

**HO CHI MINH CITY NATIONAL UNIVERSITY  
UNIVERSITY OF NATURAL SCIENCES  
FACULTY OF INFORMATION TECHNOLOGY**



**PA4**  
**HI-FI PROTOTYPE**

Subject: User Interface Design

**Instructor guides:**  
MSc. Lê Khánh Duy  
BSc. Hồ Tuấn Thanh  
BSc. Phạm Nguyễn Sơn Tùng

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## A. INTRODUCTION

### 1. Group information

GROUP 14			
No.	Student ID	Fullname	Email
1	21127234	Nguyễn Lê Anh Chi	<a href="mailto:nlachi21@clc.fitus.edu.vn">nlachi21@clc.fitus.edu.vn</a>
2	21127235	Nguyễn Xuân Quỳnh Chi	<a href="mailto:nxqchi21@clc.fitus.edu.vn">nxqchi21@clc.fitus.edu.vn</a>
3	21127495	Lê Ngô Song Cát	<a href="mailto:linscat21@clc.fitus.edu.vn">linscat21@clc.fitus.edu.vn</a>
4	21127659	Bùi Ngọc Kiều Nhi	<a href="mailto:bnknhhi21@clc.fitus.edu.vn">bnknhhi21@clc.fitus.edu.vn</a>

### 2. Assign task

No.	Responsibility	Task	Level of completion
1	Nguyễn Lê Anh Chi	3.4	100%
2	Nguyễn Xuân Quỳnh Chi	3.3	100%
3	Lê Ngô Song Cát	3.1, 3.2	100%
4	Bùi Ngọc Kiều Nhi	1, 2	100%

- Demo video: [\[21KTPM3 - Group14 - UI/UX\] PA4](#)
- Link Figma Prototype: [Hi-Fi Prototype](#)

## B. HI-FI PROTOTYPE

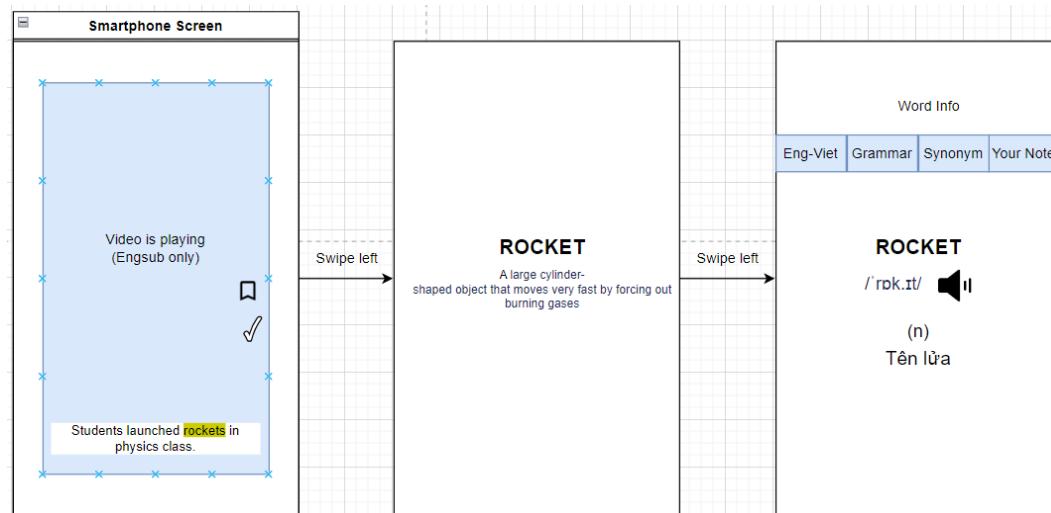
### 1. Introduction

#### 1.1. Purpose of the Report:

- Hi-fi prototypes provide realistic user interactions and detailed feedback, enabling accurate usability testing that closely simulates the final product experience. By mimicking the actual interface and functionality, users engage authentically, allowing testers to gather precise insights on navigation, design flaws, and user behavior. This level of fidelity helps identify usability issues early, ensuring that design decisions are validated before development, ultimately enhancing the overall user experience and minimizing costly revisions later.

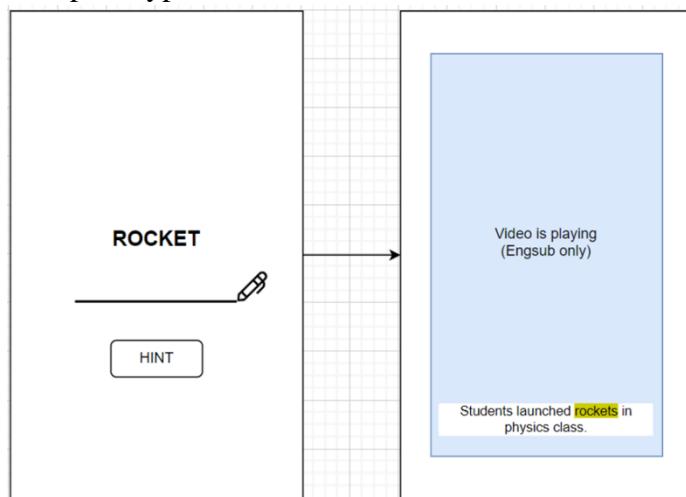
#### 1.2. Overview of the Project:

- Our group's project is to develop a mobile vocabulary learning app called TikTokVocab. This app offers an enhanced set of flashcards that help learners acquire vocabulary more effectively and find the learning process more engaging compared to traditional flashcards.
  - Enhanced flashcard structure:
    - First Side:** A short video (under 60 seconds) with English subtitles, highlighting the word in context.
    - Second Side:** The word with its meaning in English.
    - Third Side:** Detailed information, including pronunciation, part of speech, Vietnamese meaning, synonyms, antonyms, and word forms (e.g., verb tenses, noun plurals). Categories include Eng-Viet, Grammar, Synonym & Antonym, and a "Your Note" section for personal notes. Below is the lo-fi prototype of the flashcard structure:



- The project has two most important functions: learning new words and reviewing previously learned words.

- The best prototype: Prototype 2A. Below is the reasons for selection:
  - **Engaging Design:** The flashcards' design sparks strong interest and curiosity. The first side shows a video with English subtitles, encouraging users to guess the word's meaning from context. The second side reveals the meaning in English, prompting users to guess the word's meaning again, providing an additional hint and stimulating a sense of challenge.
  - **Time Efficiency:** The "Remove known words" feature saves users time by eliminating words they already know, enhancing the learning experience.
  - **Comprehensive Word Information:** The third side of the flashcards provides detailed and organized word information, making it easy to understand.
  - **Short Video Duration:** The videos are under 60 seconds, making them quick to watch and reducing the likelihood of users skipping them.
- **The Improved Prototype:** The improved prototype will build on Prototype 2A with enhancements to the "Review words" section, incorporating the video hint feature from Prototype 2C to boost engagement and long-term vocabulary retention. Below is the lo-fi prototype of the hint feature:



## 2. Prototype Development

### 2.1. Tools and Technologies Used:

- Figma: For designing the interface of the hi-fi prototype, adding interactive elements, and creating the overall user flow.

### 2.2. Design Process:

- Firstly, we designed the logo and decided on the main palette and colors used in the app, ensuring that the colors and typography aligned with the brand identity.
- Next, we focused on the main pages of our app and integrated interactive UI elements such as buttons, cards, and navigation menus, decided on where to put the video and how it should be displayed.
- The final stage involved incorporating user interactions like touch, mouse clicks, and created the flows for testing participants to perform transitions on our app.

- Additionally, the group also made desktop screens for the admins to import and manage flashcards in the app and we have tried to build screens matching with the main palette of normal user's UI.

### 2.3. Content Integration:

- To ensure an authentic user experience, we used real or closely related content, such as actual English vocabulary and the context video containing the sentence with that word to provide contextual meaning and usage. (However, in the prototype we could only import a picture for demonstration because Figma free plan does not allow importing video or audio).
- This approach allowed us to evaluate how well the prototype supports language learning and to simulate the realistic context in which users would engage with the flashcards and videos. Choosing these contents was critical to testing how the app would function in a real-world setting and to refine the learning process for users.

## 3. Key Features and Enhancements

### 3.1. Rich Fidelity:

- The prototype boasts a high level of fidelity, with meticulously designed UI components, vibrant color schemes, and smooth animations. Each UI element, from the flashcards to the video players, was crafted to reflect the final product's intended look and feel.
- Transitions between screens are fluid, and animations like swiping between flashcards and video playback give users a dynamic and engaging experience that closely resembles using the finished app.

### 3.2. Realistic Interactions:

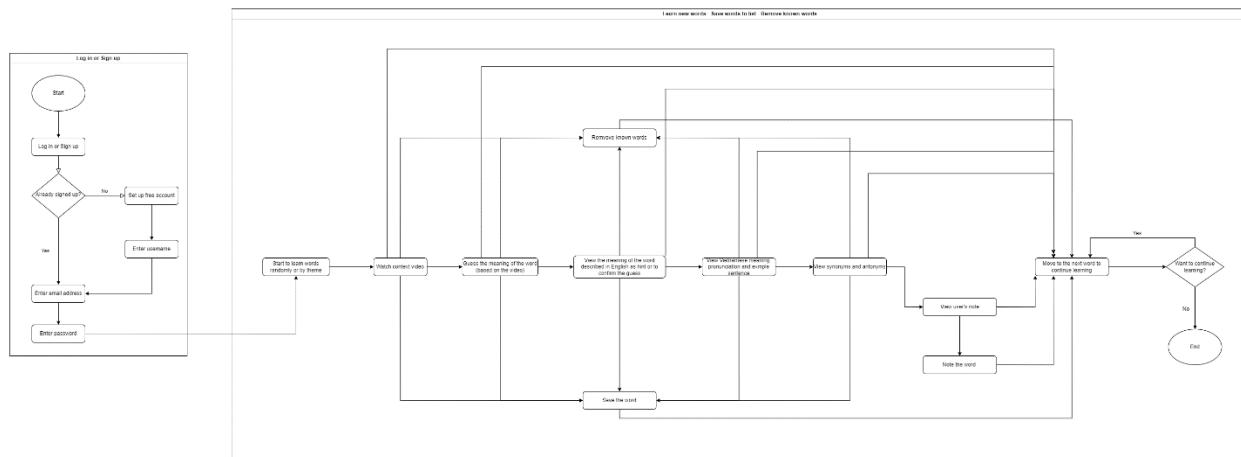
- **User:**
  - To ensure an authentic user experience, we used real or closely related content, such as actual English vocabulary and the video containing its contextual meaning. This approach allowed us to evaluate how well the prototype supports language learning and to simulate the realistic context in which users would engage with the flashcards and videos. Choosing these contents was critical to testing how the app would function in a real-world setting and to refine the learning process for users.
  - Keyboard interactions were unable to be captured but we have tried to implement the designs where all the swiping and touching movements can give users the greatest experience that was close to the actual product.
- **Admin:**
  - The screens for admin were designed as a desktop application as we believed that using desktop is a lot more efficient for admins to manage the large amount of data of the app.
  - We had some data fields that needed admins to fill in to generate a new flashcard which means they must use the keyboard to type in new data but unfortunately, we were not capable of doing that. Only mouse interactions can be recorded.

- Our team has tried our best to maximize the mouse interactions with the transitions between screens for admins to have the closest experience with the expected final version of our application.

### 3.3. User Flow Illustration:

#### 3.3.1. Flow 1: Learn new words – Save words to list – Remove known words

- User flow:



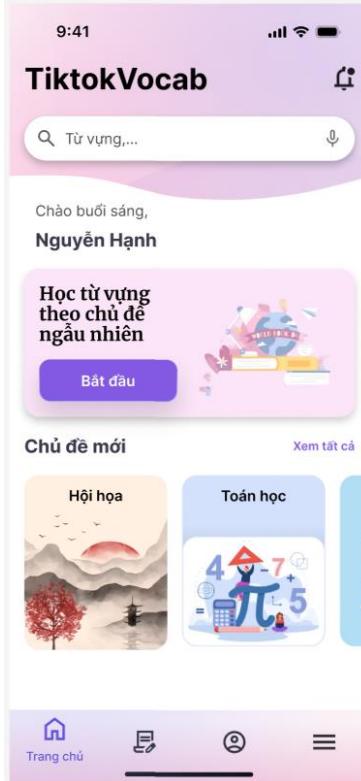
- Hi-fi prototype for illustration:
  - Users open the TikTokVocab app:



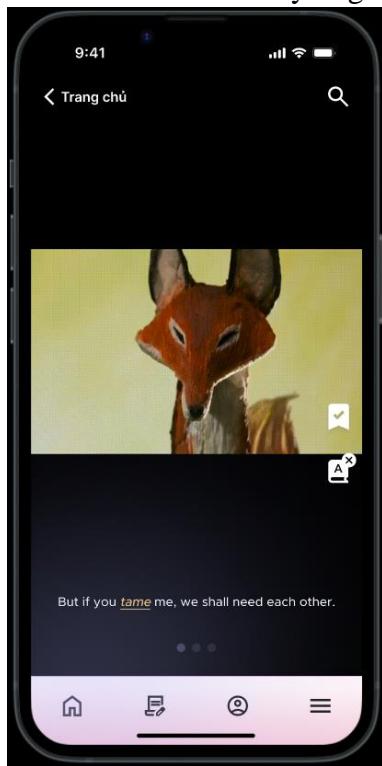
- Users log in or sign up for an account in the app:



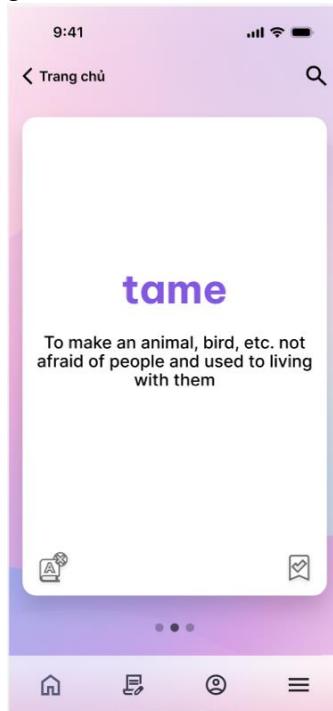
- After logging in the app, users see the Home page. They have 2 options: Learning new words randomly or learning new words by theme:



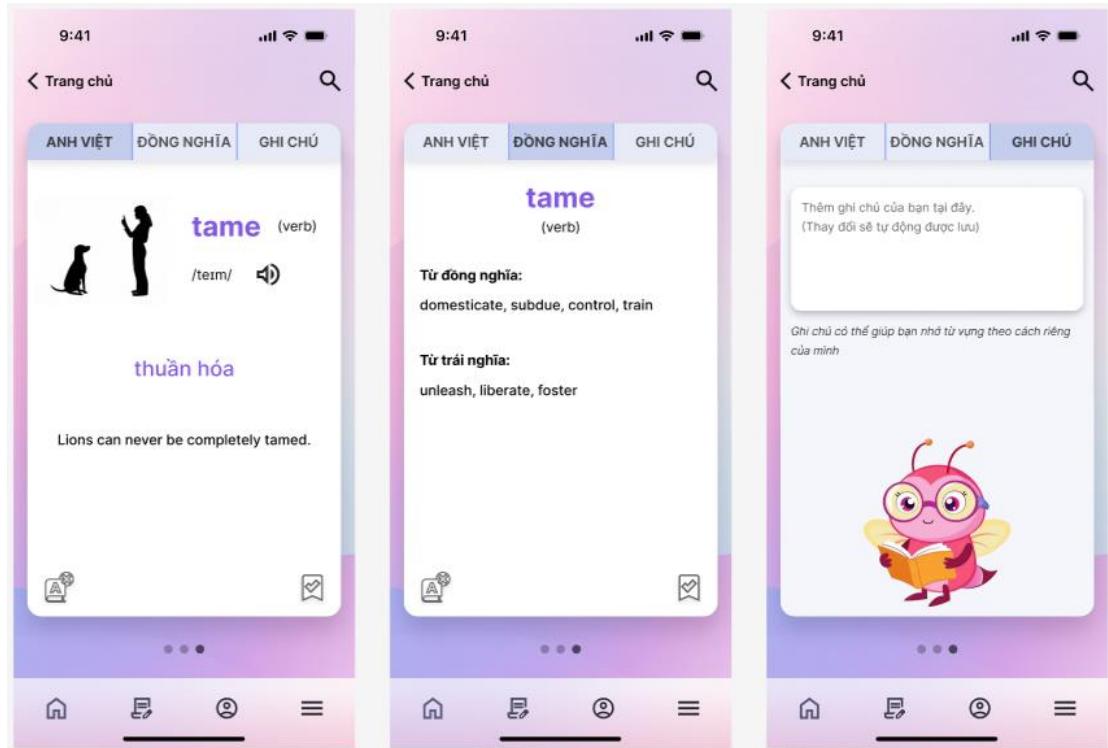
- Users start to learn new words. They first see the first side of the flashcard containing the context video with English subtitles (The word to be learned is highlighted). Users watch the video and try to guess the meaning of the word.



- After swiping left, users see the second side of the flashcard showing the English definition of the word. This English definition provides an additional hint to help users guess the Vietnamese meaning of the word.



- When users swipe left one more time, they will see the third side of the flashcard showing the detailed information about the word. At this point, users can find out the exact meaning of the word or confirm if their guess is correct.



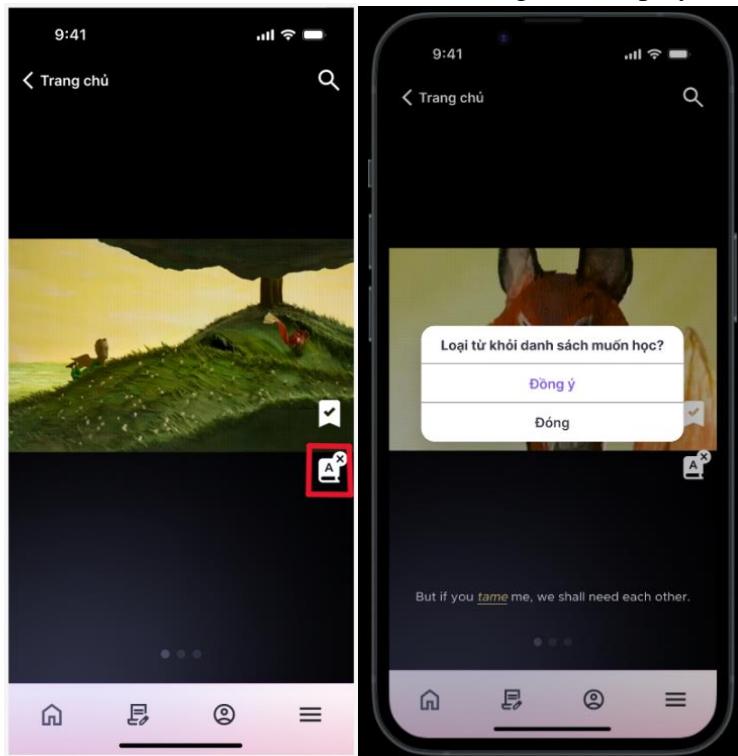
- In the “Your note” section, users can enter personal notes about the word they are learning.



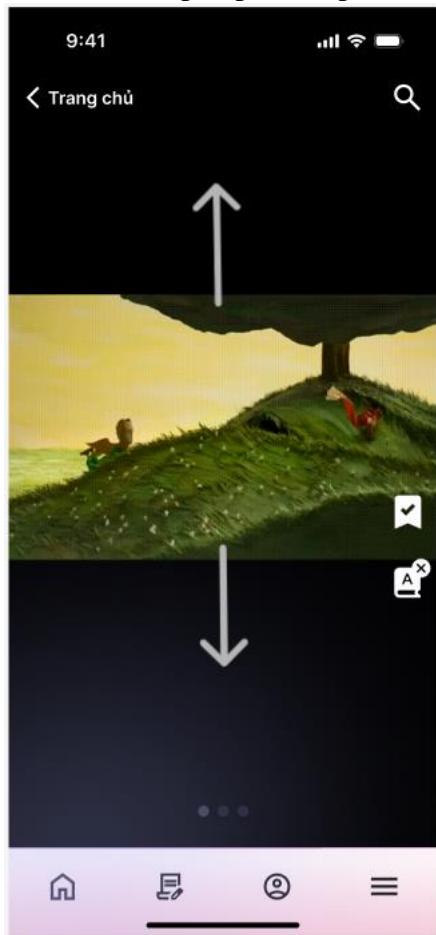
- When users want to save a new word to their personal vocabulary list for later review, they click the “Save word to list” button on the screen.



- While learning new words, if users come across a word they already know, they can click the “Remove known words” button to remove that word from the current learning list. After removal, the word will no longer be displayed.

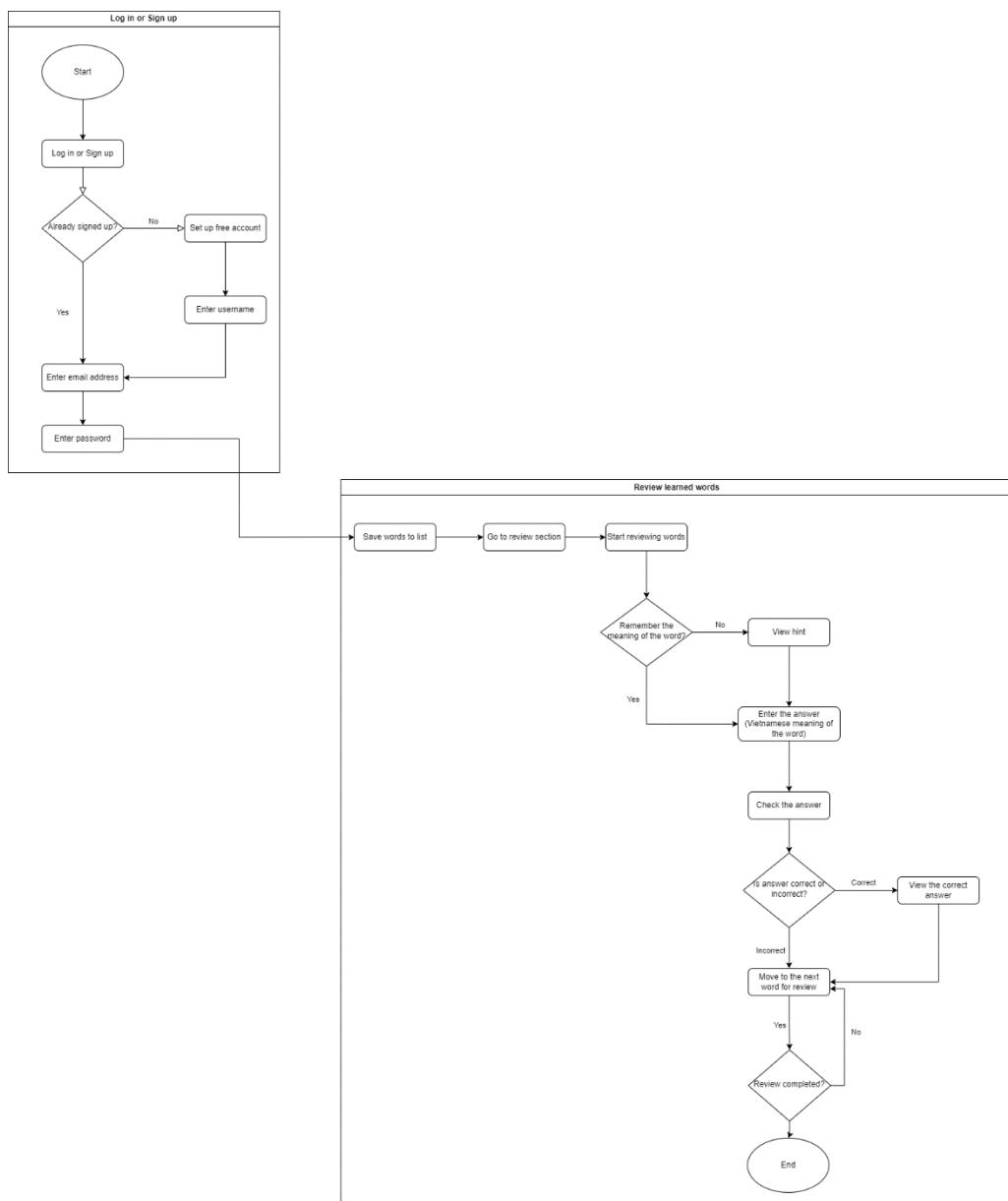


- Users can swipe up or swipe down to navigate through the words they need to learn.

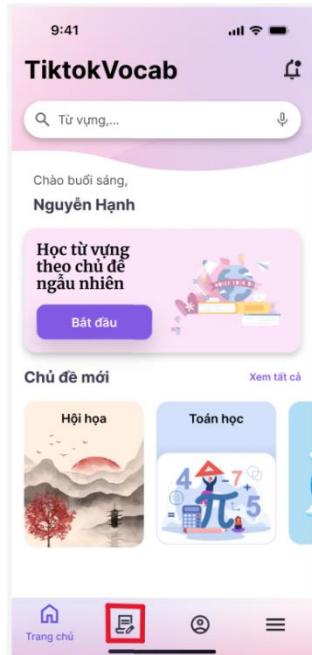


### 3.3.2. Flow 2: Users review learned words

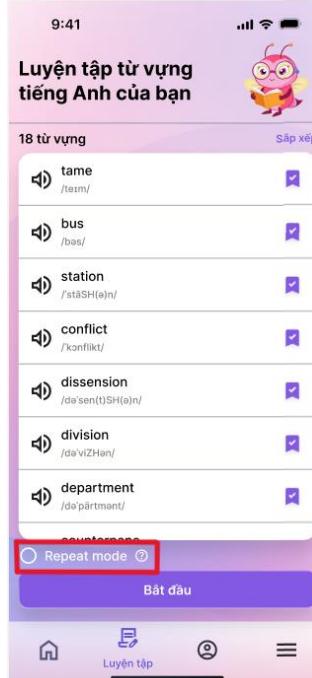
- User flow:



- Hi-fi prototype for illustration:
  - After logging in the app, users see the Home page. They click on the “Review” menu item to review the words they have learned.

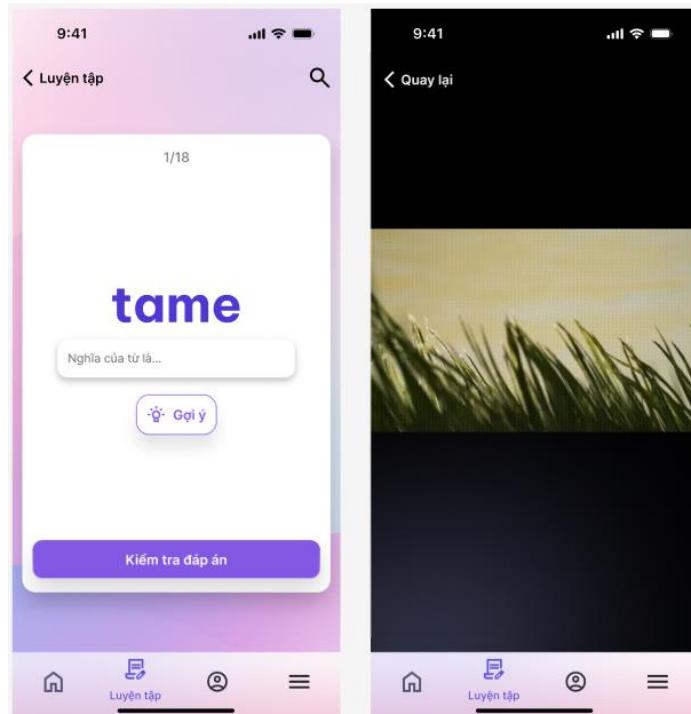


- There are two vocabulary lists in this review section: the list of words users have saved and the list of words they need to review based on the Spaced Repetition System (SRS) principle. Users are encouraged to review words according to the SRS list.

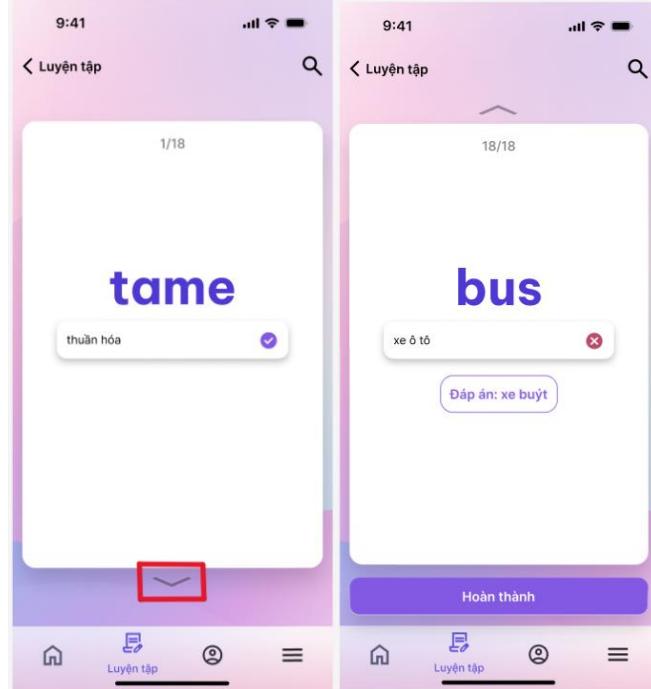


- The vocabulary review section is designed like a vocabulary test game. Users are given a word, and their task is to fill in the meaning of the word in the blank. If users cannot

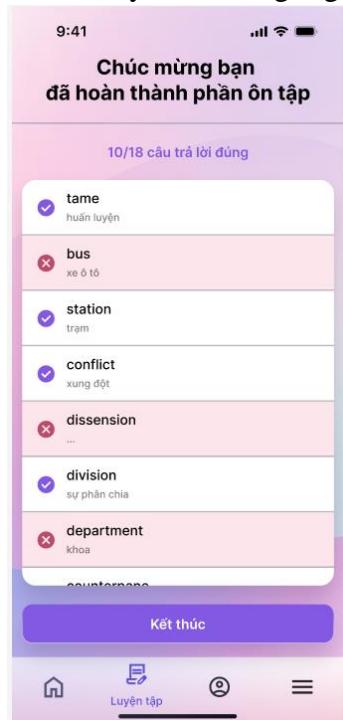
recall the meaning, they can use a hint. The hint is a context video of the word. Users watch the video to recall the meaning of the word.



- After filling in the word, users check if the answer is correct or incorrect. If the answer is correct, a checkmark will appear next to the answer you filled in. If the answer is incorrect, an “X” will appear along with the correct answer. Users can swipe up to move to the next word and continue reviewing.



- After completing the review, the app will display the number of words users answered correctly, along with a list of the words users just reviewed. Words users answered incorrectly will be highlighted.



### 3.4. Admin Flow Illustration:

#### 3.4.1. Flow 1: Add New Flashcard

- After logging into the admin account, the admin will be automatically directed to the Dashboard. To add a new flashcard to the database, click on the button “Add New Flashcard”.

The screenshot shows the TiktokVocab Admin Dashboard. On the left, there is a sidebar with filtering options: Category (Value dropdown), Status (Published, Incompleted, Completed checkboxes), Date (Jan-Dec range slider), and a Filter button. The main area is titled "List of Flashcards" and contains a table with columns: Vocabulary, Status, Date Added, and Admin. The table lists eight flashcards:

Vocabulary	Status	Date Added	Admin
tame	Published	27/06/2024	jane@microsoft.com
organ	Completed	27/06/2024	floyd@yahoo.com
wrong	Published	27/06/2024	ronald@adobe.com
thunder	Published	26/06/2024	marvin@tesla.com
jeopardize	Incompleted	26/06/2024	jerome@google.com
referee	Published	26/06/2024	kathryn@microsoft.com
odyssey	Completed	26/06/2024	jacob@yahoo.com
agony	Incompleted	25/06/2024	kristin@facebook.com

At the top right of the main area, there is a "Search" input field with a magnifying glass icon. At the bottom right, there is a pagination control showing "Showing data 1 to 8 of 256K entries" and a set of numbered buttons from 1 to 40.

- Admin is asked to fill in a form with all the required data fields to generate a new flashcard.

The screenshot shows a user interface for creating a new flashcard. On the left, there is a large dashed rectangular area labeled "Upload your video here" with a "Import Video" button below it. On the right, there is a detailed form for entering vocabulary data:

- Vocabulary**: A field labeled "Value" with a dropdown menu set to "Word Form".
- Pronunciation**: A field labeled "Value" with a dropdown menu set to "Category".
- Definition (Eng)**: A text input field labeled "Value".
- Definition (Viet)**: A text input field labeled "Value".
- Example Sentence**: A text input field labeled "Value".
- Synonyms**: A text input field labeled "Value" with the note: "Can be multiples, put ";" between each word (phrase)."
- Antonyms**: A text input field labeled "Value" with the note: "Can be multiples, put ";" between each word (phrase)."

At the bottom right of the form are "Cancel" and "Next" buttons.

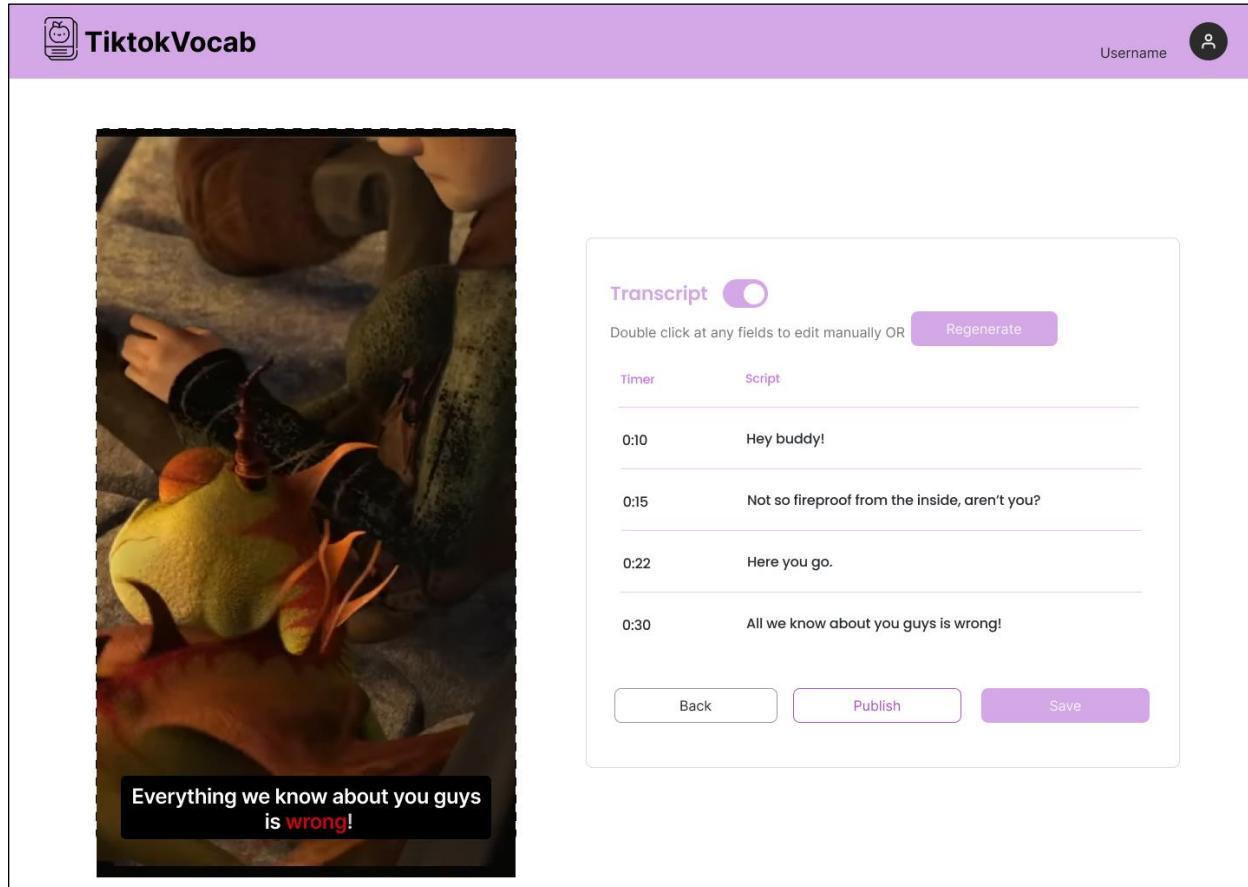
- Sample data for generating a new flashcard for the word “wrong”.

The screenshot shows a mobile application interface for a vocabulary learning tool. At the top left is the logo "TiktokVocab". At the top right are "Username" and a user icon. The main area features a large image of a hand holding a small orange flower. To the right of the image are several input fields and buttons:

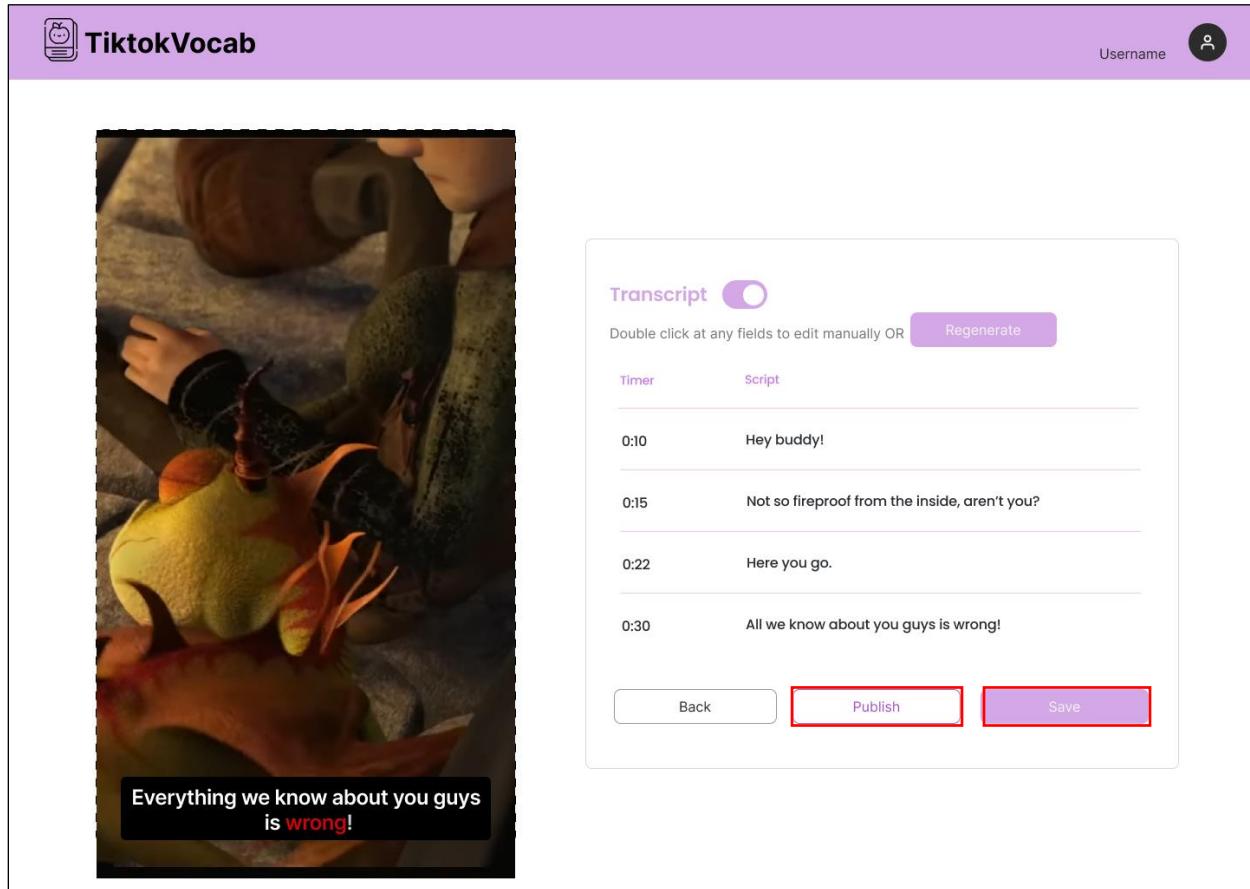
- Vocabulary:** Input field containing "wrong" and a dropdown menu set to "adj".
- Pronunciation:** Input field containing "/rəʊŋ/" and a dropdown menu set to "Study".
- Word Form:** A dropdown menu currently showing "adj".
- Category:** A dropdown menu currently showing "Study".
- Definition (Eng):** Input field containing "not suitable or correct , or not as it should be".
- Definition (Viet):** Input field containing "sai, không đúng".
- Example Sentence:** Input field containing "That's the wrong answer. Read the question again."
- Synonyms:** Input field containing "false; incorrect; inaccurate; mistaken".
- Antonyms:** Input field containing "right; true; valid; precise".

At the bottom are "Cancel" and "Next" buttons.

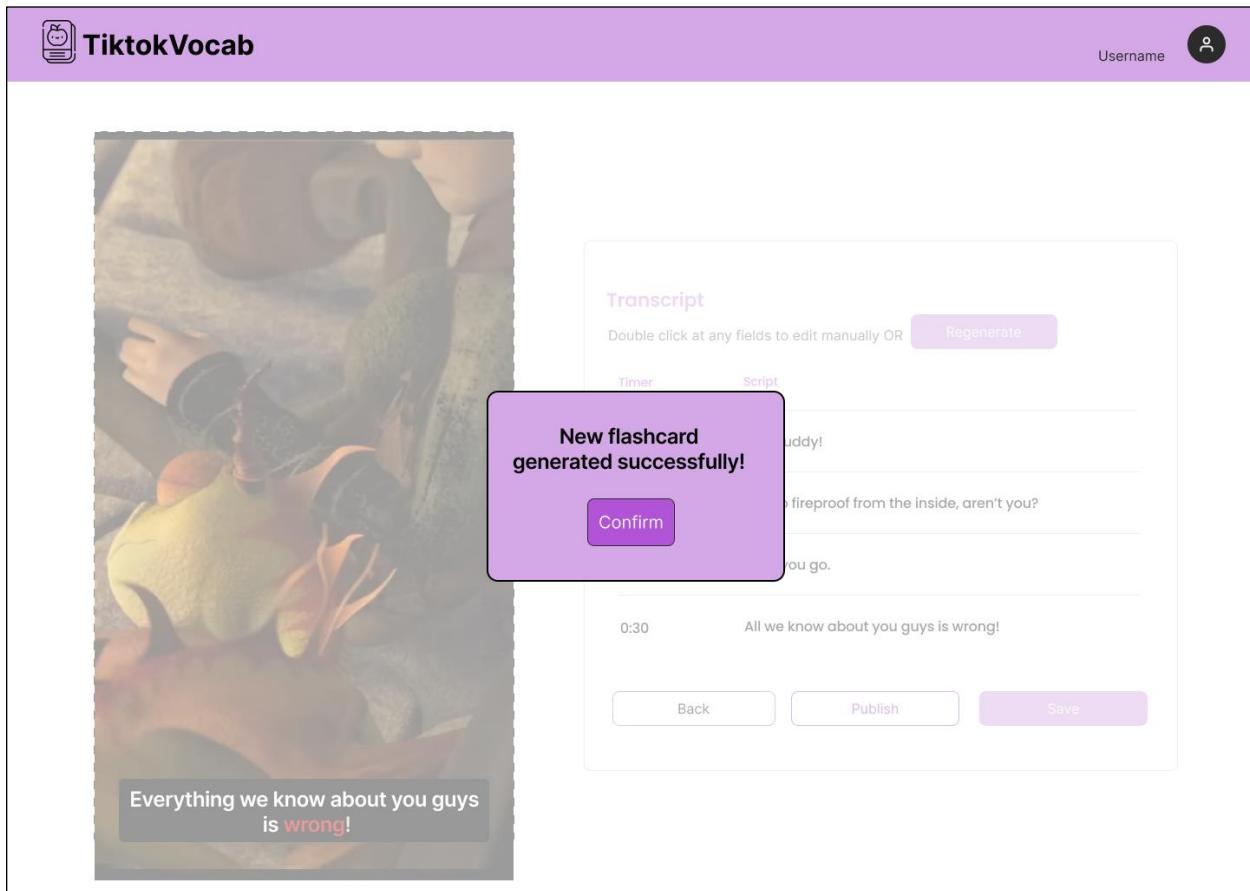
- The system will analyze the video to generate the subtitles automatically. It will then display the subtitles on the video screen along with a separate section including the subtitles at a specific timestamp which allows the admin to make changes manually if any errors are detected in the current subtitles.



- Admin can choose to “Save” or “Publish”.
  - “Save” will result in the status as “Completed”. It will exist in the database but not visible to common users.
  - “Publish” will result in the status as “Published”. Everyone can see this flashcard.



- A message will be displayed.



### 3.4.2. Flow 2: Preview a Flashcard

- After logging into the admin account, the admin will be automatically directed to the Dashboard.

The screenshot shows the TiktokVocab Admin Dashboard. At the top, there is a purple header bar with the logo and the title "TiktokVocab". On the right side of the header, there is a "Username" field and a user icon. Below the header, there is a sidebar on the left containing filter options: "Category" (dropdown menu), "Status" (checkboxes for Published, Incompleted, Completed), and "Date" (date range selector from Jan-Dec). A "Filter" button is located at the bottom of the sidebar. The main content area is titled "List of Flashcards" and contains a table of data. The table has columns: Vocabulary, Status, Date Added, and Admin. Each row represents a flashcard entry. To the right of each entry are "Preview" and "Edit" buttons. The table shows the following data:

Vocabulary	Status	Date Added	Admin
tame	Published	27/06/2024	jane@microsoft.com
organ	Completed	27/06/2024	floyd@yahoo.com
wrong	Published	27/06/2024	ronald@adobe.com
thunder	Published	26/06/2024	marvin@tesla.com
jeopardize	Incompleted	26/06/2024	jerome@google.com
referee	Published	26/06/2024	kathryn@microsoft.com
odyssey	Completed	26/06/2024	jacob@yahoo.com
agony	Incompleted	25/06/2024	kristin@facebook.com

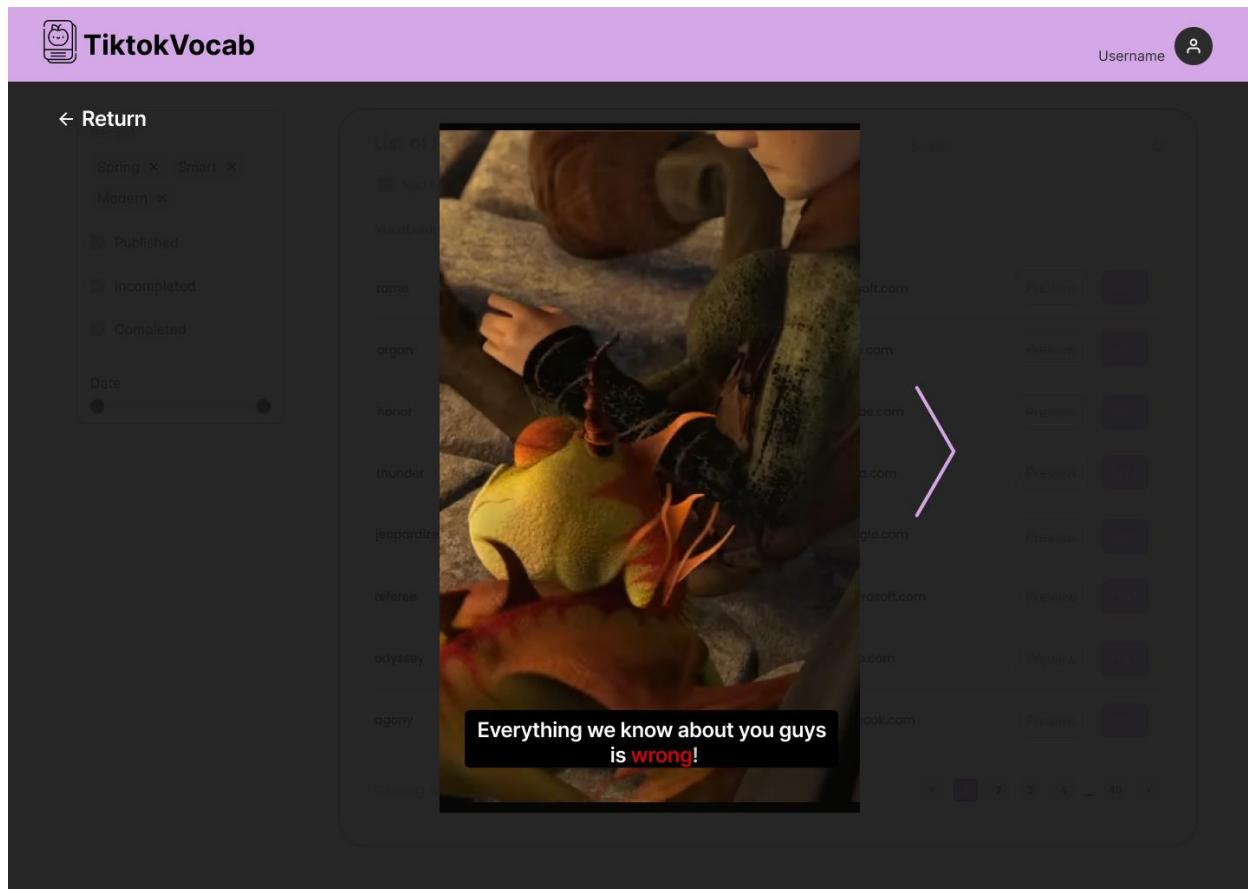
At the bottom of the table, it says "Showing data 1 to 8 of 256K entries" and there is a pagination control with buttons for 1, 2, 3, 4, ..., 40, >.

- To see a preview of the flashcard of a word, find the data row containing that word then click on ‘Preview’.

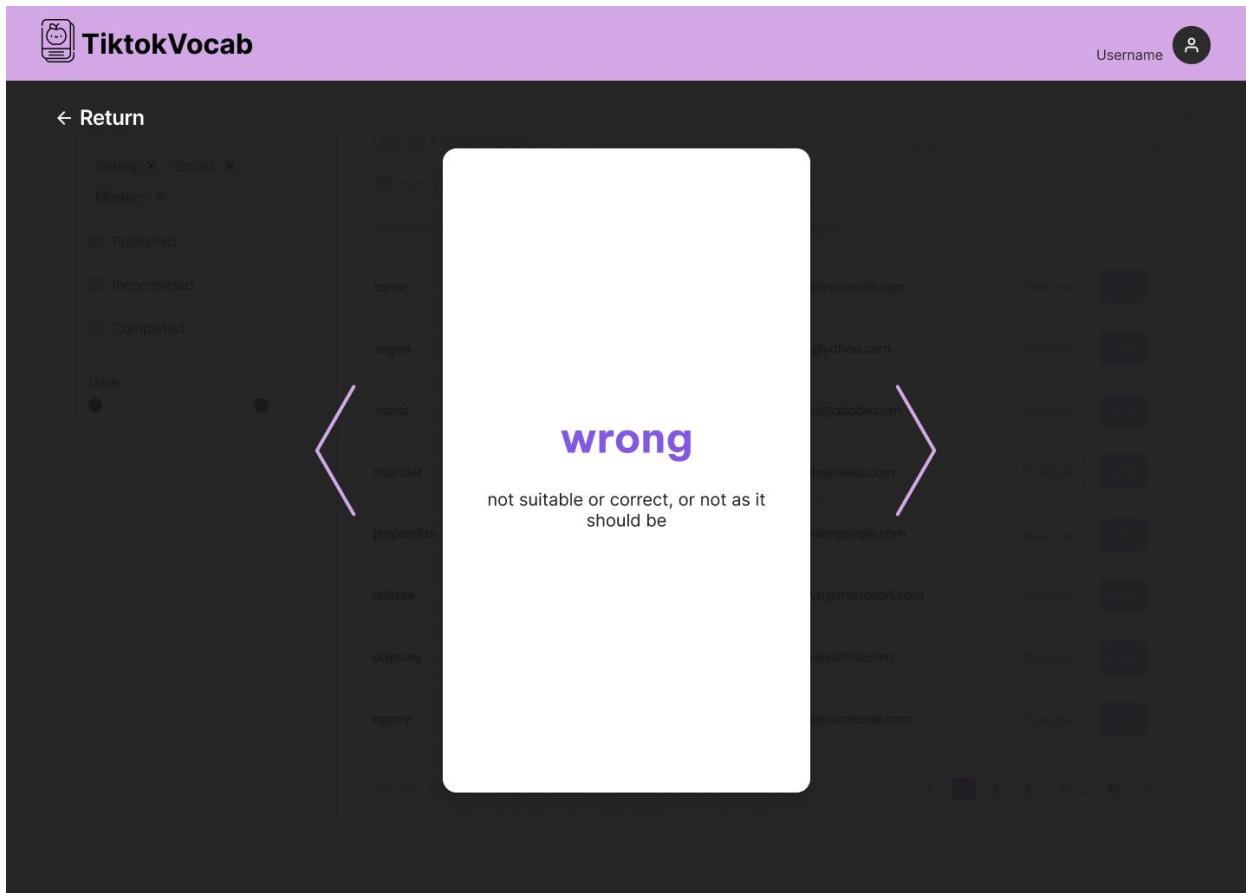
The screenshot shows a user interface for managing flashcards. On the left, there's a sidebar with filtering options: 'Category' (dropdown set to 'Value'), 'Status' (checkboxes for 'Published', 'Incomplete', and 'Completed'), and a date range selector ('Date' from 'Jan-Dec'). Below these is a 'Filter' button. The main area is titled 'List of Flashcards' and contains a table of words, their status, dates added, and email addresses, along with 'Preview' and 'Edit' buttons. One row for the word 'wrong' is highlighted with a red border. At the bottom, it says 'Showing data 1 to 8 of 256K entries' with a page navigation bar.

Vocabulary	Status	Date Added	Admin
tame	Published	27/06/2024	jane@microsoft.com
organ	Completed	27/06/2024	floyd@yahoo.com
wrong	Published	27/06/2024	ronald@adobe.com
thunder	Published	26/06/2024	marvin@tesla.com
jeopardize	Incomplete	26/06/2024	jerome@google.com
referee	Published	26/06/2024	kathryn@microsoft.com
odyssey	Completed	26/06/2024	jacob@yahoo.com
agony	Incomplete	25/06/2024	kristin@facebook.com

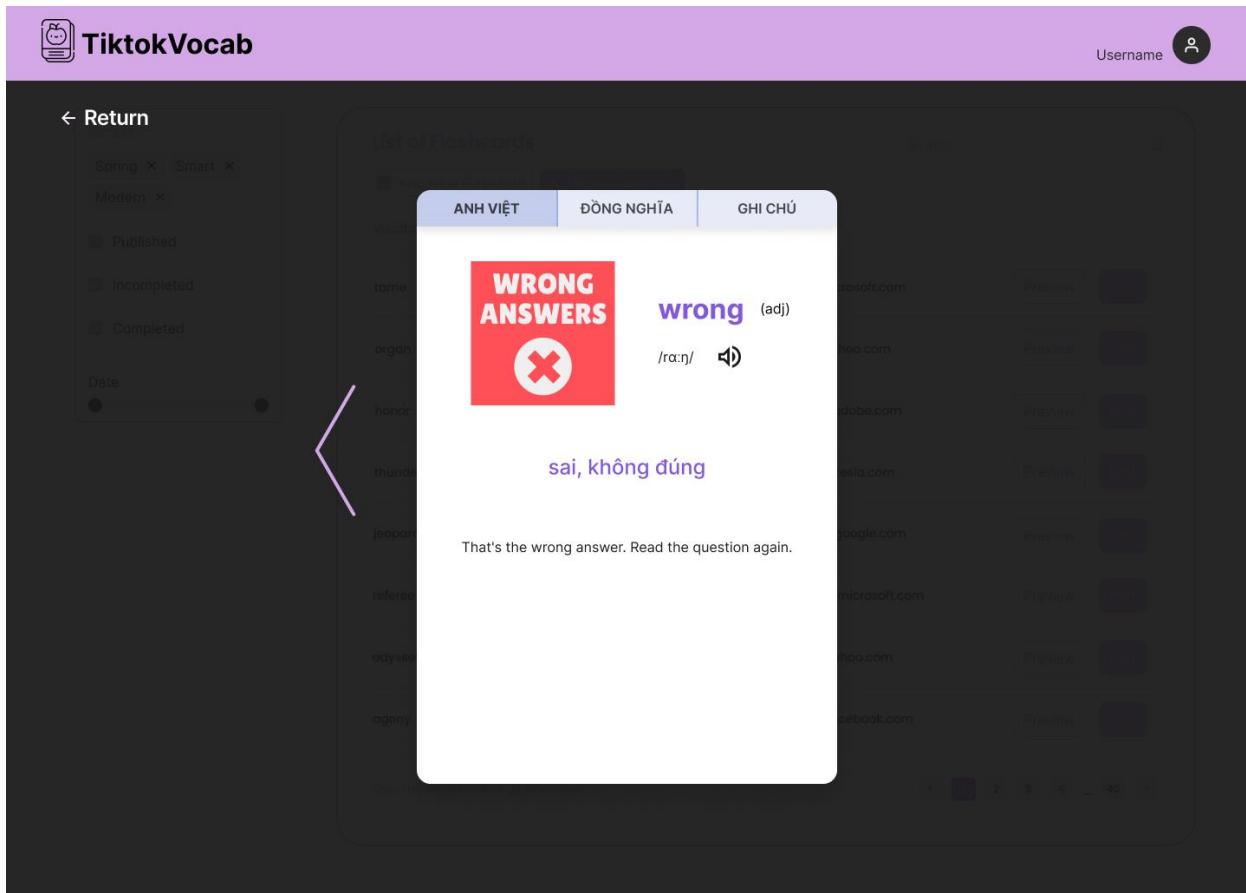
- The system will display the 3 sides of the flashcard, in the actual way that common users see the card in their apps.
  - **First side:** The short video.



- **Second side:** The word along with its English definition.



- **Third side:** Detailed word information.



### 3.4.3. Flow 3: Delete a Flashcard

- After logging into the admin account, the admin will be automatically directed to the Dashboard. To add a new flashcard to the database, click on the button “Delete Flashcard”.

The screenshot shows the TiktokVocab admin interface. On the left, there is a sidebar with filtering options: Category (Value dropdown), Status (Published, Incompleted, Completed checked), and Date (Jan-Dec slider). A purple 'Filter' button is at the bottom. The main area is titled 'List of Flashcards' and contains a table of vocabulary words. The table columns are Vocabulary, Status, Date Added, and Admin. Each row includes a 'Preview' and 'Edit' button. The first row shows 'tame' as Published on 27/06/2024 by jane@microsoft.com. The last row shows 'agony' as Incompleted on 25/06/2024 by kristin@facebook.com. At the top right of the table is a red-bordered 'Delete Flashcard' button. Below the table, it says 'Showing data 1 to 8 of 256K entries'. The top right corner of the screen shows a user profile icon and 'Username'.

Vocabulary	Status	Date Added	Admin
tame	Published	27/06/2024	jane@microsoft.com
organ	Completed	27/06/2024	floyd@yahoo.com
wrong	Published	27/06/2024	ronald@adobe.com
thunder	Published	26/06/2024	marvin@tesla.com
jeopardize	Incompleted	26/06/2024	jerome@google.com
referee	Published	26/06/2024	kathryn@microsoft.com
odyssey	Completed	26/06/2024	jacob@yahoo.com
agony	Incompleted	25/06/2024	kristin@facebook.com

- The system will ask the admin to choose the words that need to be deleted. After choosing, click on the button “Delete”.

The screenshot shows a user interface for managing flashcards. On the left, there's a sidebar with filtering options: Category (Value dropdown), Status (checkboxes for Published, Incompleted, Completed), and Date (Jan-Dec range slider). Below these is a 'Filter' button. The main area is titled 'List of Flashcards' and contains a table with columns: Vocabulary, Status, Date Added, Admin, and a Delete button. The table lists eight entries:

Vocabulary	Status	Date Added	Admin	Delete
tarne	Published	27/06/2024	jane@microsoft.com	<input type="checkbox"/>
organ	Completed	27/06/2024	floyd@yahoo.com	<input type="checkbox"/>
wrong	Published	27/06/2024	ronald@adobe.com	<input type="checkbox"/>
thunder	Published	26/06/2024	marvin@tesla.com	<input type="checkbox"/>
jeopardize	Incompleted	26/06/2024	jerome@google.com	<input type="checkbox"/>
referee	Published	26/06/2024	kathryn@microsoft.com	<input type="checkbox"/>
odyssey	Completed	26/06/2024	jacob@yahoo.com	<input type="checkbox"/>
agony	Incompleted	25/06/2024	kristin@facebook.com	<input checked="" type="checkbox"/>

At the bottom, it says "Showing data 1 to 8 of 256K entries" and has a page navigation bar with buttons for <, 1, 2, 3, 4, ..., 40, >.

- A confirmation message will appear.

The screenshot shows the 'List of Flashcards' page in the TiktokVocab application. On the left, there are filtering options for 'Category' (Value dropdown), 'Status' (Published, Incompleted, Completed checked), and 'Date' (Jan-Dec range slider). A 'Filter' button is at the bottom of the sidebar. The main area displays a table of flashcards with columns: Vocabulary, Status, Date Added, and Admin email. A modal window titled 'Delete this item?' is overlaid on the table, containing 'Yes' and 'No' buttons. The flashcard for 'agony' is selected, indicated by a checked checkbox in the 'Admin' column. At the bottom of the table, it says 'Showing data 1 to 8 of 256K entries' with a page navigation bar.

Vocabulary	Status	Date Added	Admin
tame	Published	27/06/2024	jane@microsoft.com
organ	Incompleted	28/06/2024	andy@yahoo.com
wrong	Completed	28/06/2024	hold@adobe.com
thunder	Incompleted	28/06/2024	carvin@tesla.com
jeopardize	Incompleted	26/06/2024	jerome@google.com
referee	Published	28/06/2024	kathryn@microsoft.com
odyssey	Completed	28/06/2024	jacob@yahoo.com
agony	Incompleted	25/06/2024	kristin@facebook.com

- The word is deleted from the system.

The screenshot shows a user interface for managing flashcards. At the top left is the logo "TiktokVocab". On the right, there is a "Username" field and a profile icon. Below the header is a sidebar with filters: "Category" (Value dropdown), "Status" (checkboxes for Published, Incompleted, Completed), and "Date" (Jan-Dec dropdown). A "Filter" button is at the bottom of the sidebar. The main area is titled "List of Flashcards" and contains a table with columns: Vocabulary, Status, Date Added, Admin, and Delete (button). The table lists several words with their details and a delete checkbox. The row for "masterpiece" is highlighted with a red border. At the bottom of the table, it says "Showing data 1 to 8 of 256K entries" and includes a page navigation bar with icons for back, forward, and search.

Vocabulary	Status	Date Added	Admin	Delete
tame	Published	27/06/2024	jane@microsoft.com	<input type="checkbox"/>
organ	Completed	27/06/2024	floyd@yahoo.com	<input type="checkbox"/>
wrong	Published	27/06/2024	ronald@adobe.com	<input type="checkbox"/>
thunder	Published	26/06/2024	marvin@tesla.com	<input type="checkbox"/>
jeopardize	Incompleted	26/06/2024	jerome@google.com	<input type="checkbox"/>
referee	Published	26/06/2024	kathryn@microsoft.com	<input type="checkbox"/>
odyssey	Completed	26/06/2024	jacob@yahoo.com	<input type="checkbox"/>
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