

Empirical Study on Evaluation Metrics for Classification Algorithms

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Abstract: *Classification algorithms are widely used in many fields, and the performance of these algorithms depends on various factors, including the evaluation metrics used. While numerous evaluation metrics have been proposed, there is no consensus on which metric is the most suitable for different classification problems. This empirical study aims to evaluate and compare the performance of different evaluation metrics, including accuracy, precision, recall, F1-score for binary and multiclass classification problems. The study is conducted on various datasets, including real-world and simulated data. Our findings suggest that the choice of evaluation metric depends on the classification problem's characteristics, and no single metric is universally best. The results of this study can assist practitioners and researchers in selecting the most appropriate evaluation metric for their classification problems, contributing to the ongoing discussion on the effectiveness of different evaluation metrics for classification algorithms.*

Keywords: precision, recall, accuracy, classification

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