

Model	Model Metric	Accuracy	Precision	Recall	F1-score	AUC-ROC
Logistic Regression 1 (Handling outliers with KNN imputation)	Logistic Regression	0.867050	0.834508	0.867050	0.833919	0.822984
Logistic Regression 2 (Optimal feature selection with KDE Off-Diagonal, Box Plots, Violin Plots)	Logistic Regression	0.867050	0.834508	0.867050	0.833919	0.822984
Logistic Regression 3 (Feature engineering to create new features)	Logistic Regression	0.867523	0.835183	0.867523	0.833221	0.824142
Logistic Regression 4 (Switch to scaling with Robust Scalar vs Standard Scalar)	Logistic Regression	0.867523	0.835147	0.867523	0.833072	0.824144
Logistic Regression 5 (Check for multicollinearity using Variance Inflation Factor (VIF))	Logistic Regression	0.867392	0.835368	0.867392	0.834706	0.823500
Logistic Regression 6 (Apply GridSearchCV to optimize logistic regression)	Logistic Regression	0.867418	0.835438	0.867418	0.834782	0.823493
Logistic Regression 7 (Expanded GridSearchCV to optimize logistic regression)	Logistic Regression	0.867445	0.835481	0.867445	0.834772	0.823493
Logistic Regression 8 (Derive Feature Importances directly from optimized linear regression)	Logistic Regression	0.867445	0.835481	0.867445	0.834772	0.823493
Logistic Regression 9 (Add Calibration Curve and Odds Ratio to analyze linear regression)	Logistic Regression	0.867445	0.835481	0.867445	0.834772	0.823493
Logistic Regression 9 (Add Calibration Curve and Odds Ratio to analyze linear regression)	Random Forest	0.858220	0.823873	0.858220	0.831963	0.792333
Logistic Regression 10 (Optimize Random Forest)	Random Forest	0.861505	0.828025	0.861505	0.834254	0.802718
Logistic Regression 9 (Add Calibration Curve and Odds Ratio to analyze linear regression)	Gradient Boosting	0.869153	0.839325	0.869153	0.837701	0.828539
Logistic Regression 11 (Optimize Gradient Boosting)	Gradient Boosting	0.868785	0.838520	0.868785	0.837105	0.828541
Logistic Regression 12 (Optimize Gradient Boosting; expanded with early stopping)	Gradient Boosting	0.869021	0.839101	0.869021	0.837746	0.827785
Logistic Regression 12 (Optimize Gradient Boosting; expanded with early stopping)	Neural Network	0.868759	0.837817	0.868759	0.832559	0.828406
Logistic Regression 13 (Optimize Neural Network model)	Neural Network	0.865631	0.832618	0.865631	0.812128	0.824599

Legend
Decrease
No Change
Increase
Highest metric value in bold