Performance overview

The performance of the models shows varying levels of accuracy and AUC scores. Gradient Boosting, Logistic Regression, Random Forest, and the Support Vector Machine (SVM) achieved high accuracy scores around **89%**, with Gradient Boosting and Random Forest slightly outperforming others in terms of AUC (Gradient Boosting: **0.904**, Random Forest: **0.897**). Neural Networks also performed well, achieving an accuracy of **85%** and an AUC of **0.855**. Logistic Regression delivered a solid accuracy of **86.7%** and an AUC of **0.882**. On the other hand, k-Nearest Neighbors (kNN) and Naive Bayes underperformed, with accuracies of **83.5%** and **43.1%**, respectively, and relatively lower AUC scores. Overall, Gradient Boosting emerged as the best-performing model, excelling in both accuracy and AUC while maintaining balanced precision and recall across both classes.