PROJECT REPORT

- ## INTRODUCTION:

In the current competitive business environment, grasping and enhancing customer relationships has emerged as a fundamental element for achieving sustainable growth. A key metric that allows companies to evaluate the long-term value of their customers is Customer Lifetime Value (CLV). CLV indicates the total net profit a business anticipates earning from a customer throughout the entire duration of their relationship. Accurately forecasting CLV empowers organizations to make strategic decisions regarding marketing, customer acquisition, retention strategies, and resource distribution. A Customer Lifetime Value Prediction Model utilizes historical customer data, behavioral trends, and sophisticated analytical methods—often based on machine learning and statistical analysis—to project future revenue from individual customers or customer segments. By recognizing high-value customers early and customizing engagement strategies, businesses can boost profitability, improve customer satisfaction, and minimize churn. As data becomes more plentiful and accessible, the creation of effective CLV prediction models has evolved from a theoretical concept to a practical requirement. This introduction delves into the importance, methodology, and effects of CLV prediction models, paving the way for a deeper understanding of their development and real-world applications.

- ## ABSTRACT:

Customer Lifetime Value (CLV) measures the expected net profit from a customer throughout their relationship with a business. Accurate CLV forecasting helps organizations make better decisions on customer segmentation, marketing spending, retention strategies, and overall business planning. This paper explores various CLV prediction models, from traditional statistical methods to modern machine learning techniques, and examines key factors influencing CLV, such as transaction recency, frequency, and revenue. It also discusses challenges in model development, including data quality, feature selection, and interpretability. By implementing effective CLV models, businesses can gain a competitive edge through personalized customer experiences and optimized resource use, highlighting the growing importance of predictive analytics in customer relationship management.

- ## TOOLS USED:

1) Python Programming Language (For Data Analysis)
2) Jupyter Notebook (IDE)
3) MS Excel (For Data Cleaning and Pre-processing)

- ## STEPS INVOLVED:

1) Find out recency, frequency and average order value (or Revenue) of customers.
2) Divide them into clusters for each of RFA (group similar type of customers together). Give a score to customers for each of RFA.
3) Get an overall score for each customer.
4) Overall score is based on recency, frequency and average value order scores.
5) Label overall scores as High-Value, Mid-Value and Low-Value CLV.
6) Train and fit one (or more) Machine Learning model.
7) Predict the future CLV score based on the ML model.

- **CONCLUSION:**

Customer Lifetime Value (CLV) prediction models have become vital instruments for contemporary businesses seeking to cultivate enduring and profitable relationships with customers. By utilizing historical data and predictive analytics, these models provide crucial insights into anticipated customer behavior and revenue opportunities. This empowers organizations to focus on high-value customers, refine marketing strategies, and allocate resources more efficiently. As technological progress continues to improve data gathering and modeling techniques, CLV prediction models are set to assume an increasingly important role in strategic decision-making. Nevertheless, the effective application of these models requires careful attention to data quality, model choice, and the specific business context. Ultimately, incorporating CLV prediction into business operations not only enhances profitability but also promotes a more customer-focused strategy for growth and retention.