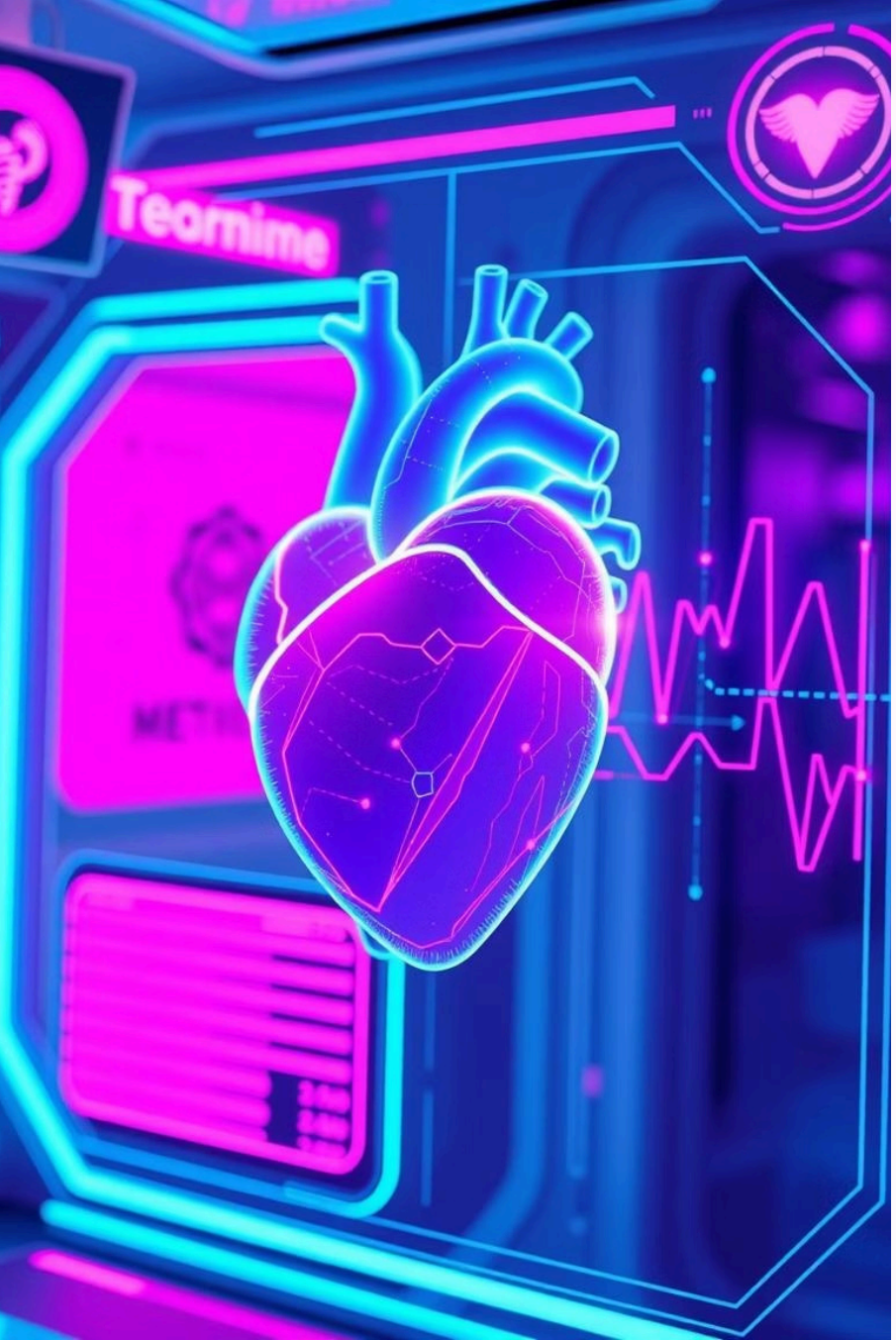


Heart Disease Prediction

This presentation explores various machine learning models for predicting heart disease. We will cover data processing, model implementation, and performance comparison.

by BALLAR NEETHU KUMARI

Heart Disease Prediction: The Critical Need

1 Global Health Crisis

Heart disease is a leading cause of death worldwide. Early detection can save lives.

2 Complex Risk Factors

Numerous genetic and lifestyle factors contribute. Identifying high-risk individuals is vital.

Healthcare Burden

Diagnosis and treatment strain healthcare systems. Proactive prediction reduces this load.

Enhancing Early Care

Accurate prediction allows for timely interventions. This significantly improves patient outcomes.

Data Overview and Preprocessing

1 Dataset Loading

The heart disease dataset was loaded using pandas.

It contains 303 entries and 14 columns.

2 Data Cleaning

No null values were found in the dataset.

Duplicate entries were identified and removed.

Logistic Regression Model

1 Model Training

Logistic Regression model was trained on the dataset.

2 Training Accuracy

Achieved 85.12% accuracy on the training data.

3 Test Accuracy

Achieved 81.96% accuracy on the test data.

Supprett mutrix. Mlvlimilres

1.5	5.5	12.5	3.9	03.5.5	8.5	5.5	5.5	5.3	5.5
1.9	5.0	31.3	5.9	5.3.7	8.8	5.5	5.6	5.3	5.0
3.4	5.5	35.5	3.0	36.3.3	8.7	5.8	5.5	9.5	5.5
7.0	5.0	48.0	3.0	4.9.9	8.7	8.7	8.1	9.6	5.0
3.6	3.0	13.4	3.0	09.9.9	3.5	5.5	3.9	5.5	3.3
4.0	5.0	39.5	5.4	45.4.9	8.5	3.5	3.5	9.9	5.2
3.5	1.5	39.5	5.9	8.9.5	8.5	5.5	3.5	9.5	5.2
1.8	1.0	19.5	3.9	14.8.9	3.8	5.0	3.5	5.5	5.0
1.0	1.0	35.5	3.0	09.4.7	5.9	3.3	3.0	9.5	9.2
1.3	1.5	15.5	3.4	09.4.8	8.9	8.5	4.6	9.3	9.3
1.0	1.0	55.5	3.6	3,3.7	8.9	3.9	3.5	9.0	9.1
1.7	1.5	38.0	3.6	03.3.9	4.5	3.5	3.5	5.7	9.2
1.5	5.5	22.5	5.3	04.4.9	9.4	9.5	8.3	9.5	9.2
1.1	5.5	31.5	7.0	57.9.5	8.5	8.3	5.5	5.5	5.5
3.5	3.5	55.5	3.0	48.7.9	8.5	5.5	3.5	3.3	5.3
1.6	5.5	55.5	5.7	03.8.5	5.5	5.3	5.3	6.5	5.3
5.8	5.5	32.5	3.0	02.9.3	8.5	5.5	5.6	7.7	5.9

instactel matrix

Support Vector Machine (SVM)

SVM Implementation

A Support Vector Machine with a linear kernel was used.

Training Performance

The training accuracy was 85.12%.

Test Performance

The test accuracy was 81.96%.

Ensemble Models: Random Forest & Gradient Boosting

Random Forest

Training accuracy: 100%

Test accuracy: 80.32%

Gradient Boosting

Training accuracy: 100%

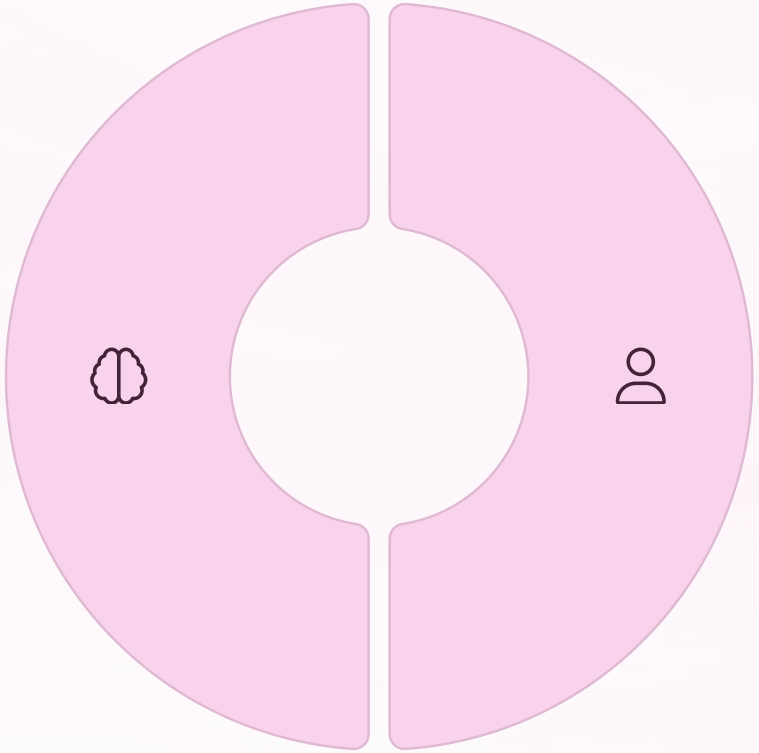
Test accuracy: 78.69%

Naive Bayes and K-Nearest Neighbors

Gaussian Naive Bayes

Training accuracy: 80.99%

Test accuracy: 78.69%



KNeighbors Classifier

Training accuracy: 76.85%

Test accuracy: 67.21%

Decision Tree Classifier

Model Setup

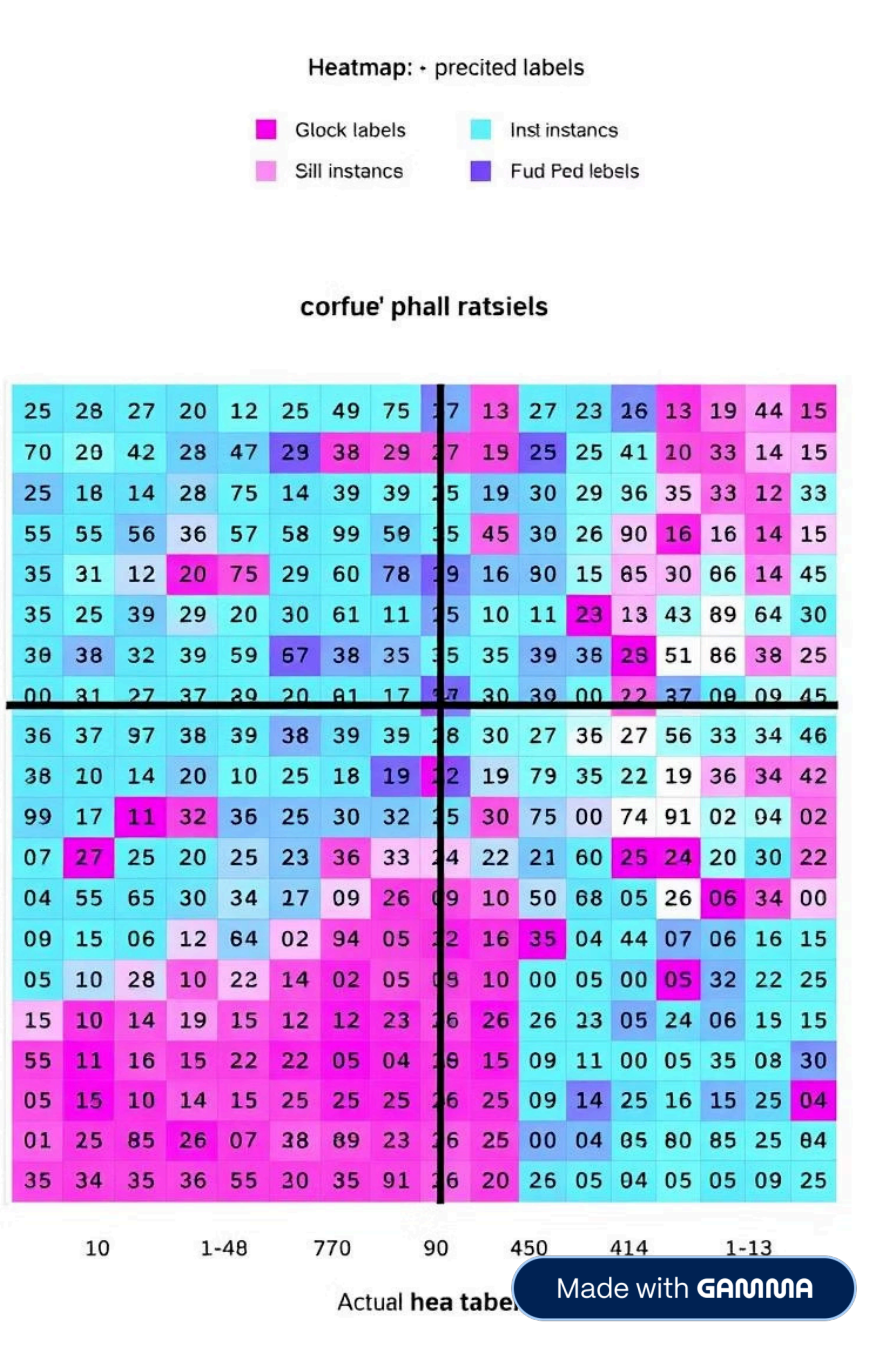
Decision Tree Classifier initialized with random state 42.

Training Accuracy

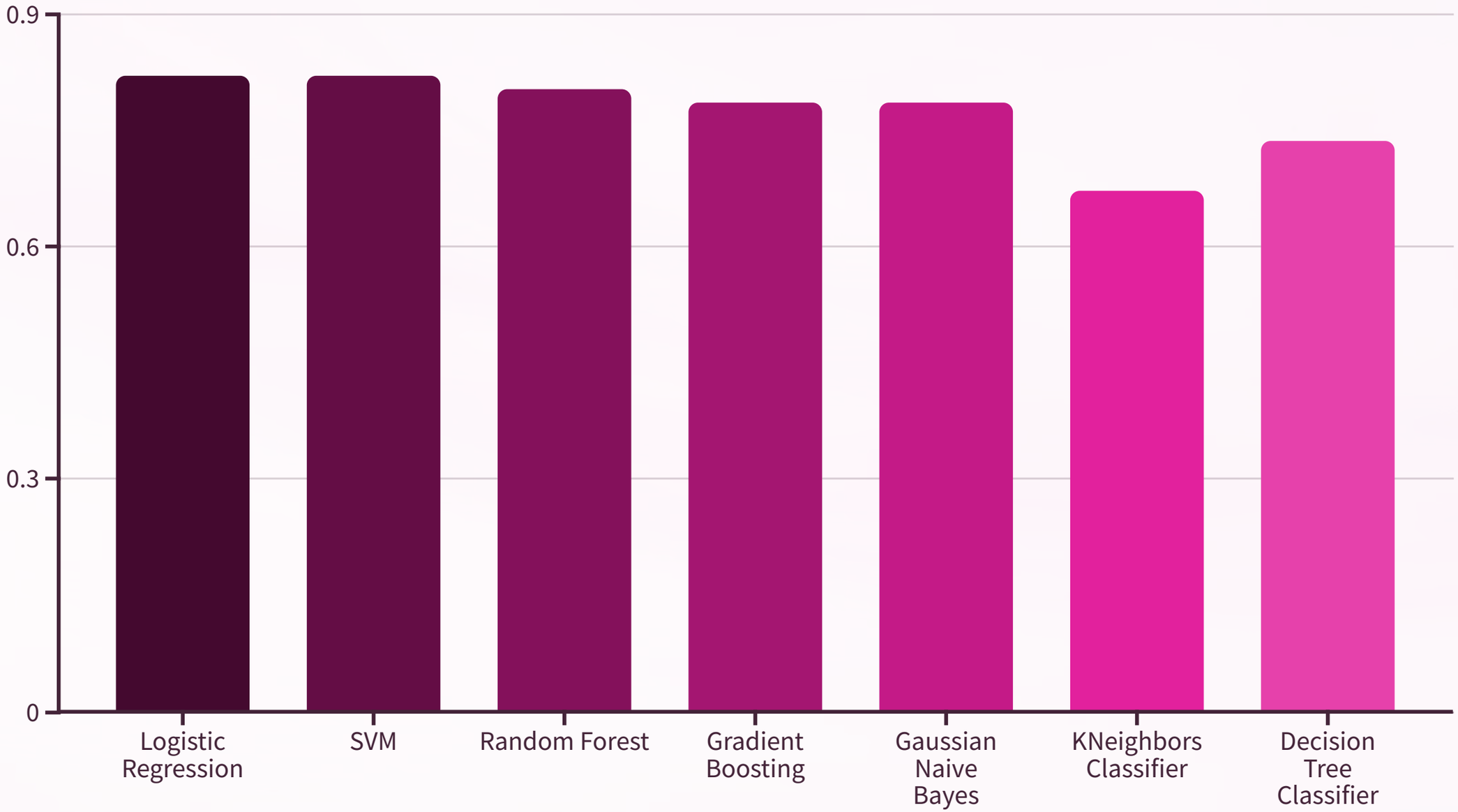
Achieved 100% accuracy on the training data.

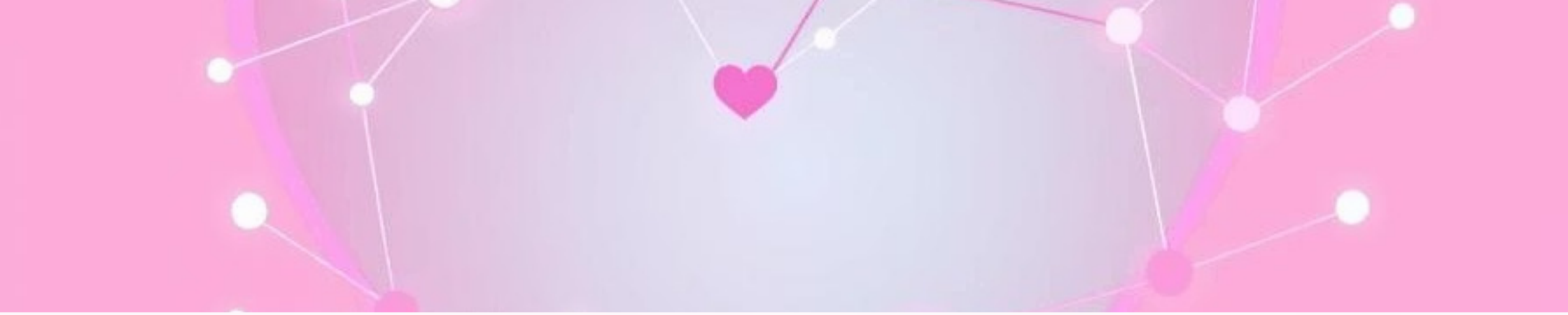
Test Accuracy

Achieved 73.77% accuracy on the test data.



Model Accuracy Comparison





Thank You

Your attention is appreciated. This project demonstrated effective heart disease prediction using various machine learning models.

Early Detection Focus

Accurate models support proactive patient care. Early detection can significantly save lives.

Promising Results

Logistic Regression showed strong baseline accuracy. Ensemble models like Random Forest achieved high training accuracy.

Future Enhancements

Further research can explore advanced deep learning. Integrating more diverse patient data could boost performance.