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Utilizing Polynomial Regression in Predictive Analytics for Heart Failure Mortality: A Clinical Data Perspective

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Abstract: *Machine learning has become a powerful tool that provides the ability to improve predictive analytics and clinical decision making in healthcare. In this study, we investigated the use of control learning algorithms, specifically polynomial regression combined with logistic regression, to predict the probability of death in patients with heart disease. Using a cardiovascular dataset containing features such as age, blood pressure, and ejection fraction, we use polynomial feature transformations to capture complex patterns in the data. Logistic regression was then used to predict the probability of death. With an accuracy of 80%, the model performed well in predicting survival but showed moderate improvement in identifying patients at risk of death. These results indicate that further development is needed to improve the model's performance. The aim of this study was to evaluate the effectiveness of the algorithms in predicting mortality from heart failure.*

Keywords: Machine Learning, Polynomial Regression, Logistic Regression, Heart Failure.

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