CUSTOMER LIFETIME VALUE (CLV) PREDICTION FOR OPTIMIZED MARKETING AND RETENTION

ABSTRACT

Customer Lifetime Value (CLV) prediction is a crucial aspect of modern marketing and customer relationship management, enabling businesses to allocate resources effectively and maximize long-term profitability. This project leverages machine learning techniques to develop a predictive model for estimating CLV based on historical customer interactions, purchasing behaviour , and engagement patterns .The proposed system utilizes supervised learning algorithms such as regression models (e.g., Linear Regression, Random Forest, XGBoost) and deep learning approaches (e.g., Neural Networks) to forecast the future value a customer will bring to the business. Key features include transaction frequency, recency, monetary value, customer demographics, and behavioural attributes. Advanced techniques such as feature engineering, time series analysis, and hyperparameter tuning enhance model performance.

By accurately predicting CLV, businesses can optimize marketing strategies, personalize customer engagement, and improve retention efforts. The insights derived from the model enable data-driven decision-making, helping organizations focus on high-value customers, reduce churn, and increase overall revenue. This project demonstrates the power of machine learning in transforming raw customer data into actionable intelligence, driving business growth and efficiency.

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