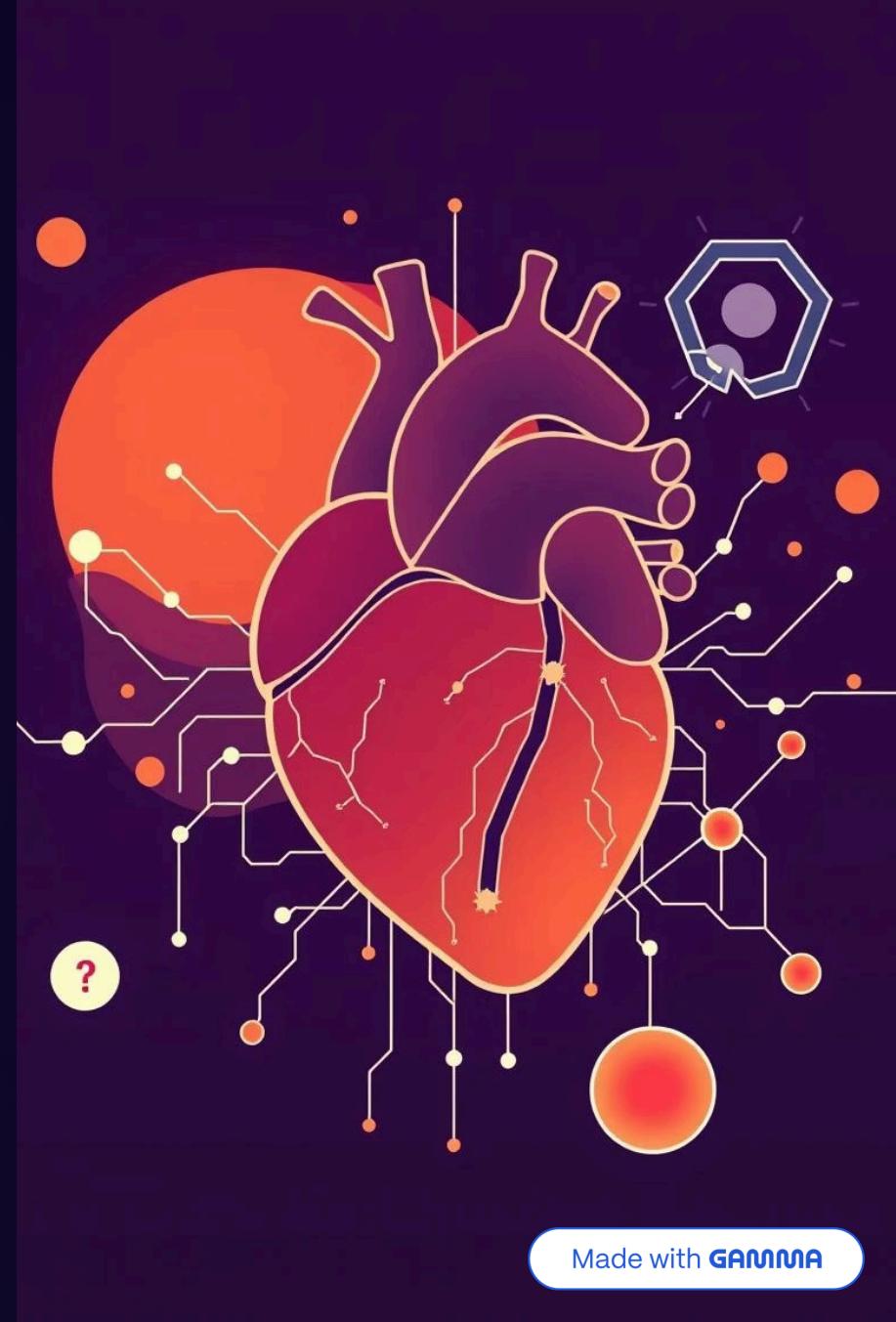


AI Heart Failure Detection System

Revolutionizing healthcare with intelligent predictive analytics.



The Challenge: Predicting Heart Failure

Heart failure is a leading cause of morbidity and mortality worldwide. Early and accurate detection is critical for effective intervention and improved patient outcomes.

Current Limitations

Traditional diagnostic methods can be time-consuming and may not always provide real-time risk assessments.

Opportunity for AI

Machine learning offers a powerful tool to analyze complex clinical data and predict outcomes with high accuracy.

Our Solution: An Intuitive AI System

We're developing a web-based AI system to assist in predicting heart failure risk, designed for educational and exploratory healthcare purposes.

User-Friendly Interface

A clean, intuitive Streamlit UI supports both manual input and CSV data upload for seamless interaction.

Real-time Predictions

Utilizing a pre-trained Random Forest model, the system provides immediate risk assessments (Success/Failure) based on clinical data.

Visual Analysis

Comprehensive visualizations and evaluation metrics enhance understanding for medical students and researchers alike.

Key Features & Functionality



Streamlined UI

Intuitive navigation with Home, Prediction, and Data Analysis pages.



Flexible Input

Manual form entry or convenient CSV file upload for batch predictions.



Insightful Visuals

Correlation heatmaps, class distributions, and performance metrics.



Model Transparency

Confusion matrix and classification reports for in-depth evaluation.

Robust Technical Architecture

Our system leverages a powerful and flexible tech stack to ensure performance, usability, and portability.

Core Technologies

- **Frontend/UI:** Streamlit
- **Backend/ML:** Scikit-learn, Pandas
- **Visualization:** Seaborn, Matplotlib
- **Model:** Pre-trained Random Forest Classifier (.pkl)



Ethical Considerations & Disclaimers

Our system is designed for educational and research purposes only, with clear disclaimers to prevent misuse.

✖ Important Disclaimer

This application is intended solely for educational and exploratory healthcare purposes and **should NOT be used for real patient diagnosis or treatment decisions.**

- Explicit warning displayed on homepage and prediction screen.
- Emphasizing the tool's role as a learning aid, not a diagnostic instrument.

Project Roadmap & Milestones

We have successfully completed the core development phases, and are now moving towards refinement and deployment.

1

Week 1

Data preparation and preprocessing completed.

2

Week 2

Model training and evaluation finalized.

3

Week 3

Streamlit frontend development underway.

4

Week 4

Integration of model and interface completed.

5

Week 5

Visualization, polish, and deployment preparation.

Future Enhancements & Contact

We envision continuous improvement and expansion of the system's capabilities.

Next Steps

- User authentication and admin dashboard.
- More interpretable models with SHAP values.
- Downloadable reports for each prediction.
- Real-time API endpoint for predictions.

Contact Us

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