# CAREWAVE

## An Advanced Health Monitoring Software

# The Team

Our Guide

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# PROBLEM STATEMENT

**The aging population and individuals with health conditions lack a comprehensive healthcare solution tailored to their needs. Existing systems fall short in providing personalized health management and swift emergency response. This gap results in challenges such as delayed interventions and insufficient remote monitoring. The problem statement calls for the development of an innovative AI-powered software for smartwatches to bridge these gaps and improve the well-being of this vulnerable population.**

## GOALS:

- **Enhance Medication Adherence**
- **Facilitate User-Caregiver Collaboration**
- **Improve Health Monitoring and Early Intervention**

# PROPOSED SOLUTION

To address the growing need for personalized healthcare solutions for elderly and health-compromised individuals, we propose an AI-powered health monitoring and emergency assistance software. This comprehensive solution utilizes AI algorithms to analyze real-time health data, providing caregivers with alerts for abnormal vital signs and ensuring timely interventions. Integrated medication reminders promote medication adherence, while notifications keep caregivers informed about health events. By combining sophisticated technology with personalized care, this software aims to improve the well-being of its users, offering comprehensive health monitoring and rapid response in emergencies. This solution contributes to a safer and more secure lifestyle for this vulnerable population, enhancing both health management and emergency response while prioritizing user privacy and comfort.

# MODULES

## User

- Sign in using google
- Basic details
- Caregivers details and contact number
- Medication details

## Data

- Vitals collection
- Monitoring
- Save data
- Values to verify(max and min limits)

## Alert

- Medication alerts with medicine name and dose.
- Caregivers details
- SOS call to hospitals at emergency

# CURRENT STATE

## Front-end Development

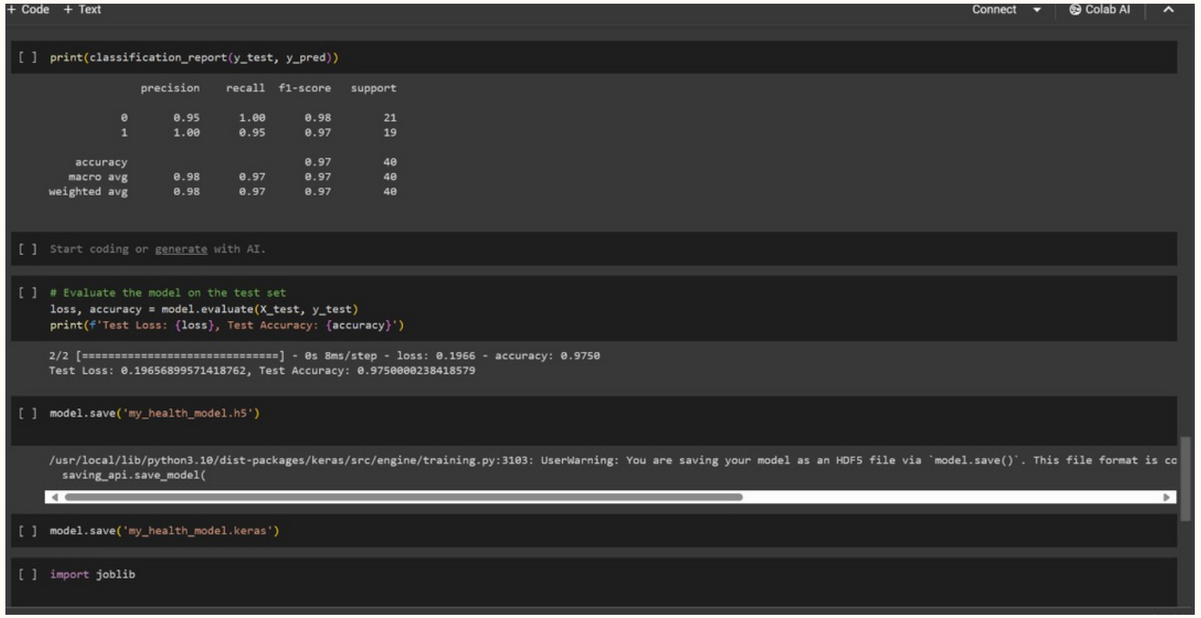
## Back-end Development

## Model Development

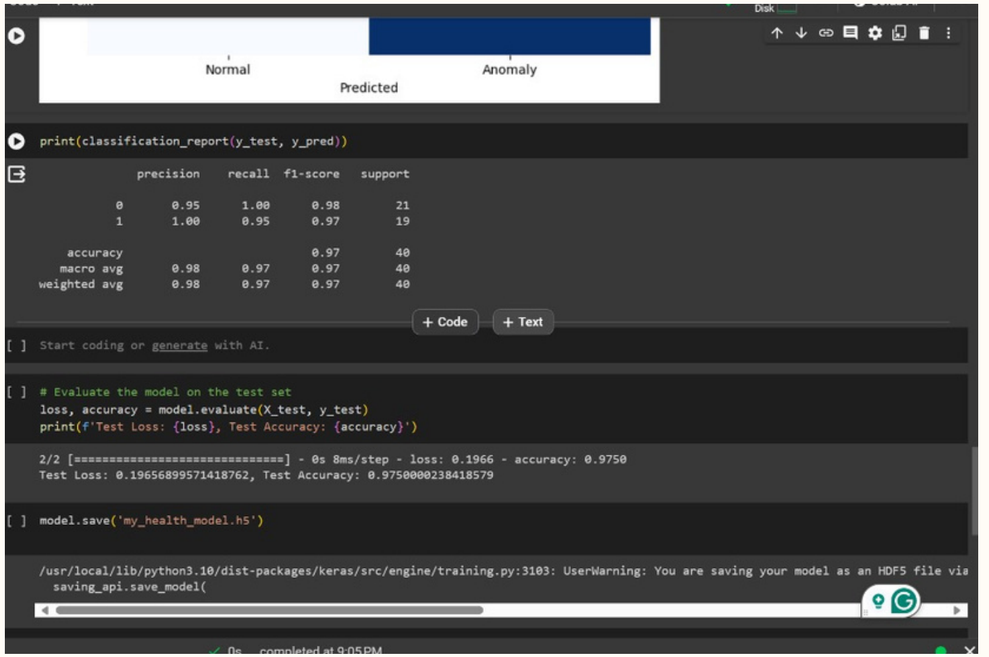
# TECHNOLOGY STACK

# RESULTS

# CAREWAVE MODEL DEV & TEST



```
+ Code + Text                                                    Connect   Colab AI

[ ] print(classification_report(y_test, y_pred))

              precision    recall  f1-score   support

           0       0.95      1.00      0.98        21
           1       1.00      0.95      0.97        19

    accuracy                           0.97        40
   macro avg       0.98      0.97      0.97        40
weighted avg       0.98      0.97      0.97        40

[ ] Start coding or generate with AI.

[ ] # Evaluate the model on the test set
    loss, accuracy = model.evaluate(X_test, y_test)
    print(f'Test Loss: {loss}, Test Accuracy: {accuracy}')

    2/2 [==============================] - 0s 8ms/step - loss: 0.1966 - accuracy: 0.9750
    Test Loss: 0.19656899571418762, Test Accuracy: 0.9750000238418579

[ ] model.save('my_health_model.h5')

    /usr/local/lib/python3.10/dist-packages/keras/src/engine/training.py:3103: UserWarning: You are saving your model as an HDF5 file via `model.save()`. This file format is cc
      saving_api.save_model(

[ ] model.save('my_health_model.keras')

[ ] import joblib
```





```
print(classification_report(y_test, y_pred))

              precision    recall  f1-score   support

           0       0.95      1.00      0.98        21
           1       1.00      0.95      0.97        19

    accuracy                           0.97        40
   macro avg       0.98      0.97      0.97        40
weighted avg       0.98      0.97      0.97        40

+ Code + Text

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    /usr/local/lib/python3.10/dist-packages/keras/src/engine/training.py:3103: UserWarning: You are saving your model as an HDF5 file via
      saving_api.save_model(

✓ 0s  completed at 9:05 PM
```
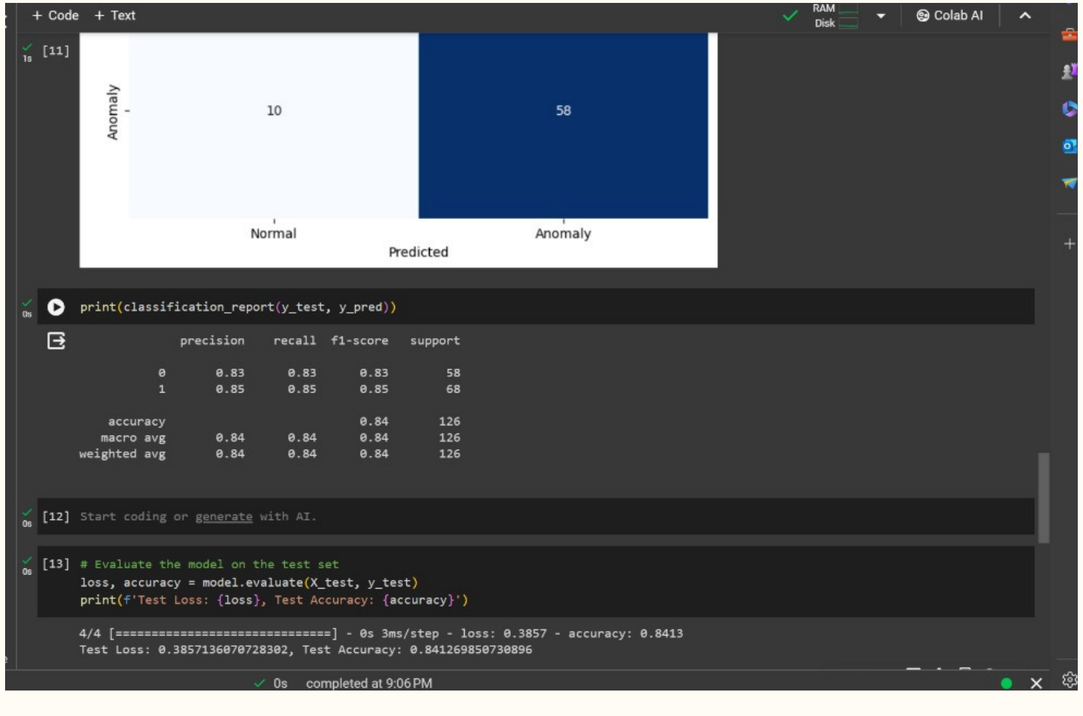



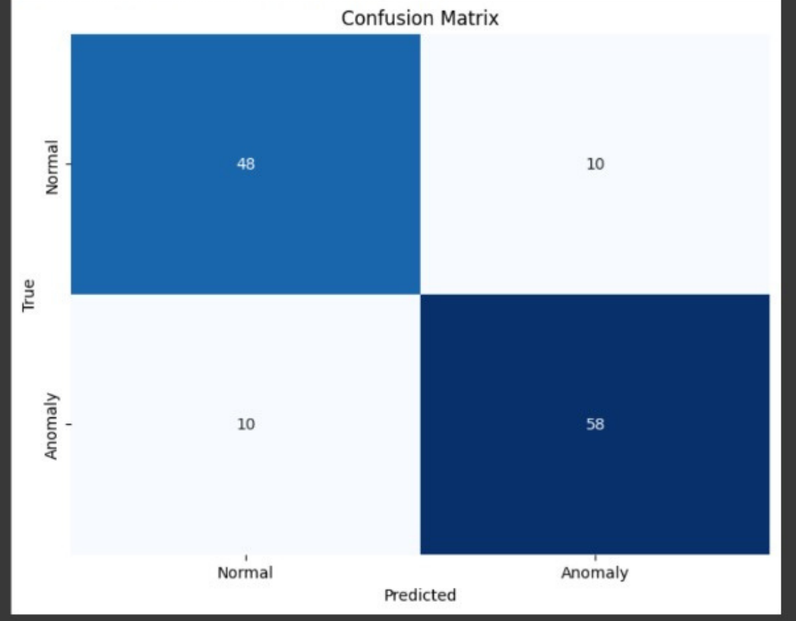


```
+ Code + Text                                                    RAM Disk   Colab AI

[11]
print(classification_report(y_test, y_pred))

              precision    recall  f1-score   support

           0       0.83      0.83      0.83        58
           1       0.85      0.85      0.85        68

    accuracy                           0.84       126
   macro avg       0.84      0.84      0.84       126
weighted avg       0.84      0.84      0.84       126

[12] Start coding or generate with AI.

[13] # Evaluate the model on the test set
     loss, accuracy = model.evaluate(X_test, y_test)
     print(f'Test Loss: {loss}, Test Accuracy: {accuracy}')

     4/4 [==============================] - 0s 3ms/step - loss: 0.3857 - accuracy: 0.8413
     Test Loss: 0.3857136070728302, Test Accuracy: 0.841269850730896

✓ 0s  completed at 9:06 PM
```

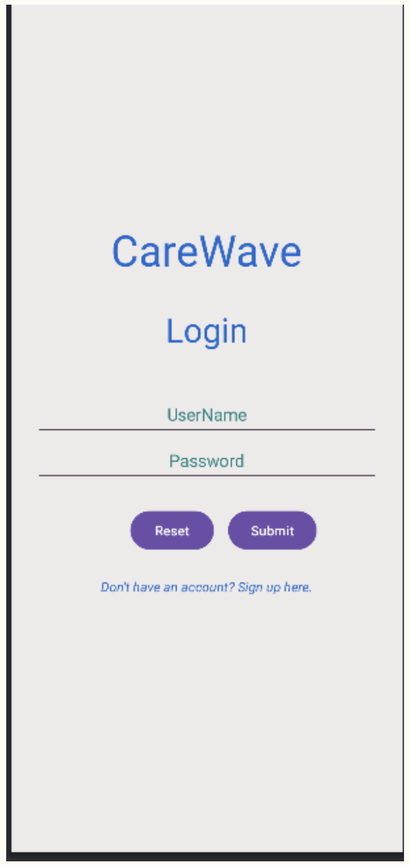
```
2/2 [==============================] - 0s 12ms/step
Sample 1: Anomaly
Sample 2: Normal
Sample 3: Normal
Sample 4: Normal
Sample 5: Normal
Sample 6: Normal
Sample 7: Normal
Sample 8: Normal
Sample 9: Normal
Sample 10: Normal
Sample 11: Anomaly
Sample 12: Anomaly
Sample 13: Normal
Sample 14: Normal
Sample 15: Anomaly
Sample 16: Normal
Sample 17: Anomaly
Sample 18: Normal
Sample 19: Normal
Sample 20: Normal
Sample 21: Normal
Sample 22: Normal
Sample 23: Anomaly
Sample 24: Anomaly
Sample 25: Normal
Sample 26: Normal
Sample 27: Normal
Sample 28: Normal
```

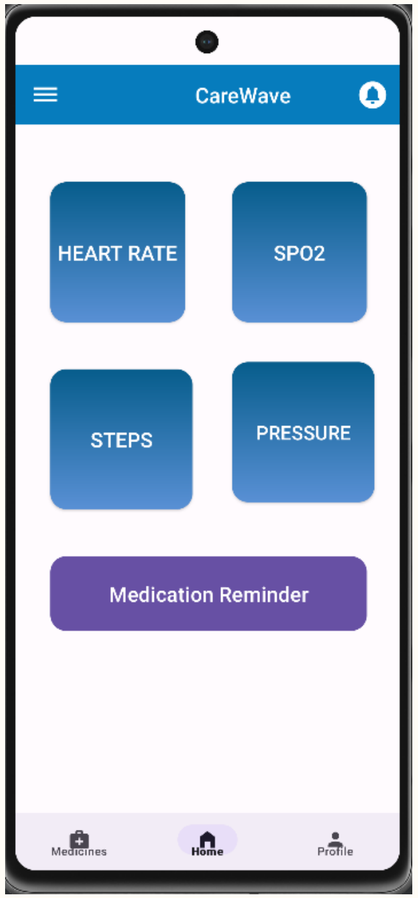
```
plt.ylabel('True')
plt.title('Confusion Matrix')
plt.show()
```

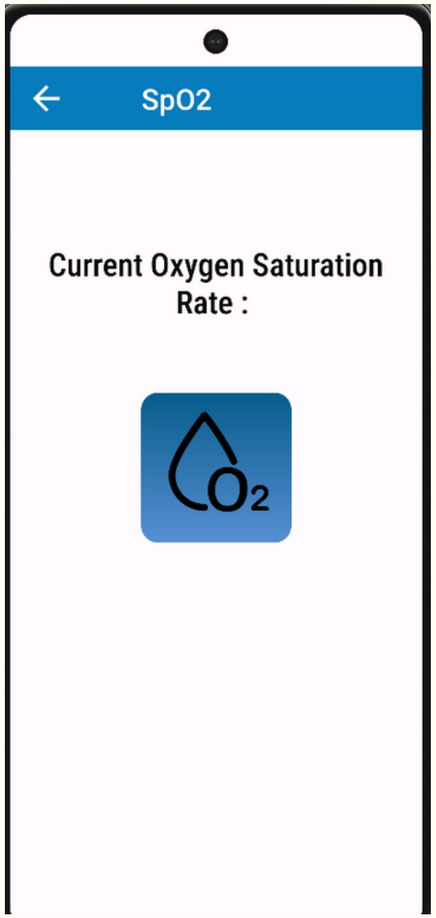
```
4/4 [==============================] - 0s 4ms/step
```

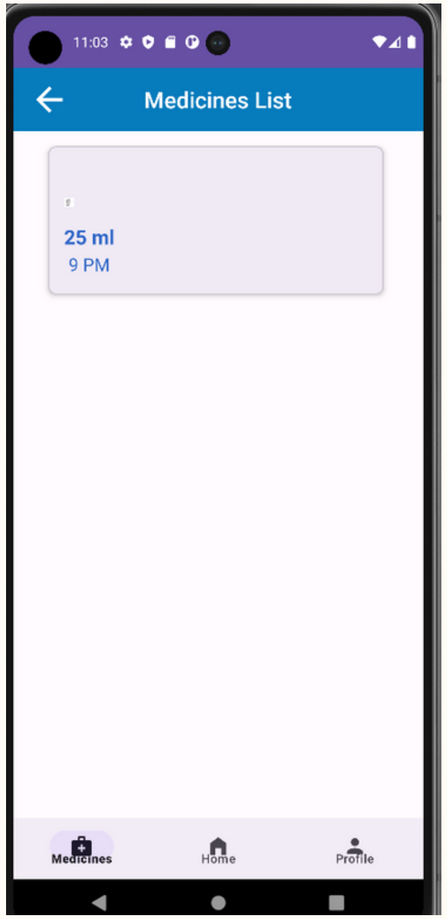


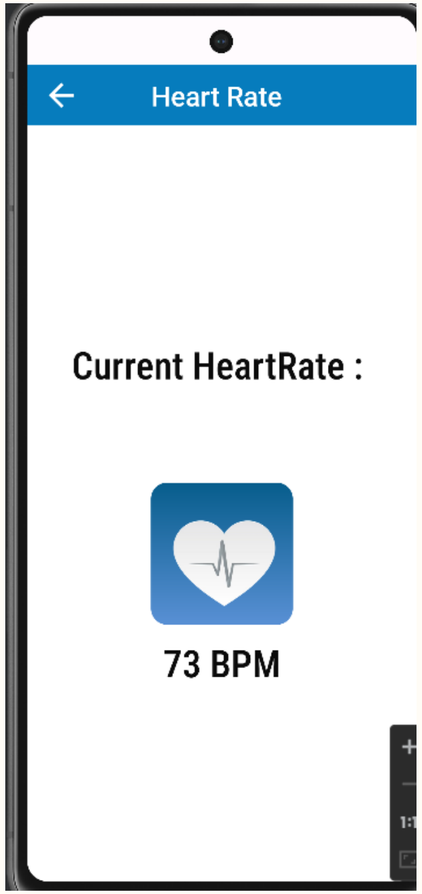
# USER INTERFACE

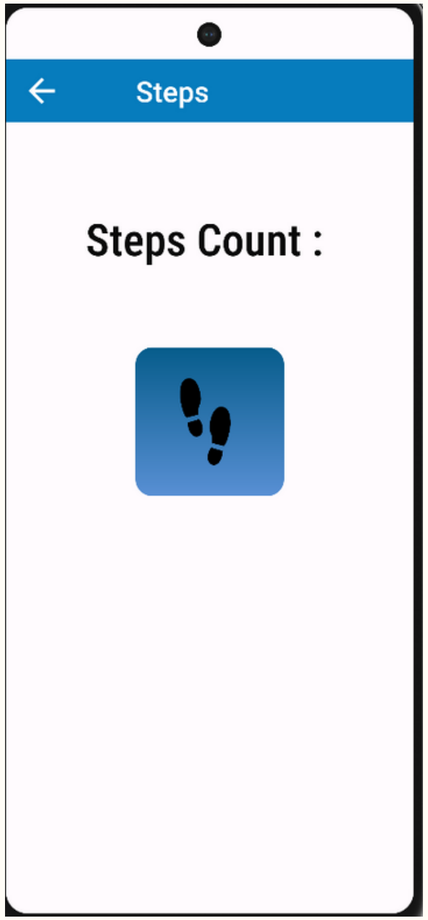


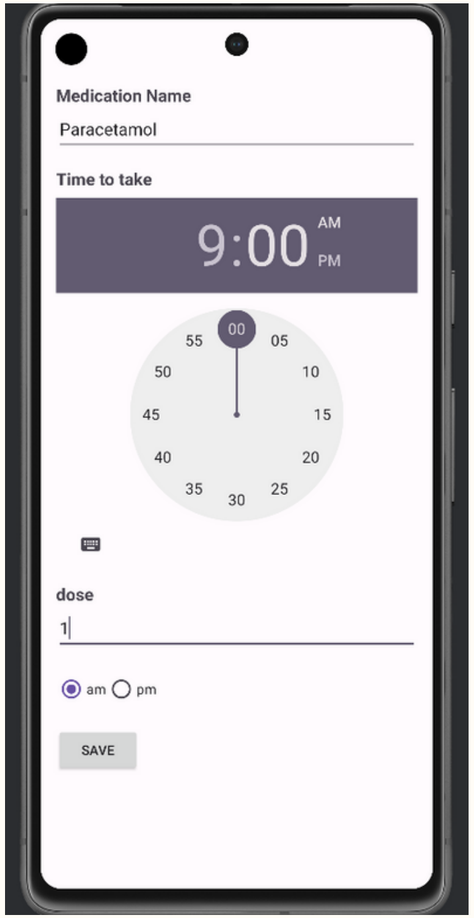




11:03
Medicines List
25 ml
9 PM
Medicines
Home
Profile


Heart Rate
Current HeartRate :
73 BPM


Steps
Steps Count :

Medication Name
Enter name of the medicine
Time to take
10:54
AM
PM
12
1
2
3
4
5
6
7
8
9
10
11
dose
Enter dose
am
pm
SAVE


Medication Name
Paracetamol
Time to take
9:00
AM
PM
00
05
10
15
20
25
30
35
40
45
50
55
dose
1
am
pm
SAVE

# CONCLUSION

CareWave has the potential to be a valuable tool for individuals seeking to improve their health and well-being. By combining real-time heart rate monitoring with AI capabilities, and the incorporation of medication reminders and alerts,the application can provide users with personalized insights into their health and identify potential risks.

# REFERENCES


- Philip, Jeethu, et al. "Smart Health Monitoring Using Deep Learning and Artificial Intelligence." Revue d'Intelligence Artificielle 37.2 (2023).

- Rahman, Muhammad Zia Ur, et al. "Real-time artificial intelligence based health monitoring, diagnosing and environmental control system for COVID-19 patients." Math. Biosci. Eng 19.8 (2022): 7586-7605.

- Rathi, Vipin Kumar, et al. "An edge AI-enabled IoT healthcare monitoring system for smart cities." Computers & Electrical Engineering 96 (2021): 107524.

# THANK YOU