

Translate And Learn

Native App Development

Time: 60 mins

Introduction

In this class, the student/s will learn to use states to store and update the value of components. Student/s will also learn to make calls to an API to get the translation of words. Student/s will also learn to add features to convert the text-to-speech using the Speech component in React Native.

New Commands Introduced

- `const [stateVariable, setterFunction] = useState(value)` `useState()` declares a state variable with mentioned value and names it as `stateVariable`, and uses a `setterFunction` to update its value.
- `fetch(URL)` Fetches the response from an API passed via the URL.
- `response.json()` Converts the API response to JSON format.
- `Speech.speak(word, {language: 'English'})` Converts the word to speech in the mentioned language.

Vocabulary

- Components not only display something on screen but also need to remember its current value. This is achieved using component-specific memory called **state**.
- **API** is an Application Programming Interface. It is a ready-to-use service for making requests on the Internet and receiving a response in the form of data.
- **Speech component** is used in react native for providing text-to-speech functionalities.

Learning Objectives

Student/s should be able to:

- **Recall** to respond to actions on `<TouchableOpacity>` component.
- **Demonstrate** how to use states to store and update the value of a component.
- **Explain** how to use the Speech component in react native.
- **Describe** how to use and call an API.
- **Create** a language translator app that translates and pronounces the text.

Activities

1. **Class Narrative:** (2 mins)
 - Brief the student/s that the user interface for the language translator app is ready.

2. Concept Introduction Activity: (5 mins)

- Let the student/s play the explore-activity and explore how the language translator app works.
- Let them observe that initial and target languages can be selected with a click, the translated text appears in the text input on selecting the translation language, and the word's pronunciation can be heard by clicking on the speaker icon.
- Using the slides, explain that the student/s will learn:
 - to select the initial and target language
 - to translate to target language
 - to hear the translated text

3. Activity 1: Select the Languages and Enter Text: (12 mins)

Teacher Activity: (6 mins)

- Let the students observe that the user can change the initial and target language by selecting the language buttons.
- Explain to the student/s the syntax of `useState()` method.
- Explain to the student/s how to use the state to set the initial language.

Student Activity: (6 mins)

- Guide the student/s to use the state to set the target language.
- Guide the student/s to store the value of the initial text using state.

4. Activity 2: Translate to Target Language: (12 mins)

Teacher Activity: (6 mins)

- Explain to the student/s about an API using examples on the slides.
- Explain to the student/s how to use and call an API in react native to get the translation of the word in the desired language.

Student Activity: (6 mins)

- Guide the student/s to use an API to translate the text.
Probing question: What does the function `json()` do?
Expected answer: `json()` function converts the received API response to JSON format.

5. Activity 3: Hear the Translated Text: (8 mins)

Student Activity: (8 mins)

- Guide the student/s to use a Speech component to convert the text-to-speech and pronounce the word.

6. Introduce the Post class project: (2 min)

- Use an API to search for the desired images in the Image Search App.

Note: The API returns a list of 3 images at a time.

7. Test and Summarize the class learnings: (5 mins)

- Check for understanding through quizzes and summarize learning after respective missions.
- Summarize the overall class learning towards the end of the class.

8. Additional activities:

- Encourage the student/s to use an API to get the chunks and phonics of a word for the Monkey Chunky App.

- Encourage the student/s to use a Speech component to read the phonics for the Monkey Chunky App.

9. State the Next Class Objective: (1 min)

- We will learn to build a multi-screen mobile app..

U.S. Standards:

CSTA: 2-AP-11, 2-AP-12, 2-AP-13, 2-AP-14, 2-AP-16, 2-AP-19

Links Table		
Activity	Activity Name	Link
Class Presentation	Translate And Learn	https://s3-whjr-curriculum-uploads.whjr.online/0dc8922d-1741-4015-be75-c9d29e031d9b.html
Explore Activity	Translate And Learn: Explore Activity	https://snack.expo.dev/@procodingclass/wad-402---51-sa3-hear-the-translated-text---solution
Teacher Activity 1	Select the Initial Language	https://snack.expo.dev/@procodingclass/wad-402---51-ta1-select-the-initial-language
Teacher Activity 1 Solution	Select the Initial Language: Solution	https://snack.expo.dev/@procodingclass/wad-402---51-ta1-select-the-initial-language---solution
Student Activity 1.1	Select the Target Language	https://snack.expo.dev/@procodingclass/wad-402---51-sa1-1-select-the-target-language
Teacher Reference: Student Activity 1.1 Solution	Select the Target Language : Solution	https://snack.expo.dev/@procodingclass/wad-402---51-sa1-1-select-the-target-language---solution
Student Activity 1.2	Store the Initial Text	https://snack.expo.dev/@procodingclass/wad-402---51-sa1-2-store-the-initial-text
Teacher Reference: Student Activity 1.2 Solution	Store the Initial Text: Solution	https://snack.expo.dev/@procodingclass/wad-402---51-sa1-2-store-the-initial-text---solution
Teacher Activity 2	Translate to Target Language	https://snack.expo.dev/@procodingclass/wad-402---51-ta2-translate-to-target-language
Teacher Activity 2 Solution	Translate to Target Language: Solution	https://snack.expo.dev/@procodingclass/wad-402---51-ta2-translate-to-target-language---solution

Student Activity 2	Translate to Target Language	https://snack.expo.dev/@procodingclass/wad-402---51-sa2-translate-to-target-language
Teacher Reference: Student Activity 2 Solution	Translate to Target Language: Solution	https://snack.expo.dev/@procodingclass/wad-402---51-sa2-translate-to-target-language---solution
Student Activity 3	Hear the Translated Text	https://snack.expo.dev/@procodingclass/wad-402---51-sa3-hear-the-translated-text
Teacher Reference: Student Activity 3 Solution	Hear the Translated Text: Solution	https://snack.expo.dev/@procodingclass/wad-402---51-sa3-hear-the-translated-text---solution
Student's Additional Activity 1	Get the Word Chunks and Phonics	https://snack.expo.dev/@procodingclass/wad-402---51-aa1-get-the-word-chunks-and-phonics
Teacher Reference: Student's Additional Activity 1 Solution	Get the Word Chunks and Phonics: Solution	https://snack.expo.dev/@procodingclass/wad-402---51-aa1-get-the-word-chunks-and-phonics---solution
Student's Additional Activity 2	Enable Phonic Pronunciation	https://snack.expo.dev/@procodingclass/wad-402---51-aa2-enable-phonetic-pronunciation
Teacher Reference: Student's Additional Activity 2 Solution	Enable Phonic Pronunciation: Solution	https://snack.expo.dev/@procodingclass/wad-402---51-aa2-enable-phonetic-pronunciation---solution
Post Class Project	Search for Desired Images	https://snack.expo.dev/@procodingclass/wad-402---51-pcp-search-for-desired-images
Teacher Reference: Post Class Project Solution	Search for Desired Images: Solution	https://snack.expo.dev/@procodingclass/wad-402---51-pcp-search-for-desired-images---solution