Smart health Application
Setup V1.2

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Intro:

The app is used to connect to an FDA cleared medical pocket size device that is called Checkme. It is able to measure & store the following vital health signs:

- Blood Pressure
- Glucose Level
- Pulse Rate
- ECG
- Body Temperature
- Oxygen Level
- Sleep apnea
- Physical Activity (Steps count, calories used & fat burned)

for up to 8 patients.

The patient user interface of the app will show patient vital signs measurement history among other features. Without the medical device no data will be shown so we came with a solution to be used for M-Gov award demo purpose. The setup steps will be described below.

Notes:

1) The software was only tested with Android OS version 11 - phone model: Samsung A30 & A10

2) Please switch to English user interface on the phone before following the steps below.

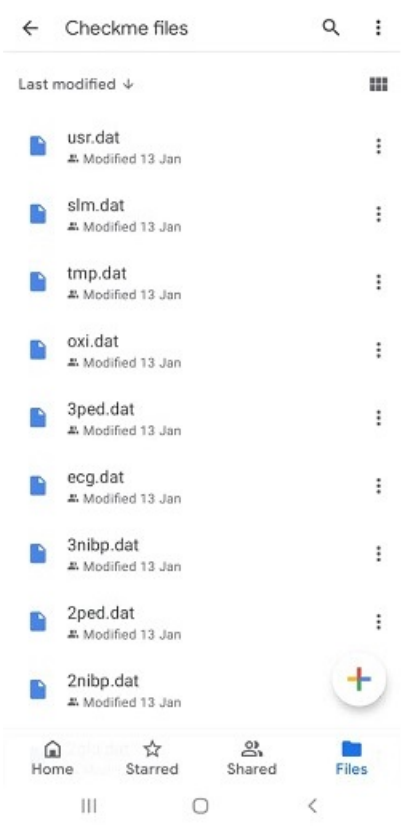
3) The provided usernames and password is for a clinician called Dr. Axxxx and for patient called Nxxxxi. So Dr. Axxxx UI will be receiving health vital signs of the patient Nxx.

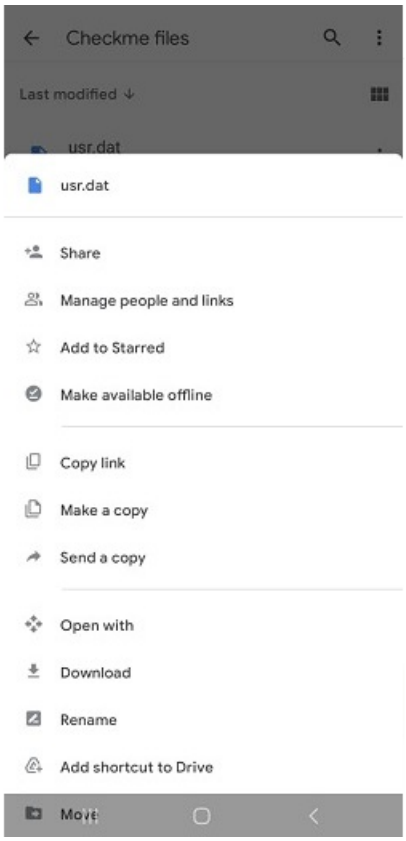
Preparation Steps:

1. Download medical files (total of 32 files) to your downloads folder on your android phone from the following link:

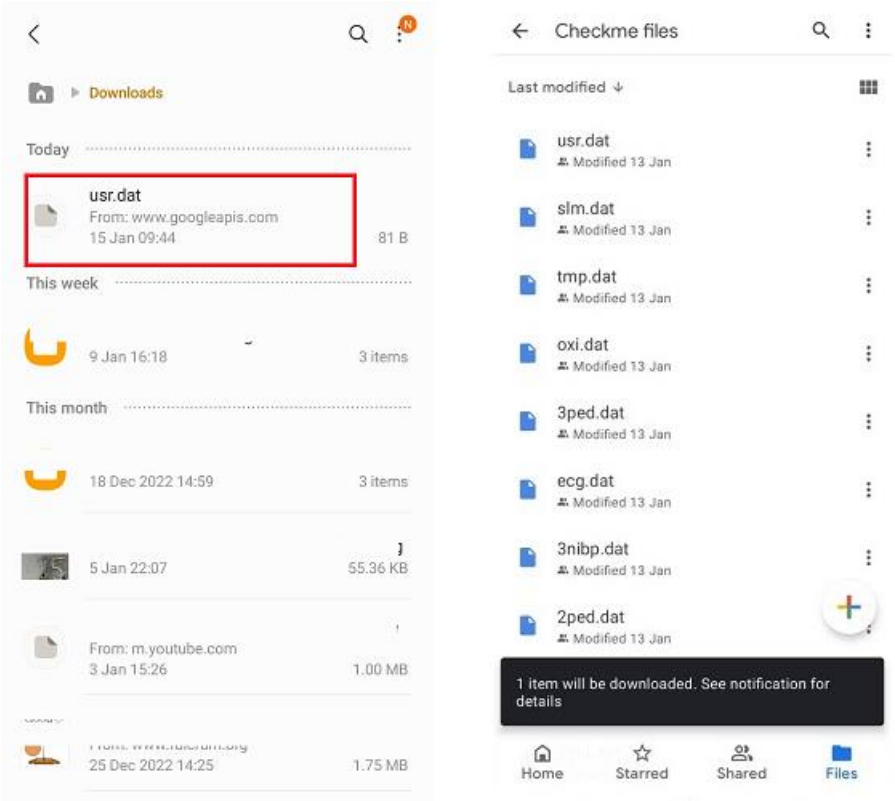
   https://drive.google.com/drive/folders/1SH8L7BodCOrEleY3bVejTyH8qA5ctyBY?usp=share_link

   Please see the images below for more details





After you download the files from the link shared above you should see the files inside the “Downloads” folder as shown below



After downloading all the 32 files, you can confirm their presence in the Downloads folder of your android phone as shown in the picture to the left. The image to the right shows the files in the shared google drive.

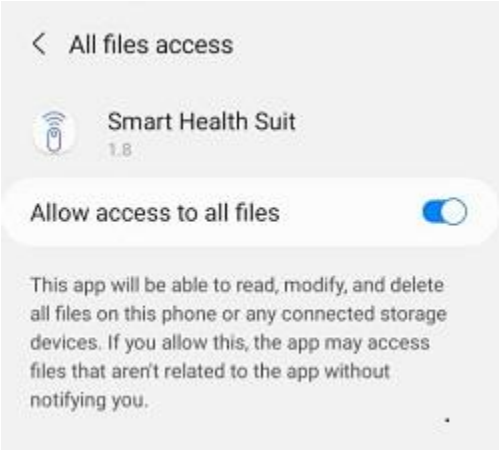
Note: the image on the left side is used for illustration purpose and only shows 1 file ”usr.dat” but you need to repeat the process with the remaining files.

2. Now you can download and install the app apk file from this link firebase link which needs registration: **https://appdistribution.firebase.dev/i/88a2a74a78fd7191**

Or from the google drive for direct download:

https://drive.google.com/drive/folders/1pdXKUipJ0840mQaacBTgx5-QtxhFS8f1?usp=share_link

3. The app stores medical measurements, app user settings and app logs on both the internal & external phone storage. The app doesn't interfere with personal or private data on the phone. So you need to give permission to the app for file access.



The android system need permission for accessing your contacts (although practically clinicians and patients doesn't need to be on your phone contacts outside the app but this is how Android setting works) to allow the connection requests system to work for both patients and clinicians .See more details in the clinician operation steps pdf file.

4. The app uses firebase real-time cloud Database to work properly so internet access is important for the data transfer between the clinician's app and the patient's app. Please grant necessary permissions to the app when prompted. See more details about the process in this video: https://www.youtube.com/shorts/jcHHqhMXs3U

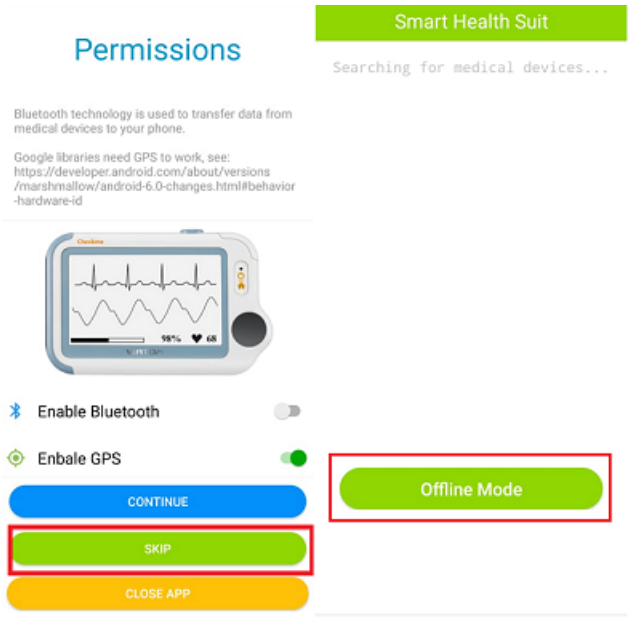
5. The same app can be used for guardians or clinicians and also for patients. The App users can choose the intended usage during user registration. So to see how the app works you will need 2 phones, one that can be used for patients and the second one to be used for a clinician. Since we are providing the passwords, you don't need to go through the user registration process

Clinician user login details:
User name: [contact project owner]
Password: [contact project owner]

Patient user login details:
User name: [contact project owner]
Password: [contact project owner]

[Optional]To understand the user registration process, please watch this video: https://www.youtube.com/watch?v=dZoWLekyL10

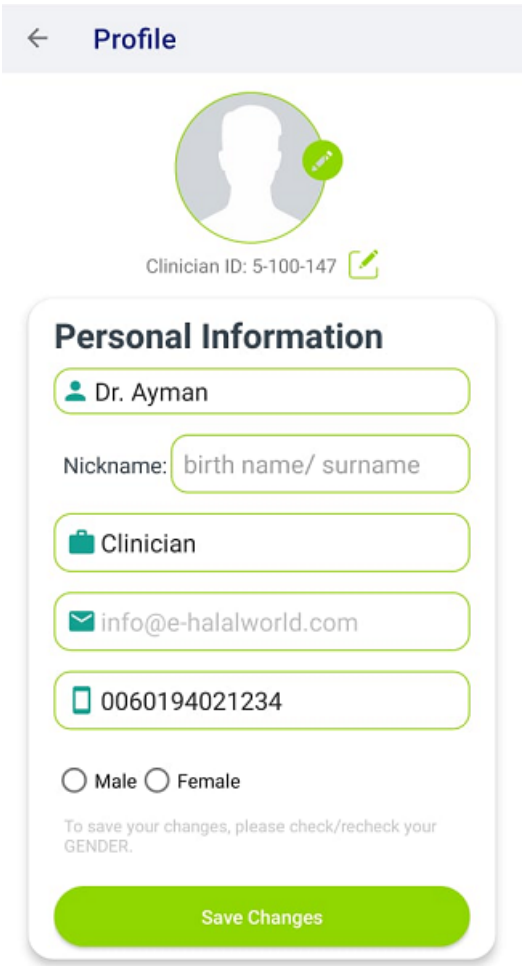
6. Since you don't have an actual medical device when testing the app, so you will need to skip the device connection step and choose offline mode. For more details watch this short video: https://www.youtube.com/watch?v=wmGJE1QNHo8



7. We have created 2 additional documents that describe the operational steps for both the clinician's App and the patient's app.

8. Open the right side drop down menu and choose user profile to know if the app user is a clinician or a patient. See the image below.

[Note] Clinicians will always see a list patients under the connections tab while patients will only see guardians and clinicians listed under the connection tab.



Explainer Videos:

1. How can a clinician find patients to monitor ? https://youtu.be/EY8o6Rn5pF0

2. How to send health data to a clinician?
   https://www.youtube.com/watch?v=js1otpbhqyE&t=4s

3. How a clinician can chat with patients? https://youtu.be/oEE6SbC0ib0

4. How guardians / Clinicians can monitor patients
   https://youtu.be/CxRpQkLE9uA

5. Smart Health Checkme Package : https://youtu.be/wxWK_hs2IrY

6. How to Accept App necessary Permissions?
   https://www.youtube.com/shorts/jcHHqhMXs3U

7. How to register a user on the App? https://youtu.be/dZoWLekyL10
8. Live Monitoring for patients https://youtu.be/uz3wkkcGdHA
9. Patient Offline showcase (without connecting to Checkme) : https://youtu.be/wmGJE1QNHo8
10. Diabetes Diary - Smart Health https://youtu.be/ztlcYvRVByE
11. [High Risk] Cardiovascular diseases Prediction using AI **https://youtu.be/0797Foqn4II**
12. [Low Risk] Cardiovascular diseases Prediction using AI https://youtu.be/s9SgSawY7pw

Glossary:

Cardiovascular disease : A type of disease that affects the heart or blood vessels.

Prediabetes stage: It is start of the road having diabetes disease and can be recognized by fasting glucose level of 100 to 125 mg/dL (5.6 to 6.9 mmol/L)

Vital signs : are a group of the four to six most crucial medical signs that indicate the status of the body's vital functions. These measurements are taken to help assess the general physical health of a person, give clues to possible diseases

Artificial intelligence (AI) : uses mathematical and statistical methods to predict the value or status of something of interest. Artificially intelligent computer systems are used extensively in medical sciences. Common applications include diagnosing patients, end-to-end drug discovery and development, improving communication

between physician and patient, transcribing medical documents, such as prescriptions, and remotely treating patients.

ECG: An electrocardiogram (ECG) is a simple test that can be used to check your heart's rhythm and electrical activity. Sensors attached to the skin are used to detect the electrical signals produced by your heart each time it beats.

Diabetes: With diabetes, your body either doesn't make enough insulin or can't use it as well as it should. Diabetes is a chronic (long-lasting) health condition that affects how your body turns food into energy

Remote patient monitoring (or remote health monitoring): allow providers to monitor, report, and analyze their patient's acute or chronic conditions from outside the hospital or clinic setting. They enable real-time understanding of a patient's disease state, enabling the provider to make proactive clinical decisions.

Clinical Care: used to help people to know what care to expect for a particular clinical condition and to help them to make informed decisions about treatment in collaboration with their health professional.

NEWS (national early warning score): assessment to obtain the score for the evaluation of the patient. It is based on the aggregation of the six physiological parameters, four of them are respiration rate, temperature, systolic blood pressure, pulse rate and the other two which are also known as fifth vital sign and are level of consciousness or new confusion and oxygen saturation.

Checkme: All-in-one vital signs monitor for doctors, caregivers, and patients. Integrates ECG/EKG, ECG Holter, SpO2 (oxygen saturation), PI (perfusion index), NIBP (Non-Invasive Blood Pressure), body temperature, and pedometer in one device with a palm-sized design.