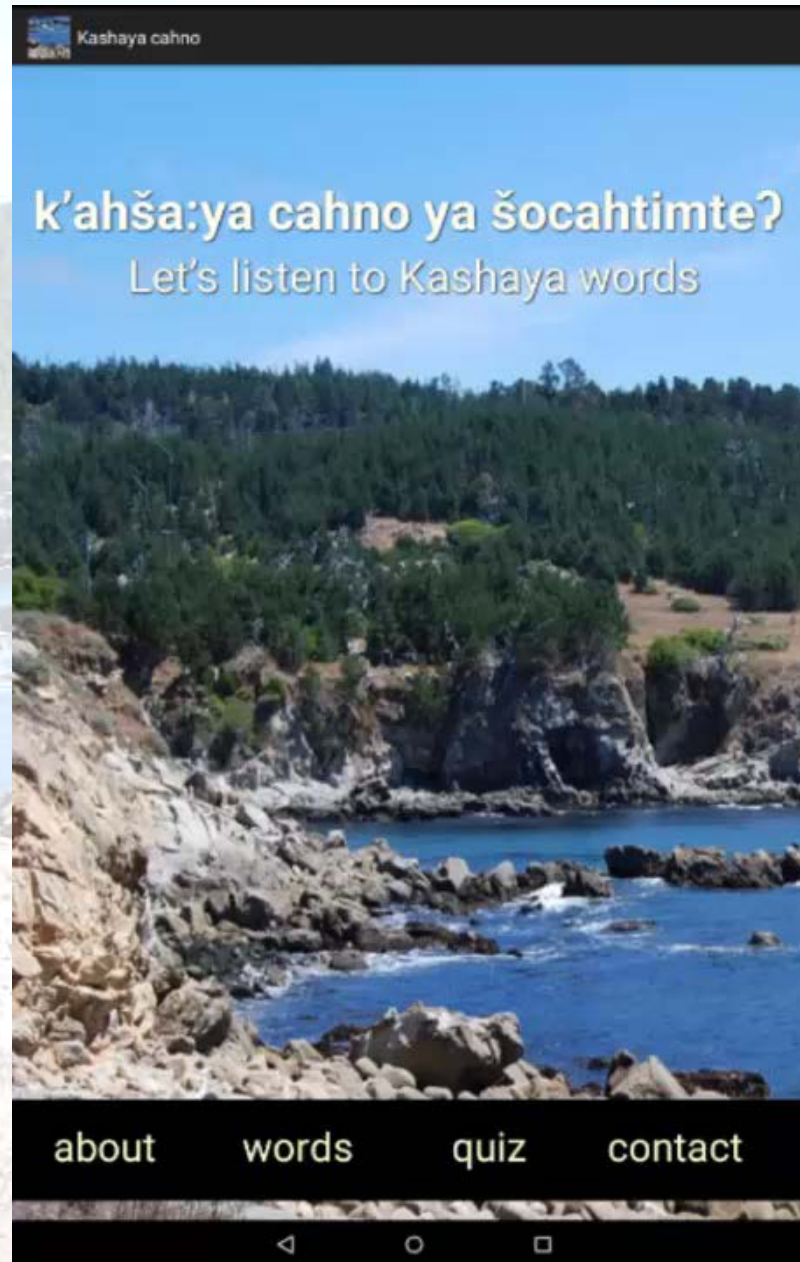
- There are 113 Kashaya words featured in the app.

Words

Detailed Word View



Quiz



Technical Issues

```
42     quiz[n] = i;
43     n++;
44 }
45
46     for (int i = 0; i < size; i++) {
47         //Bitmap image = decodeSampledBitmapFromResource(getResources(), Word.getImage(quiz[i]), 250, 250);
48         BitmapFactory.Options options = new BitmapFactory.Options();
49         Bitmap image = BitmapFactory.decodeResource(getResources(), Word.getImage(quiz[i]), options);
50         gridArray.add(new Item(image, Word.getEnglish(quiz[i]), ""));
51     }
52
53     gridView = (GridView) findViewById(R.id.gridView1);
54     customGridAdapter = new CustomGridViewAdapter(this, R.layout.row_grid, gridArray);
55     gridView.setAdapter(customGridAdapter);
56     playSound(Word.getSound(correct));
57     final Context ctx = this;
58
59     gridView.setOnItemClickListener(new OnItemClickListener() {
60         public void onItemClick(AdapterView<?> parent, View v, int position, long id) {
61             if (player != null) {
62                 player.stop();
63                 player.release();
64             }
65             playSound(Word.getSound(correct));
66             gridArray = new ArrayList<Item>();
67             for (int i = 0; i < size; i++) {
68                 if (quiz[i] != correct) {
69                     BitmapFactory.Options options = new BitmapFactory.Options();
70                     Bitmap image = BitmapFactory.decodeResource(getResources(), Word.getImage(quiz[i]), options);
71                     image = adjustOpacity(image, 90);
72                     //Bitmap image = adjustOpacity(decodeSampledBitmapFromResource(getResources(), Word.getImage(quiz[i]), 250, 250), 90);
73                     gridArray.add(new Item(image, Word.getEnglish(quiz[i]), Word.getPomo(quiz[i])));
74                 }
75                 else {
76                     BitmapFactory.Options options = new BitmapFactory.Options();
77                     Bitmap image = BitmapFactory.decodeResource(getResources(), Word.getImage(quiz[i]), options);
78                     //Bitmap image = decodeSampledBitmapFromResource(getResources(), Word.getImage(quiz[i]), 250, 250);
79                     image = scaleCenterCrop(image, 250, 250);
80                     image = addWhiteBorder(image, 10);
81                     gridArray.add(new Item(image, Word.getEnglish(quiz[i]), Word.getPomo(quiz[i])));
82                 }
83             }
84             BitmapFactory.Options options = new BitmapFactory.Options();
85             Bitmap image = BitmapFactory.decodeResource(getResources(), R.drawable.try_again, options);
```


Screen Sizes & Android Operating Systems

- Android devices come in many different screen sizes.
- Android also have different operating systems.



https://s3.amazonaws.com/infinum.web.production/repository_items/files/000/000/190/original/emulator9.png?1393600184



<http://androidflip.com/wp-content/uploads/2012/11/Android-Versions.jpg>

The norm among developers is to attempt to cover most leading devices...

- If you don't account for these different devices, some users may not be able to download the app.
- However, we cannot always anticipate what devices are being used.
- In these cases, access to the materials is restricted.
- Is it enough to cover leading devices?

Orthography

- Desire for unique orthography to represent the language, and as cultural identity.
- It may be difficult for digital technologies to accommodate novel and unique writing systems.
- There are many special characters (i.e. diacritics) that may not be easily represented...

Here's an example...

- Northern Pomo and Kashaya use slightly different writing systems.
- In Northern Pomo, the *alveolar* 't' – 't' sound in English 'stop' – is written the same as the English t.
- In Kashaya, the *alveolar* 't' is written as ɬ.
- On some devices, ɬ looks like this: □

Memory Management

- Phones and tablets have limited memory (or data storage), some less so than others.
- Memory management can be a bottleneck in any project.
- Multimedia (i.e. sounds, videos, images) adds to the problem.
- If you're not already familiar with Android development, this can be a real issue...

Open-Source Templates

```
42     quiz[n] = i;
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44 }
45
46     for (int i = 0; i < size; i++) {
47         //Bitmap image = decodeSampledBitmapFromResource(getResources(), Word.getImage(quiz[i]), 250, 250);
48         BitmapFactory.Options options = new BitmapFactory.Options();
49         Bitmap image = BitmapFactory.decodeResource(getResources(), Word.getImage(quiz[i]), options);
50         gridArray.add(new Item(image, Word.getEnglish(quiz[i]), ""));
51     }
52
53     gridView = (GridView) findViewById(R.id.gridView1);
54     customGridAdapter = new CustomGridViewAdapter(this, R.layout.row_grid, gridArray);
55     gridView.setAdapter(customGridAdapter);
56     playSound(Word.getSound(correct));
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59     gridView.setOnItemClickListener(new OnItemClickListener() {
60         public void onItemClick(AdapterView<?> parent, View v, int position, long id) {
61             if (player != null) {
62                 player.stop();
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75                 else {
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79                     image = scaleCenterCrop(image, 250, 250);
80                     image = addWhiteBorder(image, 10);
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82                 }
83             }
84             BitmapFactory.Options options = new BitmapFactory.Options();
85             Bitmap image = BitmapFactory.decodeResource(getResources(), R.drawable.try_again, options);
```


Our suggestion...

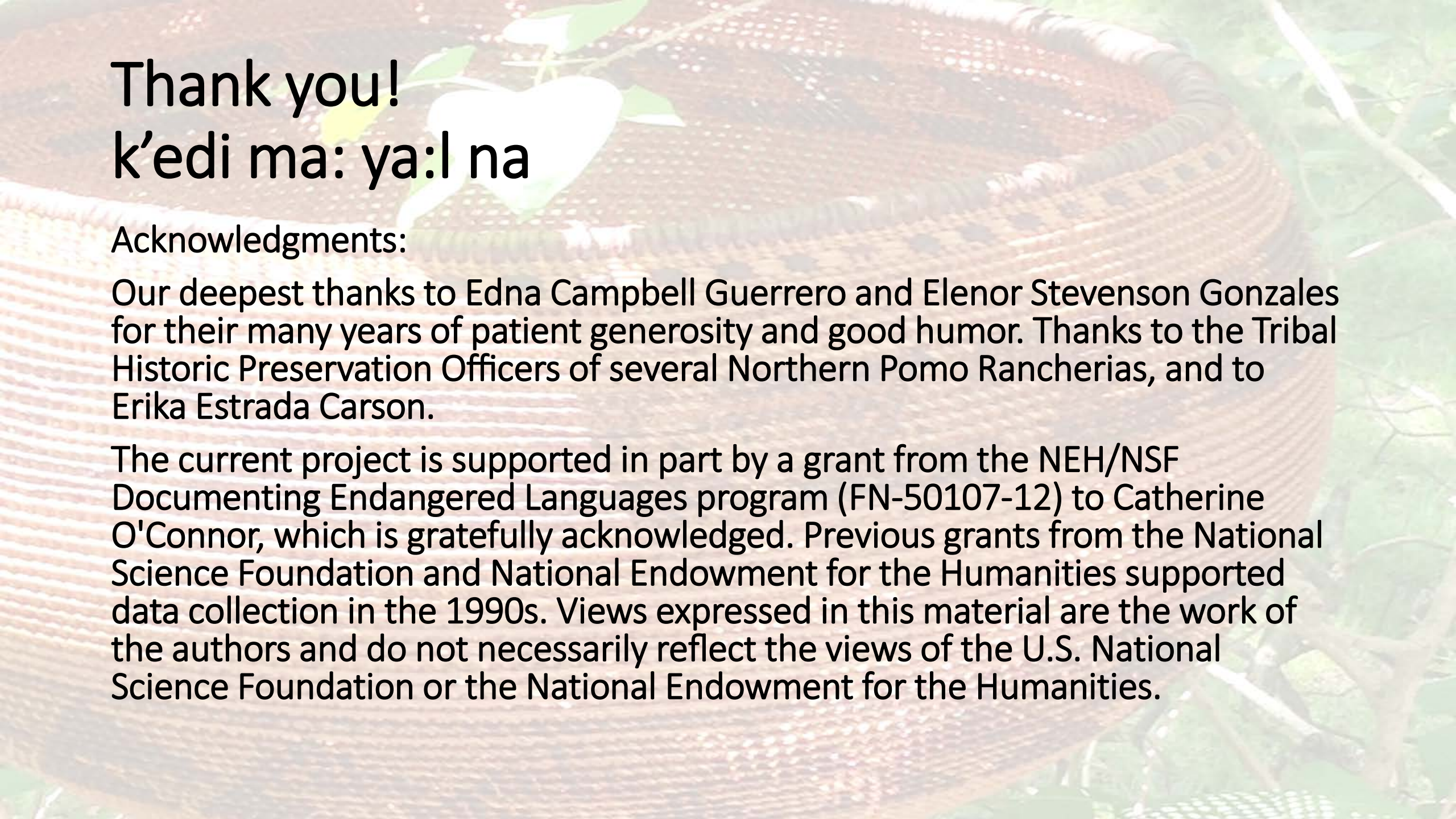
- Your team have a member who's familiar with developing Android applications, or has experience with Java programming.
- Most of the code has been written, you just need to enter in your data.
- Android development is a non-trivial process...

Where to download...

❖ <http://eddersko.github.io/android-template/>



Github: eddersko



Thank you!

k'edi ma: ya:l na

Acknowledgments:

Our deepest thanks to Edna Campbell Guerrero and Elenor Stevenson Gonzales for their many years of patient generosity and good humor. Thanks to the Tribal Historic Preservation Officers of several Northern Pomo Rancherias, and to Erika Estrada Carson.

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