PCOS Labeller Application Manual

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1 Introduction

PCOS Labeller Application is a simple, and user-friendly application for gynaecologists to label the ultrasound frames. The main objective of this application is to collect medically validated ultrasound data of female uterus to develop Artificial Intelligence (AI) models for abnormality detection.

Requirements to download the application:

- Android Device with version 11 or above.

1.1 Steps to download PCOS Labeller Application

- Open the google drive link attached below.
- Download the apk file present in the google drive link using a registered google account on your android device.
- Click on “install”. Allow application permission for ‘camera/contacts/locations/microphone/music and audios/notification etc.
- Click on “Open”. You should see the ‘Registration Page’ at this moment.

Note- Please note the application does not collect any information stored in your android device. Refer 4.1 for more details.

Google Drive Link –

https://drive.google.com/file/d/1rAcQa5dl4MER1WoLJN35o6I5rDNTJXny/view?usp=share_link

2 Getting Started

This section familiarises the user with login setup after installation of the PCOS Labeller Application.

2.1 Login Page

Figure 1 shows the snapshot of the Login Page of PCOS Labeller Application. As a new member, please click on “register” to Sign Up for the application. As an existing member, the user can directly put the email address and password to enter into the application.

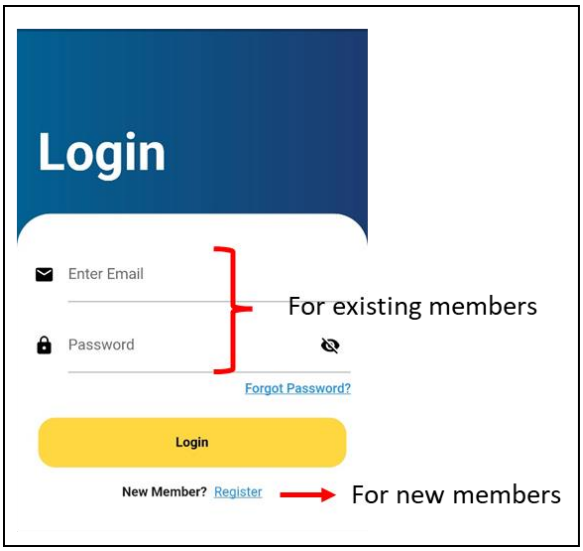

Figure 1. Snapshot of the Login Page of PCOS Labeller Application.

For new members:

- After clicking on “register”, Sign Up on the “Sign Up” page. Enter your email ID and password. The strength of the password is **at least** 8 letters. Any numeric value, and or alphabetical value is allowed. The users are requested to avoid using any special key.
- Click on “Sign Up”. Please check your email or spam for verification as a user.
- Click on the verification link received on your email address.
- After successful verification, please enter the details on the “Registration Page” and setup your Profile.

Figure 2 shows the snapshot of the process for new members.

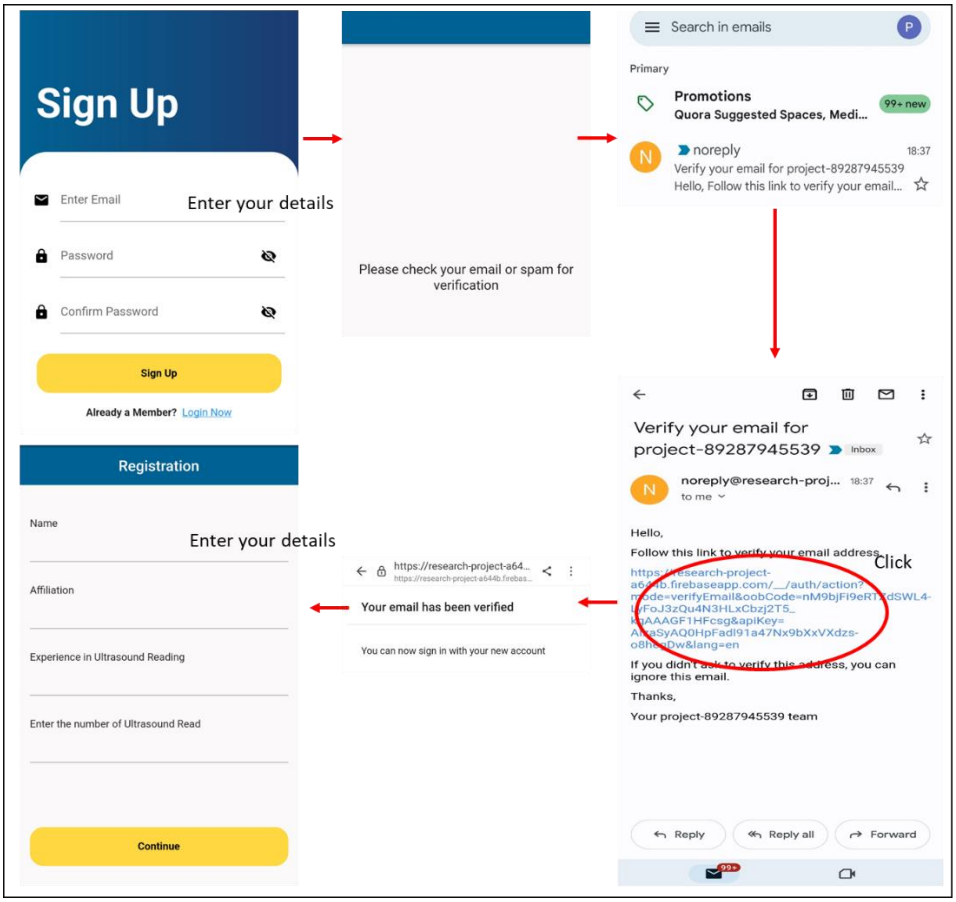

Figure 2. Snapshot of the Sign Up process of the PCOS Labeller Application for new members.

2.2 Profile Setup

Figure 3 shows the snapshot of the "Registration Page" for Profile Setup. It can be edited and updated later on using the "Profile" button in the menu drawer options. After filling the Registration Page, you will be directed to the "Home Page".

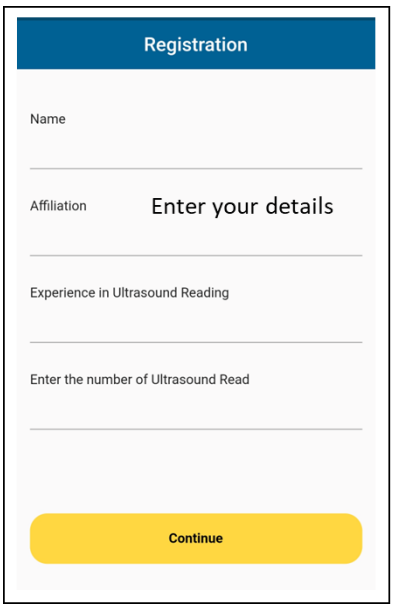

Figure 3. Snapshot of the Registration Page for Profile Setup.

2.3 Home Page

Figure 4 shows the snapshot of the "Home Page". The user can directly start labelling the ultrasound frames by clicking on the testing module. Figure 5 and 6 shows the snapshot of the testing module, and logout page respectively.

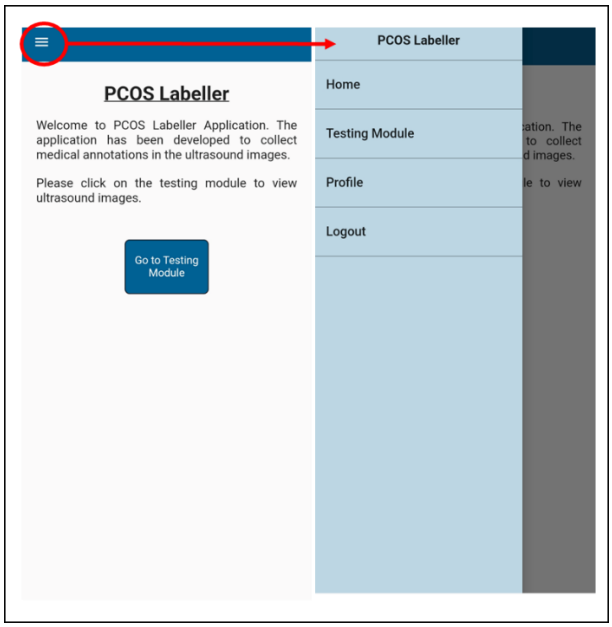

Figure 4. Snapshot of the Home Page.

2.4 Testing Module

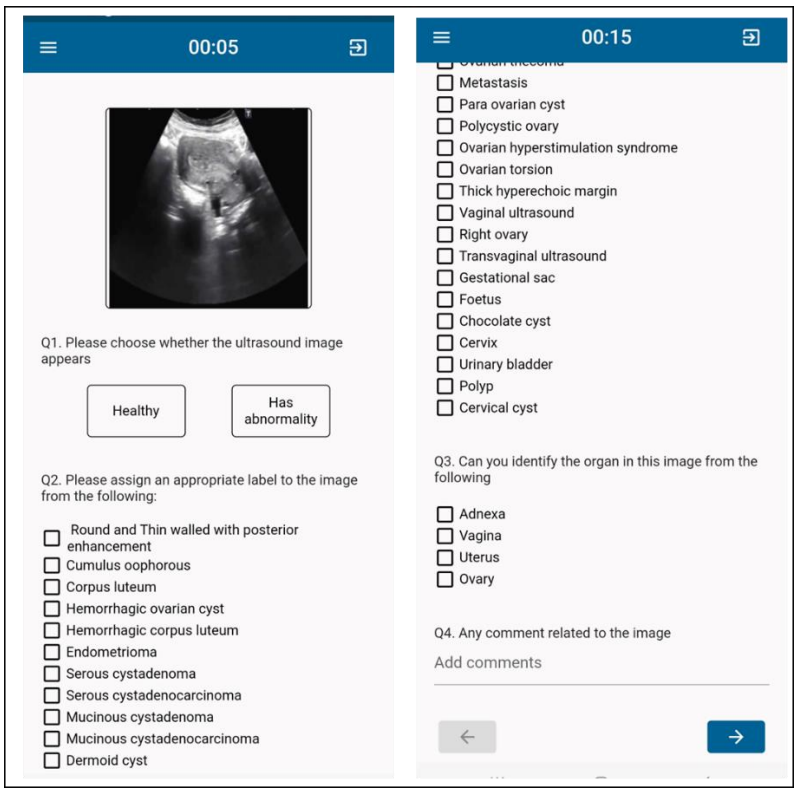

Figure 5. Snapshot of the Testing Module.

2.5 Logout

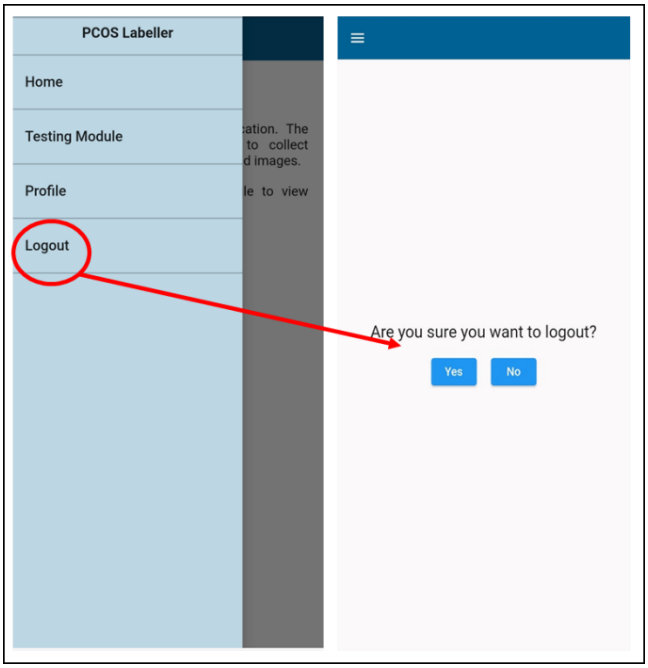

Figure 6. Snapshot of the Logout Page.

4 Features of Testing Module

- User-friendly Testing Module to medically annotate the ultrasound frames on the screen.
- A timer to note the time taken to label one frame.
- Forward button to view the next ultrasound frame.
- Backward button to view the previous ultrasound frame.
- Hassle free movement on the screen of Testing Module.
- A pop-up in case the user has not selected **ANY** option from the four questions.
- Exit button to exit the Testing Module.
- Four questions asked related to the ultrasound frame for an accurate annotation.

Please note **ONLY ONE** option is **CORRECT** and can **ONLY** be chosen for Question 1.

Please note **MULTIPLE** options can be chosen for Question 2 and 3.

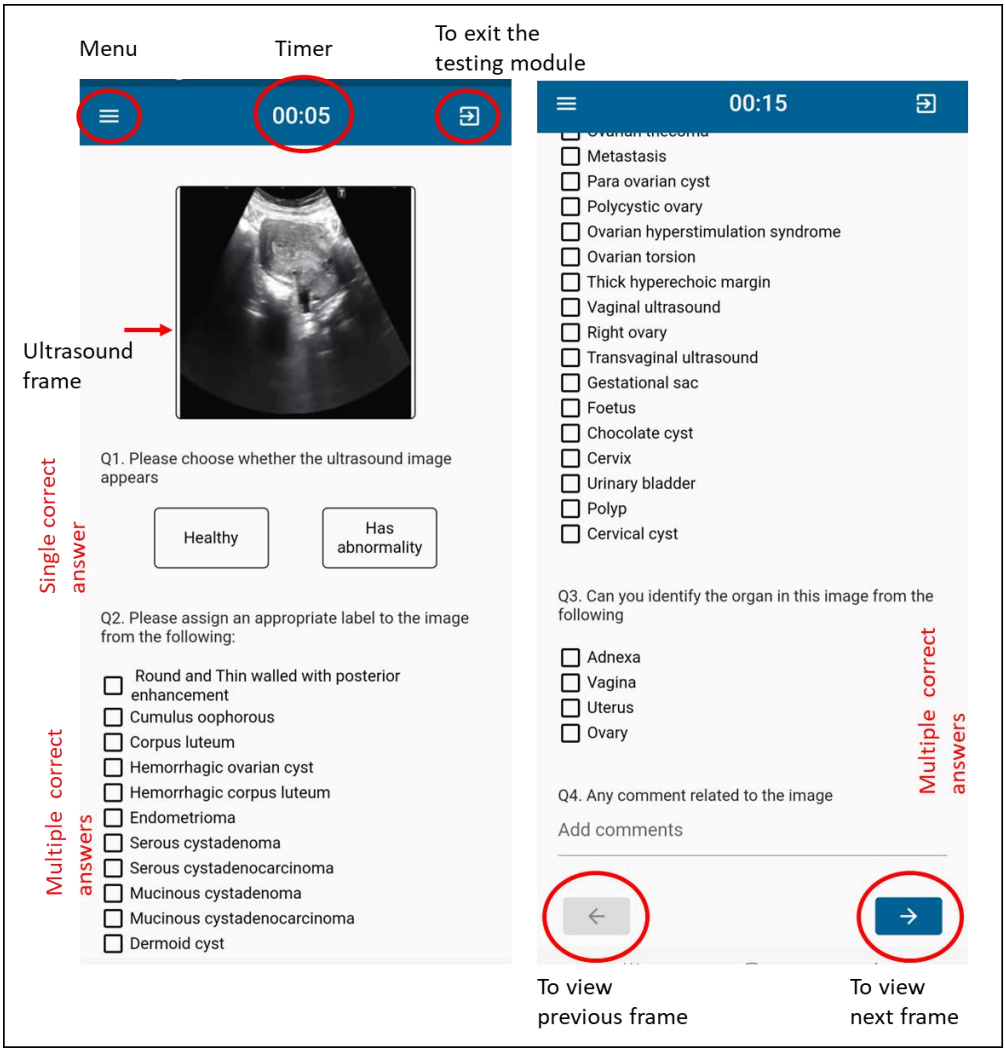

Figure 7. Snapshot of the Testing Module with different operations.

4 Technical features used by PCOS Labeller Application

The PCOS Labeller Application is built on flutter environment with firebase console for data storage. The final data is stored in Google sheets. The block diagram is shown in Figure 8.

4.1 Frontend and Backend Data Flow Storage

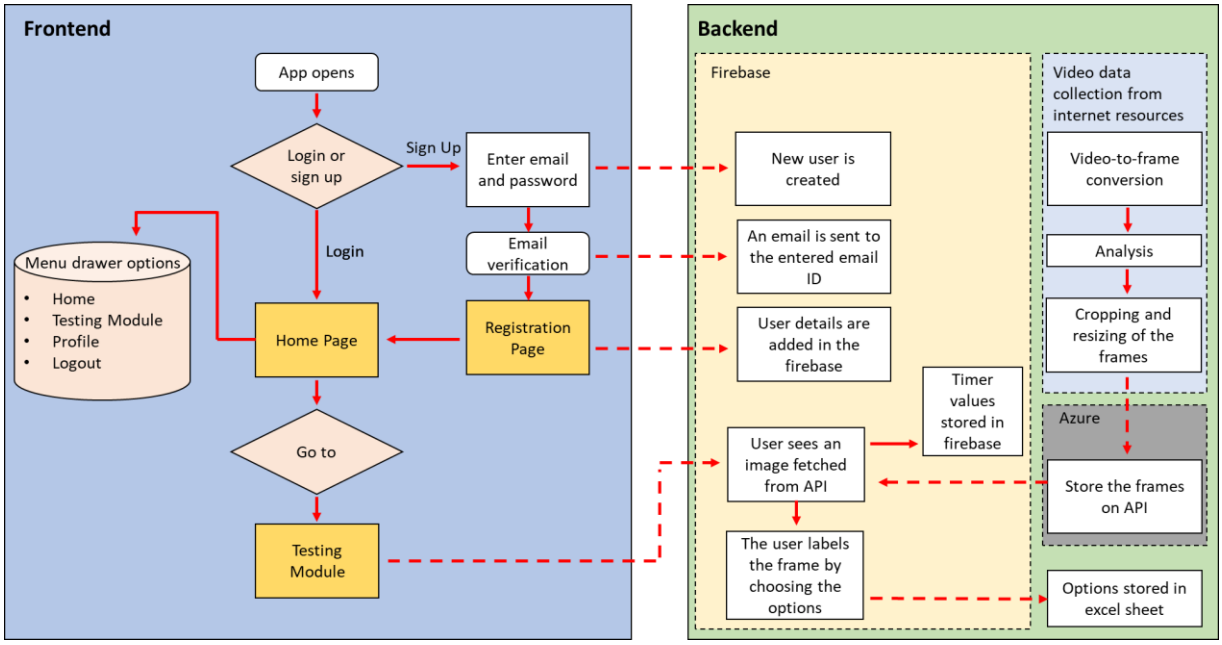

Figure 8. Frontend and Backend Data Flow Storage System of PCOS Labeller Application.

4.2 Present Limitations

- The application is available **ONLY** for android device users. The application is not supported for Apple IOS (iPhone) users at the moment.
- The user **MUST** login from the same android device.
- The application **SHOULD NOT** be uninstalled from the device once the user has started the testing module, otherwise the progress will be deleted. After the completion of the labelling of all the frames, the user can delete the application.

4.3 Future release

- Real-time labelling of the ultrasound frames using Artificial Intelligence techniques.
- Support with IOS.