Healthy Heart

A HEART DISEASE PREDICTION APP

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Capstone Presentation
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Problem Statement

Heart disease is a major public health concern, affecting millions of people worldwide. It is crucial to develop effective solutions for early detection and prevention.

"The greatest wealth is health"

—VIRGIL

THE SOLUTION

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HEALTHY HEART

- Backed by Machine Learning
- Precision Heart Disease Predictions
- Empowered Patient Recommendations

ABOUT HEALTHY HEART

USER FRIENDLY

INTERFACE FOR EASY INPUT OF HEALTH PARAMETERS

BACKED BY MACHINE LEARNING

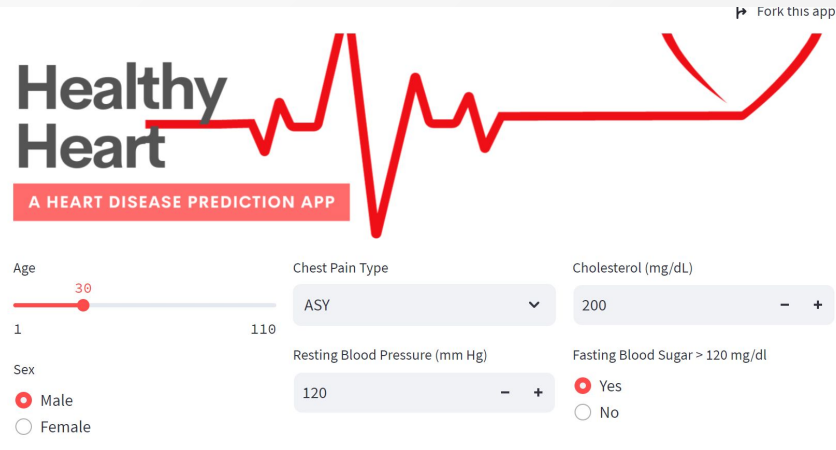PREDICTIONS BASED ON TRAINED RANDOM FOREST MODEL

REAL-TIME

FEEDBACK ON HEART DISEASE RISK

HOW TO USE HEALTHY HEART

Launch	To view the app go to: https://healthy-heart.streamlit.app/
Input Health Parameters	
Click Predict	
Review Results	

Healthy Hearty Development

Train Models

Choose Best Model

Tune Parameters

Integrate Model in App

Model Summary

01
Final Success Metric
Recall ~ 89%

02
ALGORITHM
Random Forest

03
Web App
Streamlit app
Healthy Heart

SNEAK PEEK

Here is a prototype of the webapp

Future Work

LAYOUT

Implement additional features like personalized recommendations

DATA

Incorporate more data sources to enhance background model performance

AUDIENCE

Enhance user interface for improved user experience

TESTING

Train models on larger datasets, refine app structure based on feedback and success metrics.

OUR RECOMMENDATIONS

MODEL

Use the machine learning model that performs the best: Random Forest

FEATURE

Create modular web app with main page, personalized recommendations

FEEDBACK

Create a feedback mechanism to address user needs

DATA

Train models with larger datasets

GPU

Optimize background model to leverage GPU available through Colab

TEST

Test the app performance against ground truth generated by expert created larger datasets.

THANKS!

Do you have any questions?

You can find out more at:

Repo:
https://github.com/dataeducator/healthy_heart

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Additional Credits

[1] Detrano, R., Jánosi, A., Steinbrunn, W., Pfisterer, M., Schmid, J., Sandhu, S., Guppy, K., Lee, S., & Froelicher, V. (1989). International application of a new probability algorithm for the diagnosis of coronary artery disease. American Journal of Cardiology.

[2] Jánosi, A., Steinbrunn, W., Pfisterer, M., & Detrano, R. (1988). Heart Disease. UCI Machine Learning Repository. https://doi.org/10.24432/C52P4X.

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[4] Rajpurkar, P., et al. (2017). Deep learning for chest radiograph diagnosis: A retrospective comparison of the CheXNeXt algorithm to practicing radiologists. PLOS Medicine, 15(11), e1002686. https://doi.org/10.1371/journal.pmed.1002686.