THE UNIVERSITY OF TEXAS AT ARLINGTON

SPRING 2023

CSE 5320 – 001 SPEC TOPS SOFTWARE ENGR

"Rons App"

Team 1

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Project Description

App Title: Rons App

Goal: The goal of Ron's App project is to provide a useful tool for people who want to improve their pronunciation and phonetic skills. The app aims to help users understand how to improve their pronunciation and improve their English-speaking skills. It mainly focuses on the English sounds and the symbols used in the language. Through a variety of exercises, quiz and YouTube videos, users can practice and refine their pronunciation until they have mastered the corresponding phoneme. Ultimately, the goal is to help users become more confident and effective communicators in their native language or in a new language they are learning.

Description: The home screen module will be responsible for managing the phonemes that is consonants, vowels. It will also have quizzes that the users will be practicing. This module will provide all the necessary content and tools for the users to improve their phonetic skills. It will likely include a database of phonemes and corresponding exercises and quizzes, as well as a user interface for managing and organizing the content.

The Authentication module will include a login module to ensure that only registered users can access the app's content and features. Users will need to create an account with a username and password to use the app. This module will also ensure the security of users' personal information and practice data. The User needs to include a registration form where users can enter their personal details, such as contact information, date of birth, hobbies, and genres. This information will be stored help personalize the app for each user where each user will start from a beginner level. As the user progresses in quiz, it will be updated automatically. Additionally, the User module will include a Settings module where users can update their personal details as needed.

The app's toolbar offers various options for users to interact with it. One such option is the "Favourites" screen, where users can save their preferred vowels and consonants to review later. Another option is the "Videos" screen, which displays recommended videos related to phonetics. Additionally, the app includes a "Settings" screen that enables users to update their personal information later.

To summarize, the Host module offers a range of content and tools aimed at enhancing phonetic skills, while the User module allows for customization of the app to meet individual preferences. The Authentication module plays a vital role in ensuring user security and access control. Together, these modules function seamlessly to deliver a user-friendly and impactful phonetic learning experience.

Insight from the project:

While developing this application, as a team we researched and learnt many things. To begin, at first, we researched about the phonetics and its uses. We got to know that phonetics applications are designed to help individuals learn and improve their pronunciation skills. These applications typically utilize advanced algorithms and technologies to provide interactive feedback and real-time assessment of a user's pronunciation. For example, some apps may include videos, animations, and diagrams to help users understand the correct positioning of the mouth and tongue when pronouncing different sounds. Additionally, some apps may offer interactive exercises and quizzes to help users practice their pronunciation and reinforce their learning.

After understanding the need of the applications, we then went onto with the User interface and design of the application, how the app will look and feel. We learnt how to design user friendly interface that will provide the user to use the application at ease. We implemented all the react components that would make the app better and easy to understand. We also learned how to implement the backend i.e. PHP to store the database and we are using UTA cloud to fetch the data.

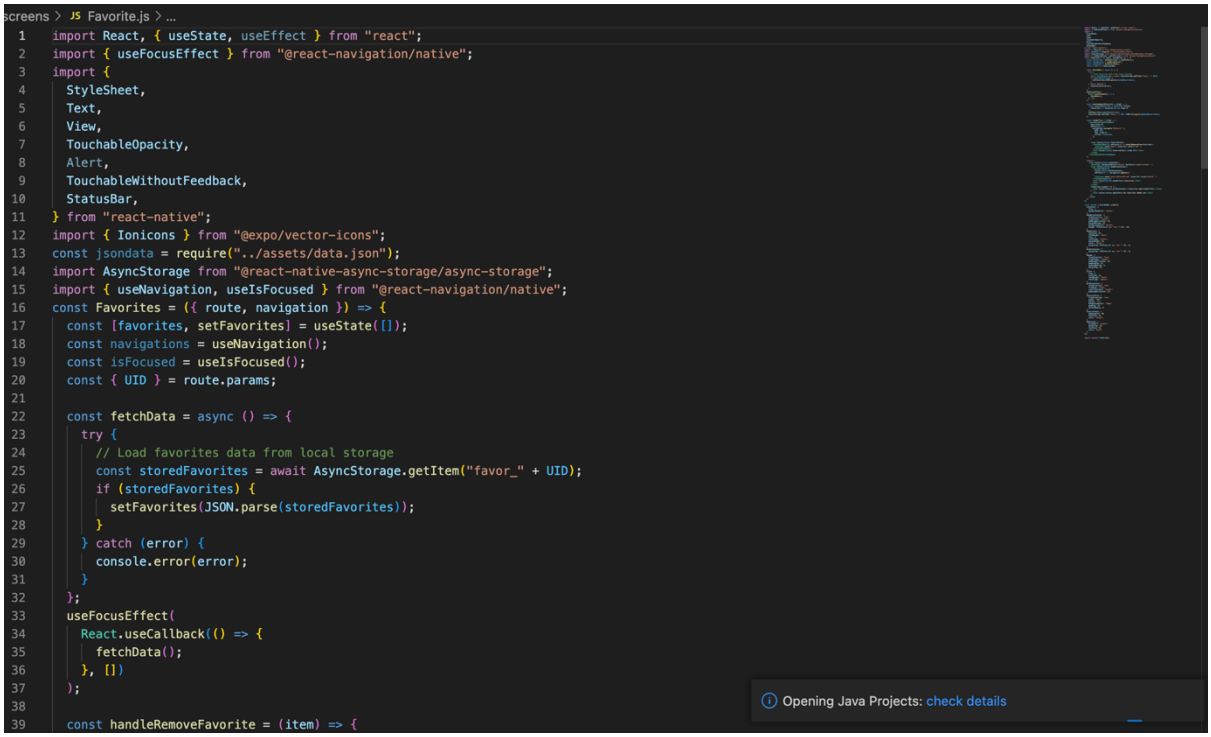
The team researched and implemented appropriate security measures to protect users' personal information and practice data user authentication, and data backup to ensure that users' information is safe and secure. Overall, developing an app like Ron's App would require a multidisciplinary approach that combines knowledge of phonetics, language learning, user experience design, technology, security.

Technologies Implemented & Used :

1. **React**: We have built the application using React. React is a technology, specifically a JavaScript library for building user interfaces. It is used for developing web applications and mobile applications.
2. **PHP**: In this the databases are being store in the PHP. PHP is a server-side scripting language that can be used as a backend storage solution for web applications. When used as a backend storage solution, PHP can interact with databases such as MySQL, Oracle, and PostgreSQL to store and retrieve data. PHP has a range of libraries and frameworks that can be used to build and manage applications, making it easier for developers to create and maintain complex applications.
3. **Android Studio Emulator:** We used emulator to run and test our applications. It is a virtual device that emulates an Android phone or tablet, allowing developers to test their applications without needing a physical device. It is compatible with different versions of Android, and developers can create multiple virtual devices with different specifications to test their applications under various conditions.

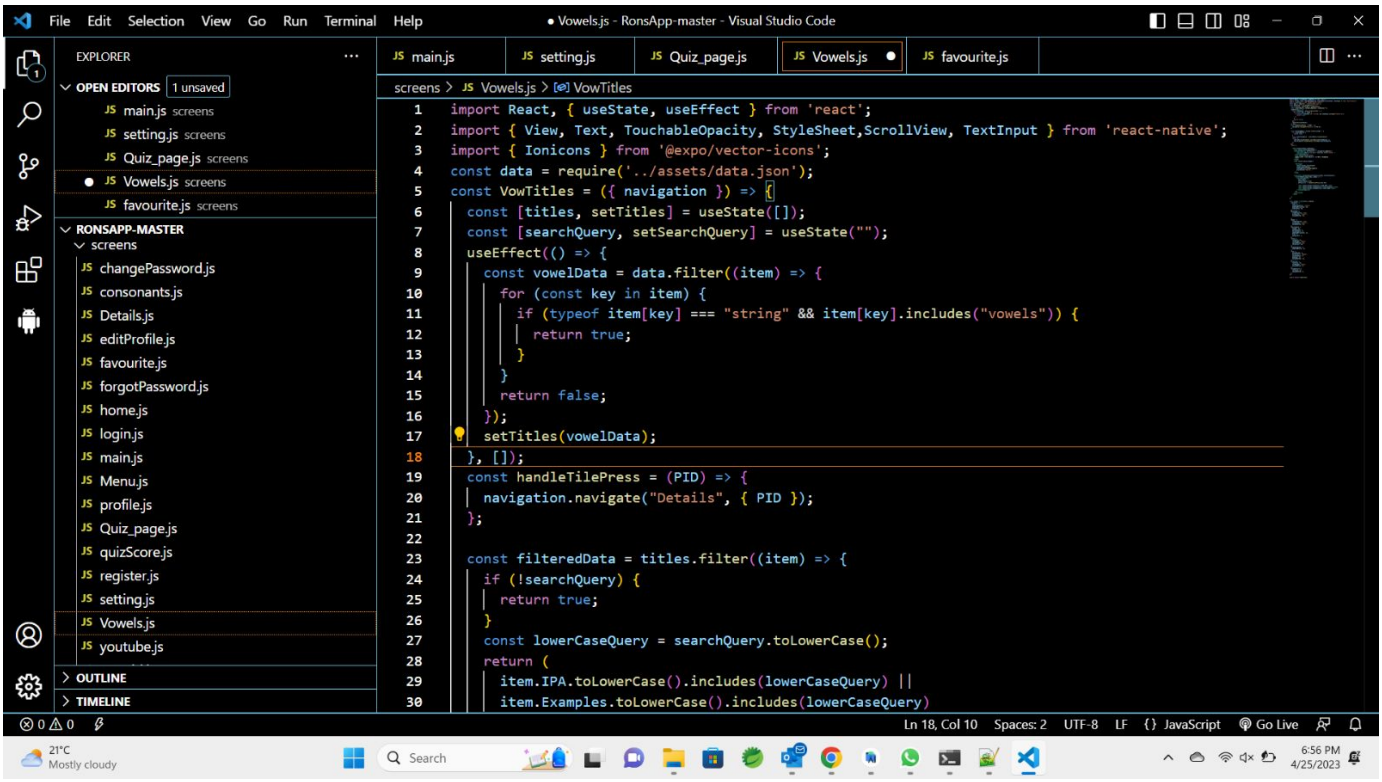
4. **UTA Cloud:** It is a centralized computing infrastructure that allows users to store, access, and manage data and applications remotely over the internet. The UTA cloud provides a range of services, including virtual machines, storage, and databases, as well as tools for data analysis, machine learning, and web hosting. The UTA cloud is accessible through a web-based portal, which allows users to manage their computing resources and access their applications and data from anywhere with an internet connection. It provides a secure and reliable computing environment, with regular backups and disaster recovery procedures to ensure the safety and availability of data.

Code Fragments:



Favourite Screen –

The favourite screen allows the user to select the letters that he wants to practice more. The component uses the UseState hook which is initially empty array and also defines a constant UID which is obtained from route.params object passed to the component. The fetch data function loads the favourite data from local storage using the AsyncStorage function module and updates favourites. The handleRemoveFavorite removes the favourite from the list and updates the local storage when the user unselects it.



Vowels Screen -

The vowels screen displays the list of vowels where each vowel is displayed and pressed is navigated to the their explanation and examples.the react native components such as view ,text,scroll view, touchableopacity, TextInput are used in this screen. We used to the components use state and useEffect hooks to filter and store the vowel data from the json file. The filtered data is stored from the file is stored in the tittles state variable. There also a search bar which allows the user to filter the vowel data based on his requirement the tittle displays the IPA explanation, examples and type of vowel sound. When the user presses the tittle the component navigates to the details screen with the selected vowel ID.

Task Distribution:

Team-mates	Contribution
Srikar Uddadi	Designed Login, Sign-up, Setting screens, Designed the backend at PHP, Published the application on playstore.
Sai Krishna Prateek Nama	Implemented Quiz, YouTube screens, designed the backend at PHP for this screen. Published the application on playstore.
Nikhil Ramesh Yadav	Designed Logout screen, Tested the application, Created Report, Created PPT.
Shashwat Shekhar	Designed Favourited Screen, Designed the backend for favourited screen. Created Report.
Ajay Vegunta	Designed Profile screen, Tested the application, Created Report, Created PPT

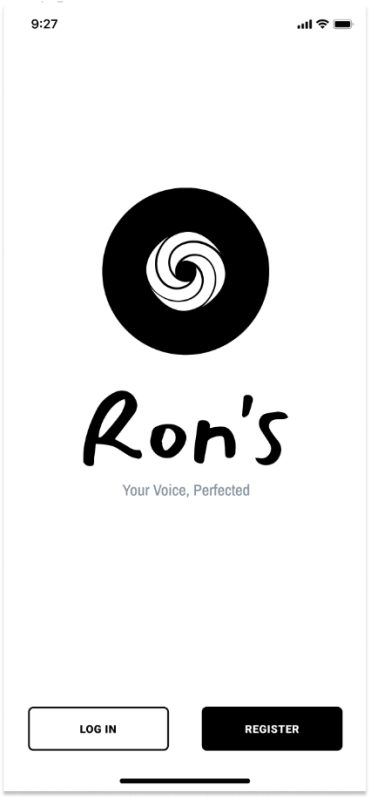
Methodologies used in this project:

There are various methodologies but below are few which was suited best for our application:

1. Scrum Methodologies: Scrum is better suited for complex projects with evolving requirements and emerging technologies, which aligns with the Rons App's goals of providing a user-friendly and effective phonetic learning app.
2. CI/CD (Continuous Integration/Continuous Delivery): CI/CD is a methodology that involves the integration of software development, testing, and deployment processes into a single automated pipeline, allowing for faster and more efficient software delivery. In the case of Ron's App, a CI/CD pipeline could be set up to automatically build, test, and deploy the app's updates and improvements as soon as they are ready.

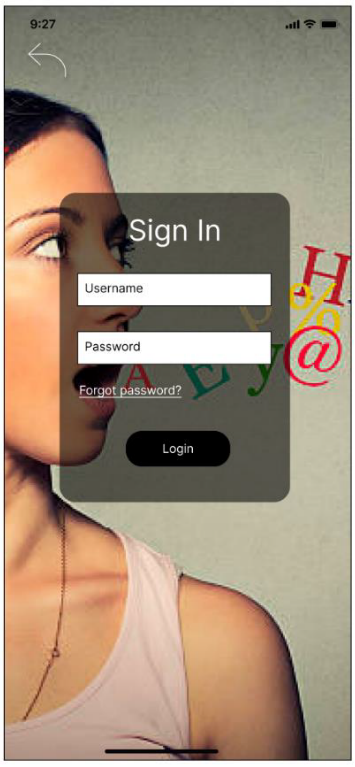
Prototypes vs In-App Screenshots

Prototype

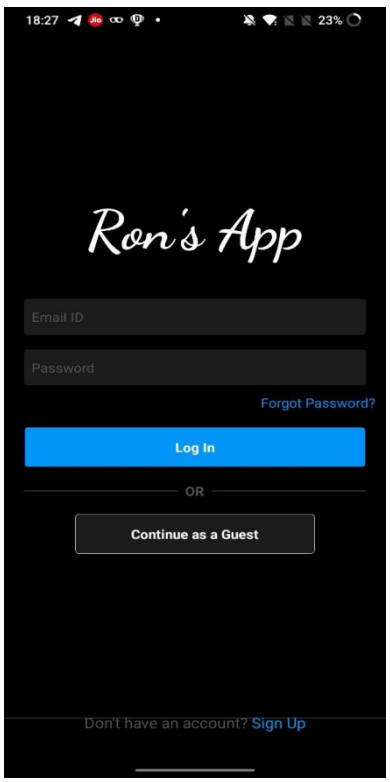


In-App Screenshots

1. **Splash Screen:** This is the first page when the user opens the app and gives an overview of the application. It includes a branding logo, slogan of the app.

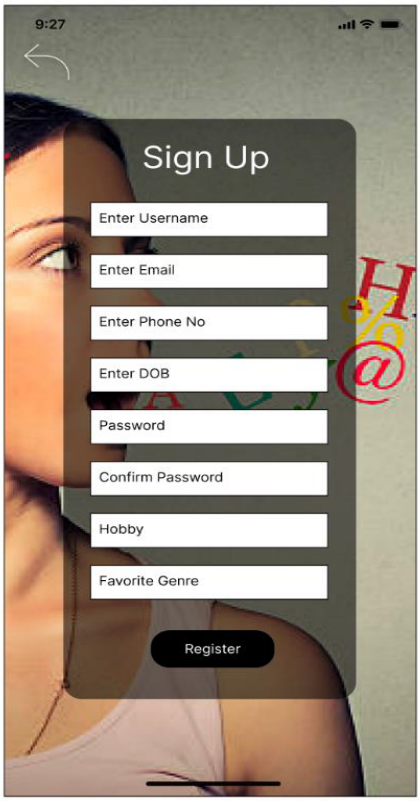


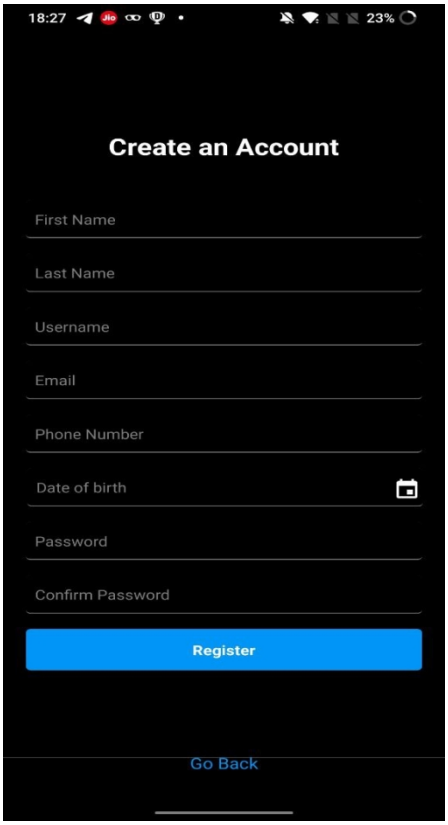
2. **Sign In:**



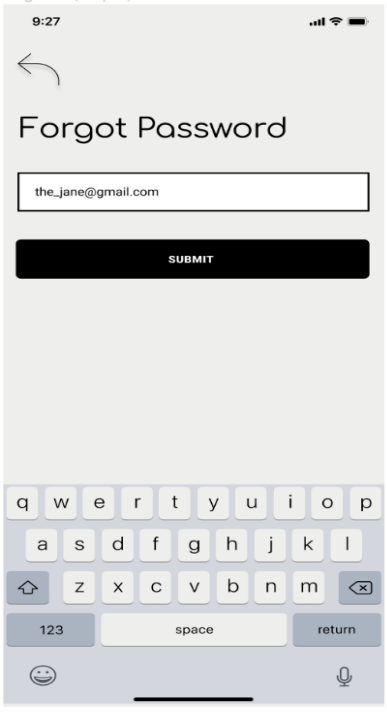
To

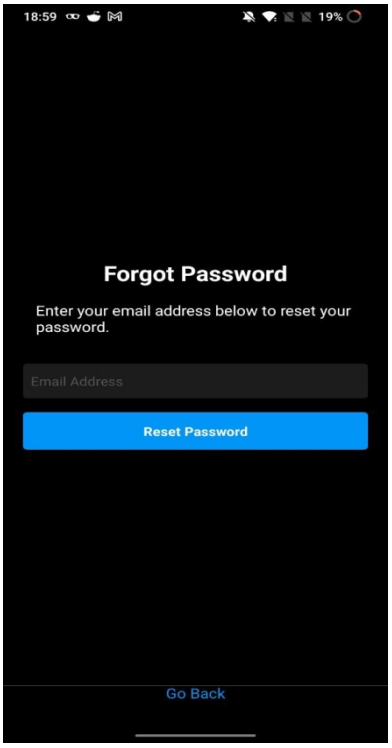
sign-in into the app, the user needs to enter the username and password to access the application. There is a login button which is accompanied by Forgot Password. When a user clicks on the Login button, it validates the user credentials and if it corrects it grant access to the next screen.



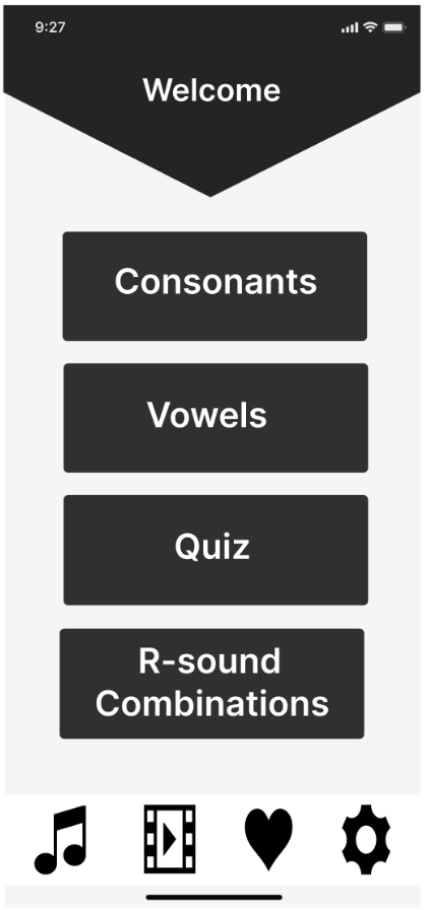


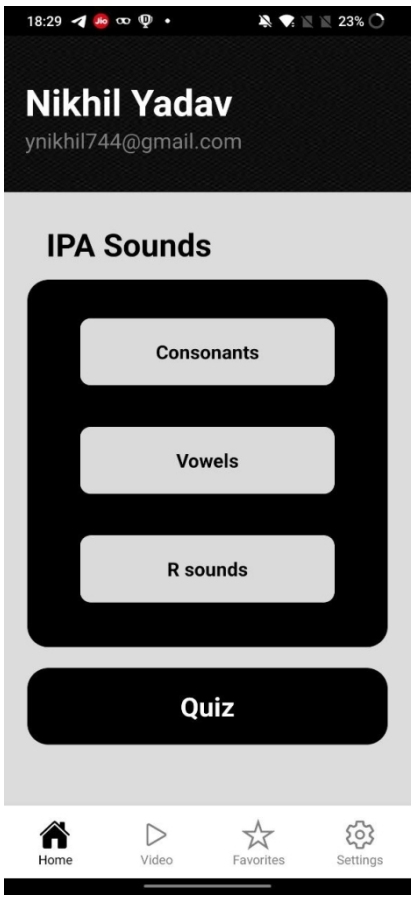
3. **Sign Up:** If the user doesn't have an account, they must register in the application. They must create first and last name, username, enter email, Phone-No, DOB, more than six-digit alphanumeric password.



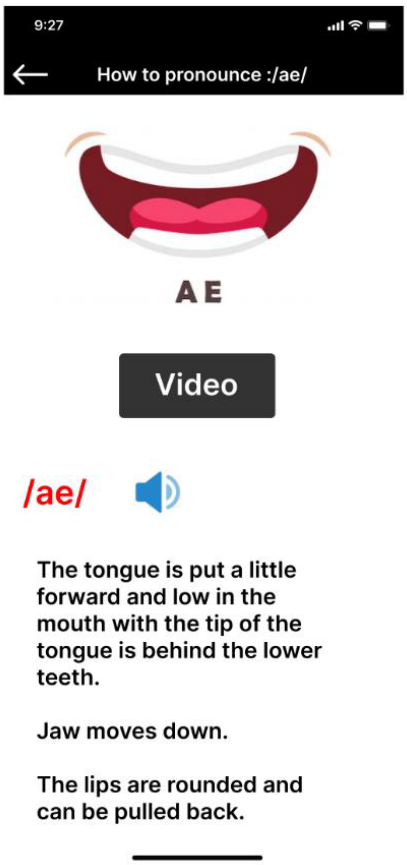


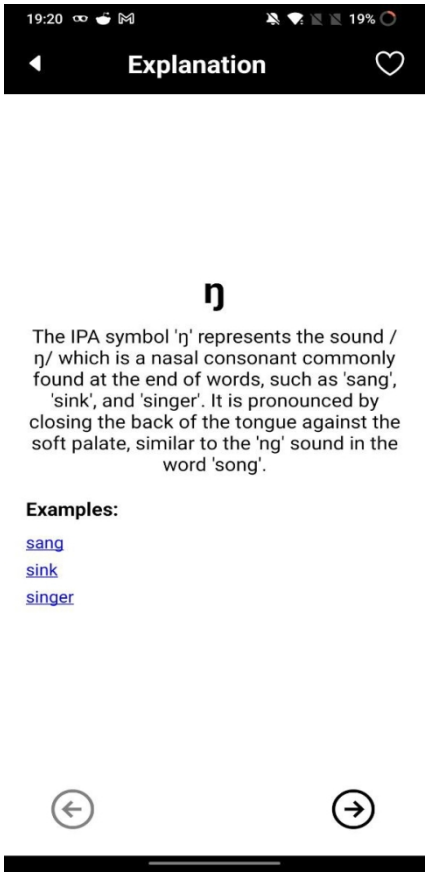
4. **Forgot Password:** If a user forgets their password, the forget password link would be send to their email account which they used at the time of registration.



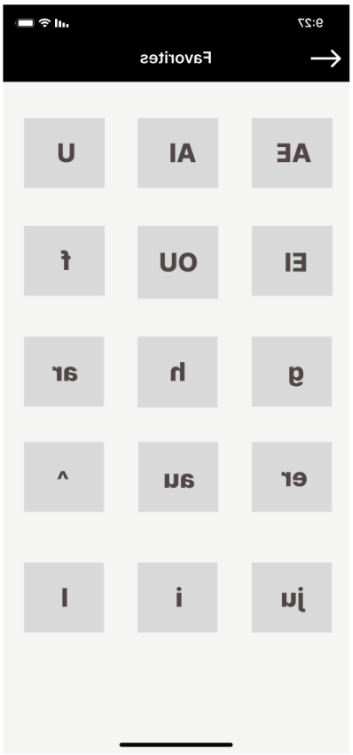


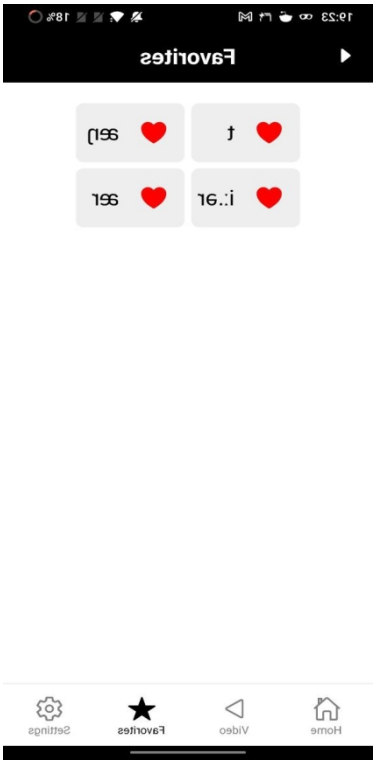
5. **Dashboard:** This is the welcome page once the user logs in to the app. Here it shows different navigation tools such as constants, vowels, quiz, and r-sound combinations. It shows the information and allows the user to easily move and navigate to different sections of the application.





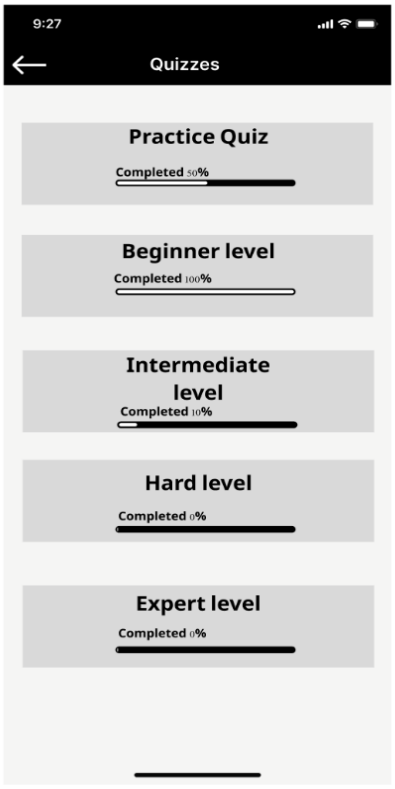
6. **Pronounce**: In this section user can see the description of the consonants. It shows the description of how to pronounce the consonants where it explain with the help of an audio.

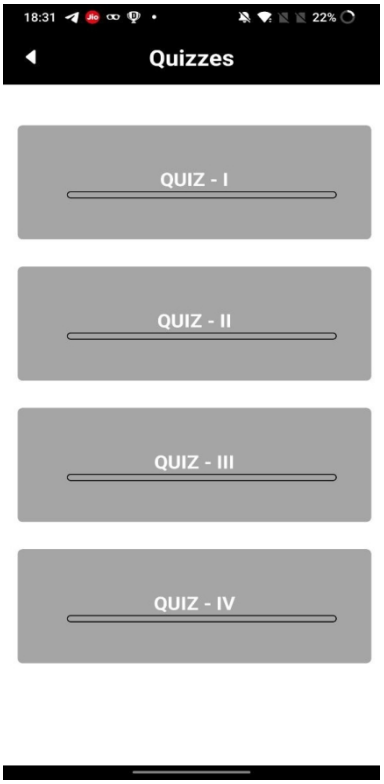




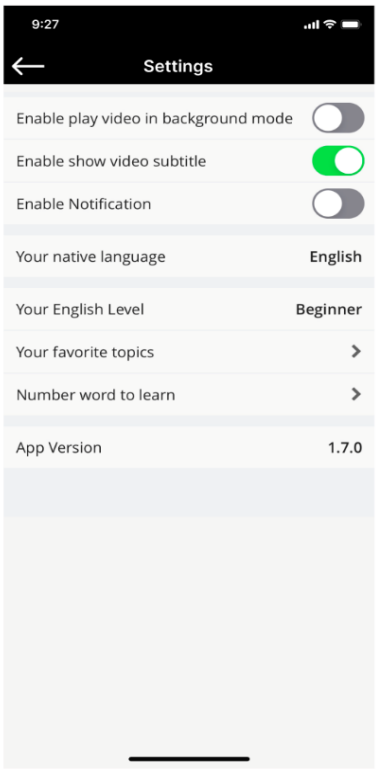
7. **Favourites:** User can add their favourite alphabets to a list and save it where they can visit frequently. It's a valuable feature where user can easily access their preferred

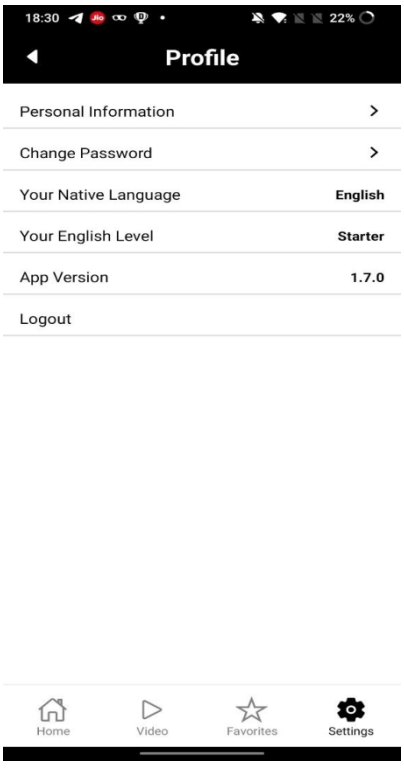
content and app which contain this feature makes the user engagement more valuable and good.



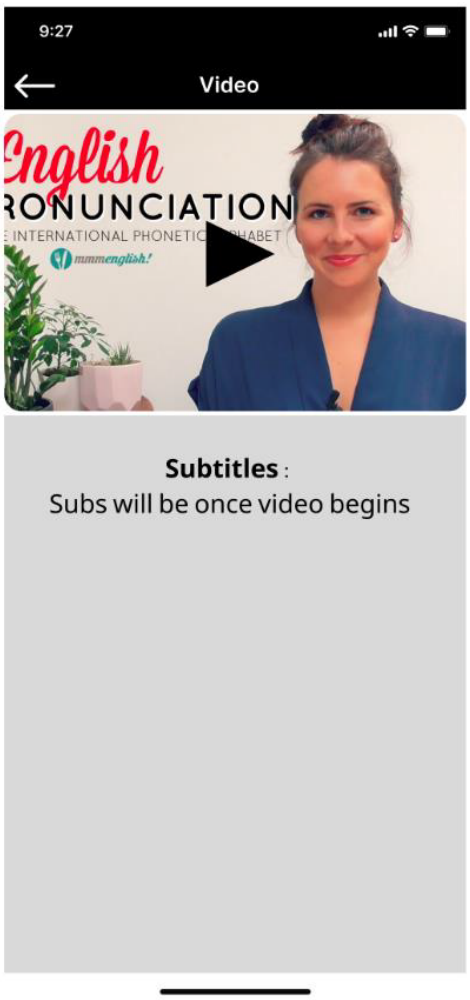


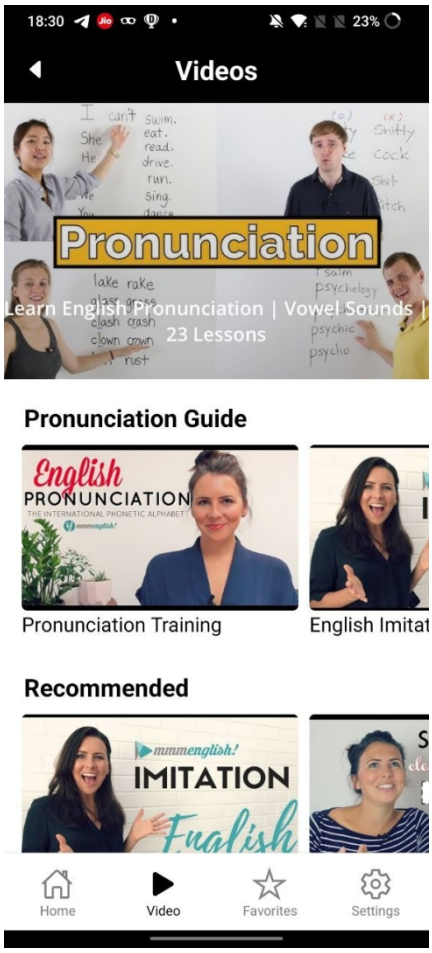
8. **Quizzes:** In this there will be many quiz to showcase their learning. Users can participate in a quiz to test his/her skills.





9. **Setting Menu:** It shows different features such as notification, language change, app version etc. In this the user can edit their profile. It will also show the app version so they can see which updated version they are using it.





10. **Video:** User can play a video to understand the pronunciation of the consonants and vowels better. It shows that video representation makes the app more interactive. Some users find it hard to understand and read the description, so the video could be a better option for such users. The video also comes with subtitles which can be handy for some users.