Project Proposal

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Topic: Predictive Analysis of Customer Lifetime Value and Policy Preferences in the Insurance Industry.

1.Introduction:

This project aims to analyze a dataset containing information about customers in the insurance industry to gain insights into their lifetime value, policy preferences, and factors influencing their behaviours. (Pavel Jasek 1ORCID, 2018) By employing predictive modelling techniques and statistical analysis, this project aim to uncover patterns and trends that can inform strategic decision-making for insurance companies. (Yuechi Sun, 2023)

Research Question: How can we predict customer lifetime value and policy preferences in the insurance industry using demographic and financial indicators and what insights can be derived to inform strategic decision-making for optimizing marketing strategies, product offerings, and customer retention?

2.Aim:

1. Explore the relationship between customer demographics, financial indicators, and insurance-related variables.
2. Predict customer lifetime value based on historical data and customer attributes.
3. Understand the factors influencing policy preferences and claim behaviours.
4. Provide actionable insights for insurance companies to optimize marketing strategies, product offerings, and customer retention efforts.

3.Methodology:

Data will be treated in several stages: including cleaning, preprocessing, exploratory data analysis (EDA), feature engineering, and model selection and tuning. The Missing values and outliers will be handled. Also the Python and various libraries like Pandas, NumPy, Scikit-Learn, and Matplotlib will be used to implement the project.

4.Analysis:

The Several ML models such as decision trees, logistic regression, and random forests will be used to predict customer lifetime value and policy preferences. The accuracy and performance of these models will be evaluated using several relevant metrics.

5.Dataset:

The dataset used for this project is sourced from Kaggle and contains information about customers in the insurance industry. It includes features such as customer ID, gender, area, qualification, income, marital status, vintage, claim amount, number of policies, and policy type. The dataset can be accessed at Kaggle Dataset: https://www.kaggle.com/datasets/shivamshinde123/customer-life-time-prediction

6. References

Machine Learning for Customer Lifetime Value Prediction in B2B Markets (Journal of Business Research):

https://www.sciencedirect.com/science/article/pii/S2405844023005911

Customer Lifetime Value Prediction Using Machine Learning: A Review of the State of the Art (MDPI- Journal of Risk and Financial Management):

https://www.mdpi.com/2227-9709/5/1/2