

Predicting Customer Interest in Vehicle Insurance



Project Overview

- ICEA Lion Group is expanding its offerings beyond life insurance policies to include vehicle insurance.
- The company aims to cross-sell motor vehicle insurance to its existing customers who have life insurance policies.
- Aim is to employ predictive modeling techniques to optimize sales and revenue growth.



Business Problem

Challenges

- Identifying right cross-selling opportunities
- Lack of personalization
- Measuring success

Strategic Approach

- Use predictive modelling techniques to gain insights that will allow for precise prediction of the likelihood that current life insurance policyholders will show interest in Vehicle Insurance.

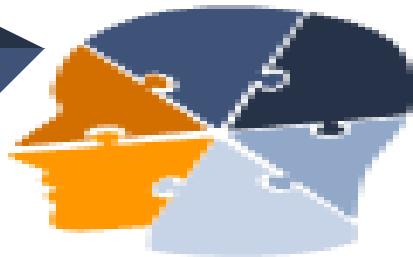


Objectives

- ❑ Identify factors that influence life insurance policy holders interest in motor vehicle insurance.
- ❑ Evaluate performance of different machine learning models in insurance cross-selling by comparing accuracy metrics.
- ❑ Identify machine learning model that shows superior performance in predicting the likelihood of a customer accepting an offer for vehicle insurance.

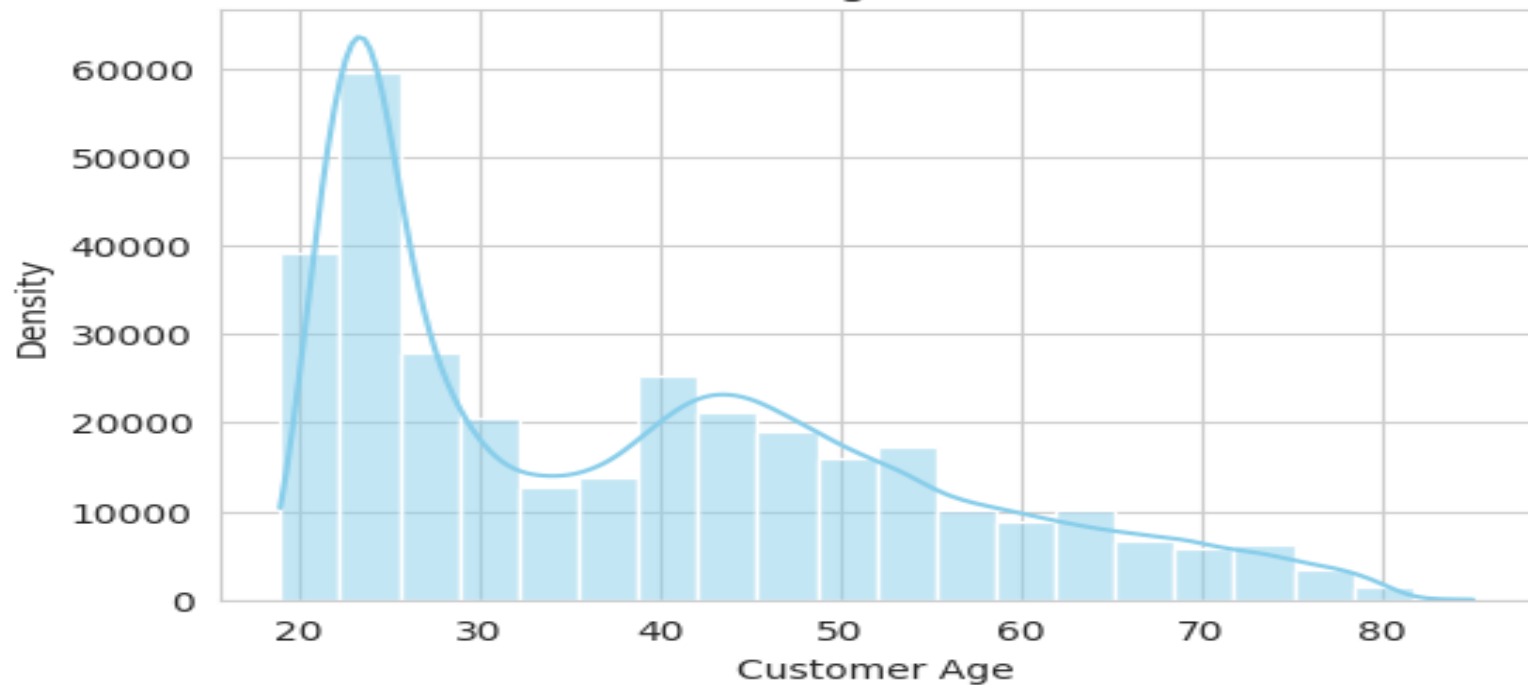


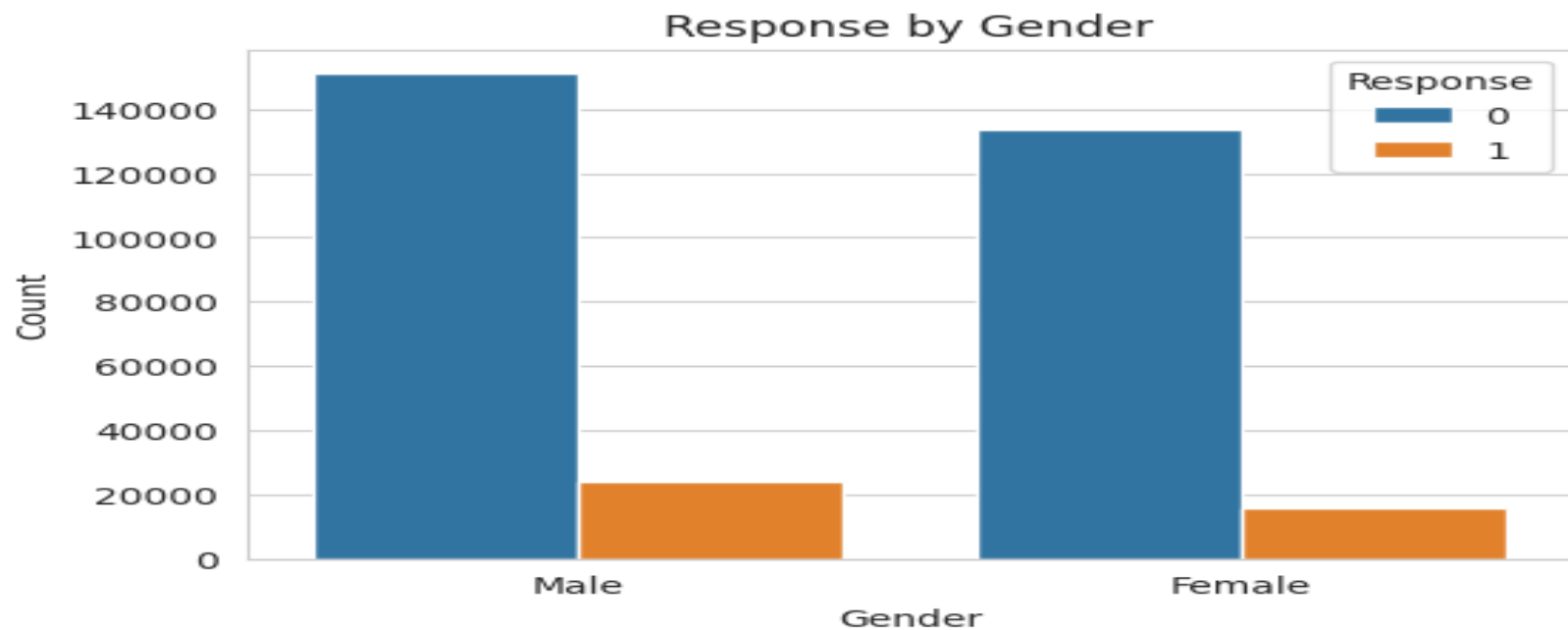
Research Questions



- ☐ What factors influence a life insurance policyholder's interest in purchasing vehicle insurance?
- ☐ How do different machine learning models perform in cross-selling insurance and how do their accuracy metrics compare?
- ☐ Which machine learning model is the most effective in predicting the likelihood of a customer accepting an offer for vehicle insurance?

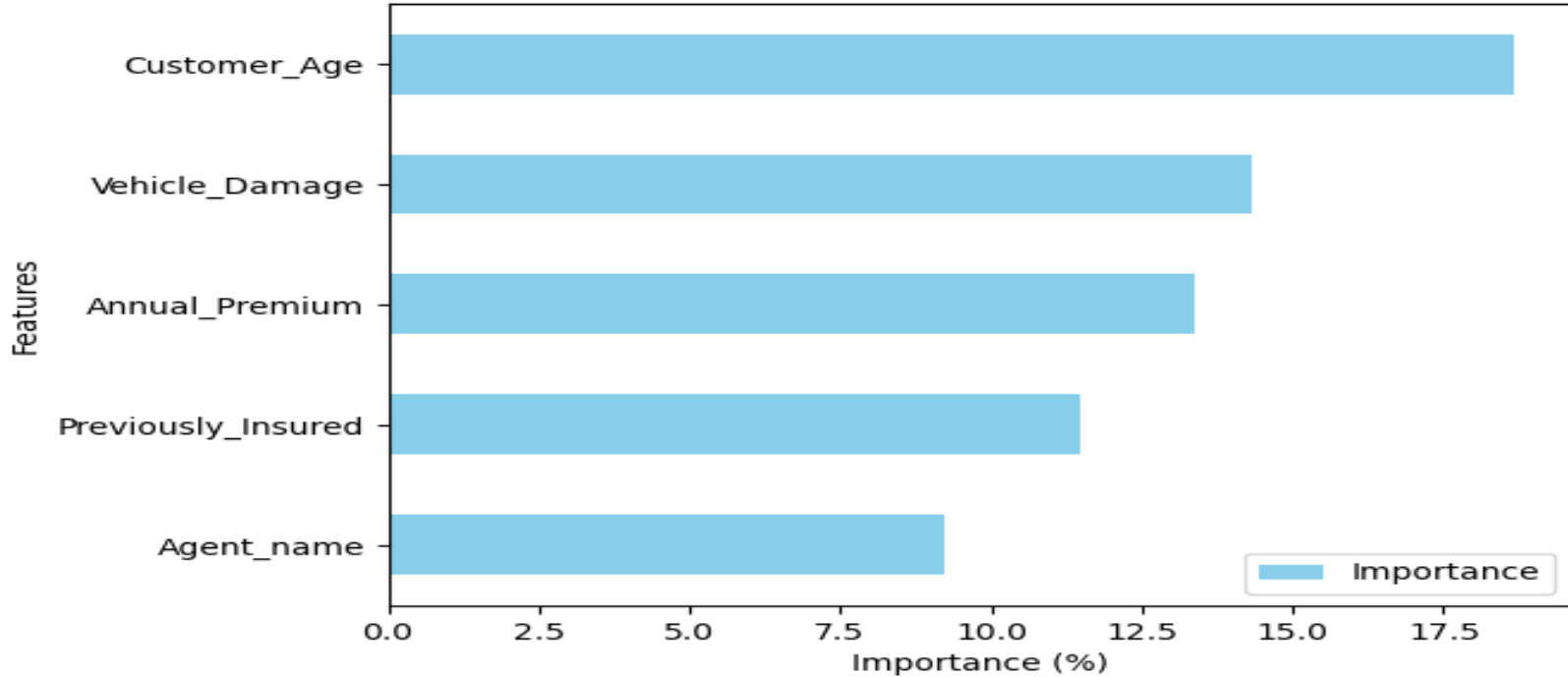
Customer Age Distribution





Feature Importance

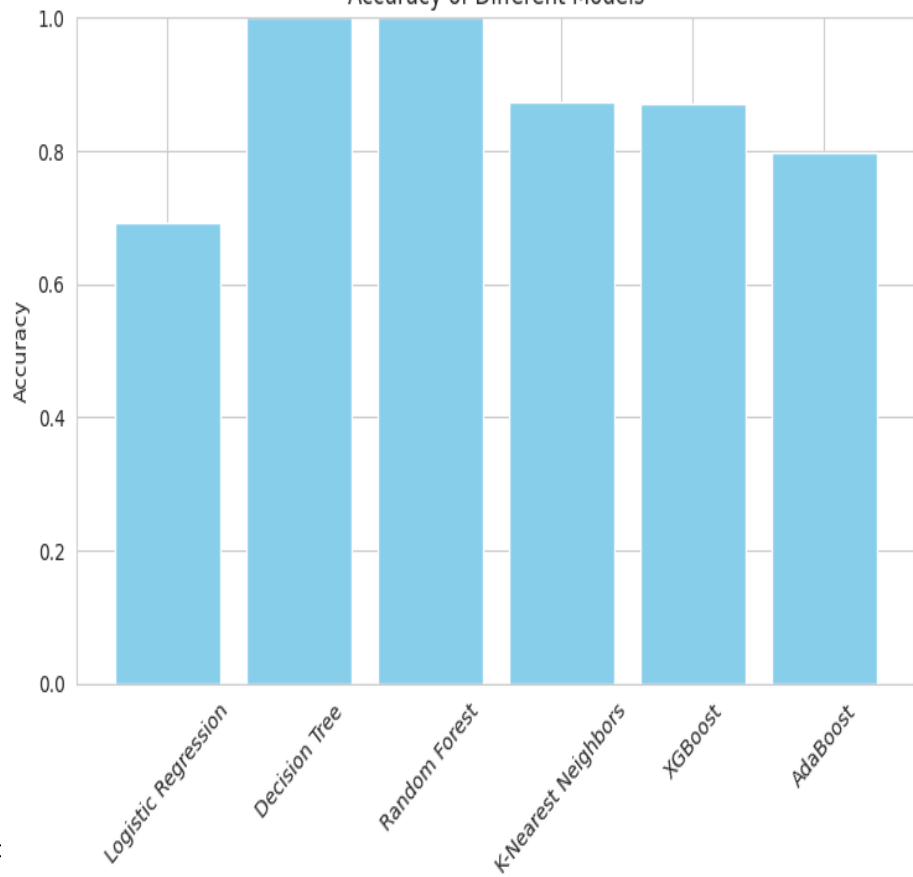
Top 5 Feature Importance Levels



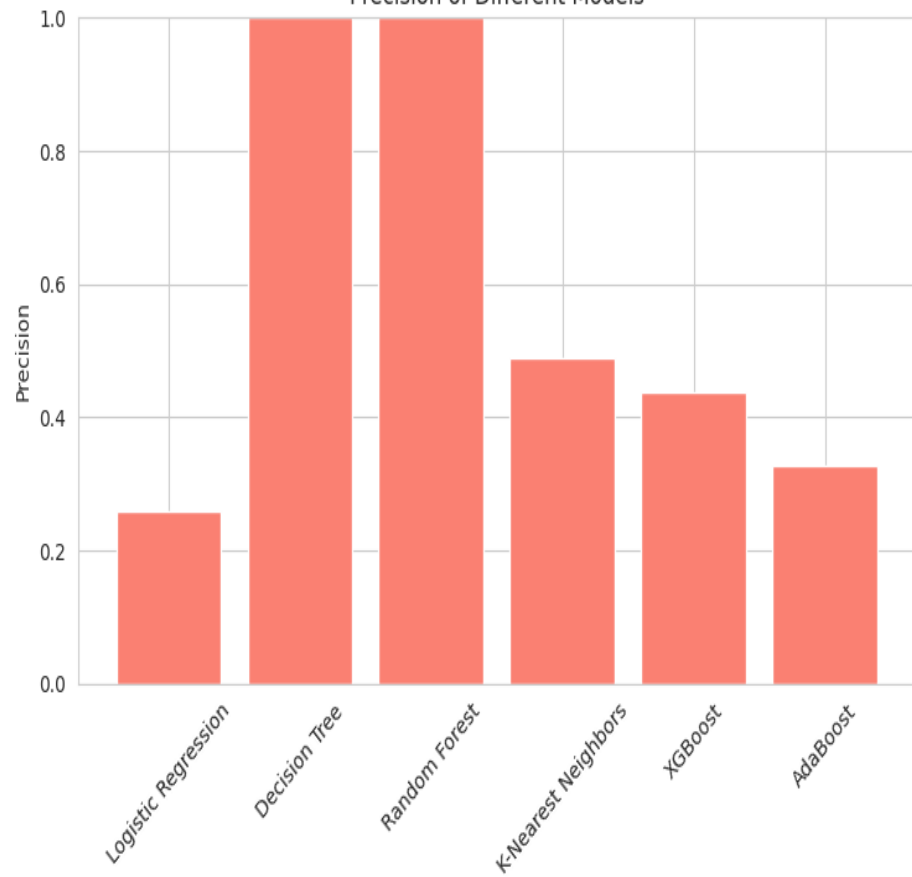
- ❑ Whether vehicle has previous damage and whether it has been insured previously are two most important features



Accuracy of Different Models



Precision of Different Models





Findings

- ❑ Gen X(1965-1980) and Millennials(1981-1996) are more likely to buy motor vehicle policy
- ❑ Customers with history of accidents/repairs 23% likely to buy motor vehicle policy.
- ❑ Top Sales Agents with Jomo and Njoroge leading in cross sale conversions way ahead of the rest.
- ❑ Males are 4% likely to buy policy compared to females
- ❑ 23% of policy holders previously insured are likely to buy motor vehicle policy
- ❑ We've 12% chance of converting a customer with a DL compared to 5% without DL



Conclusion

- Random Forest has the highest prediction accuracy and we recommend ICEA Lion Group to use the model for prediction.
- The company needs to focus on the history of vehicle damage and the customers' vehicle insurance background to refine its marketing and communication strategies.



Recommendations

- ☐ Target previously insured customers through policy upgrades & renewal incentives.
- ☐ Customize marketing messages for customers who have experienced previous vehicle damage, emphasize on comprehensive coverage.
- ☐ Consider age-specific needs.
- ☐ Provide customized insurance options based on the age of the vehicle to ensure all customers receive comprehensive protection.
- ☐ Utilize sales agents for personalized recommendations.



THANKS!

Any questions?