

# To Study the Comparative Analysis of Classification Algorithms for Heart Stroke Prediction

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**Abstract:** *The area of artificial intelligence (AI) and its subfields are explored in this study, with a particular emphasis on machine learning (ML), deep learning, and natural language processing (NLP). By contrasting the effectiveness of Logistic Regression, K-Nearest Neighbors (KNN), Support Vector Classifier (SVC), Random Forest Classifier, Naive Bayes Classifier, and Decision Tree Classifier, the goal is to determine which classification algorithm is most accurate at predicting heart stroke. In order to identify possible overfitting problems, the algorithms are assessed based on training and testing accuracy. The results show that although Random Forest, Decision Tree, and Logistic Regression classifiers all had perfect training accuracy, there were differences in their test accuracy, which may have been caused by overfitting. Strong generalization skills with excellent testing accuracy were shown by KNN and SVC. The Recommendations for improving predictive performance and robustness in real-world healthcare applications and selecting models are provided in the study's conclusion.*

**Keywords:** Artificial Intelligence, Machine Learning, Classification Algorithms, Stroke Prediction