

Cūstomer Lifetime Value°

Of Google Merchandise Store



Team 9

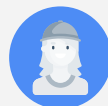
Start!



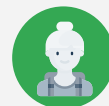
Chu-Hsuan Tsao



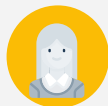
I-Ju Lin



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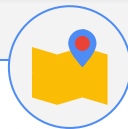


Zhaoying Ren





1.Introduction



Why should use pCLV model

- Target and invest on right customers
- Identify important factors related to future revenue
- Develop a smarter bidding strategy associate with Google Ads



Google Ads



14

Key Variables Considered
in Modeling



40%

Reduced in MAE



6

Key Takeaways



2.Variables Selection



6 groups of variables

First purchase:

- First purchase
- First purchase sessions
- First purchase hits

A week after first purchase:

- First week sessions
- First week hits

Future purchase

- Future purchase



Geographical



Time



Psychology



Browsing website
Habits



Customer Action



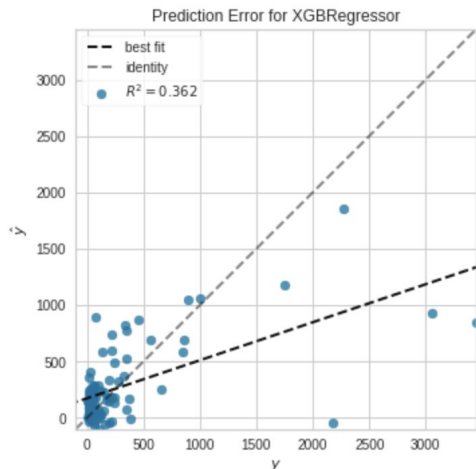
3.Modeling



Regression Model

- Variable Selection: regard **0.16** as a relatively high correlation level
- Models: LinearRegression, DecisionTree, RandomForest, and Gradient Boost, **XGBoost**

Prediction Error Plot



Initial model:

Training R-Squared: 0.13

Testing R-Squared: 0.1



Regression model:

Training R-Squared: 0.58

Testing R-Squared: 0.36

Final predict Model

- Classification model: Gaussian Naive Bayes(ROC:0.58)
- Final Model: [Regression Model Prediction] * [Average Repeat Purchase Rate] (**regression only model**)
- Reduce the MAE by more than **40%**

Naive MAE: 31.59
Naive RMSE: 70.2
Naive Avg Error: 10.83

Initial Model MAE: 26.55
Initial Model RMSE: 72.86
Initial Model Avg Error: -5.54

Regression Only Model MAE: 18.76
Regression Only Model RMSE: 69.25
Regression Only Model Avg Error: -3.7

Classification Only Model MAE: 30.98
Classification Only Model RMSE: 102.72
Classification Only Model Avg Error: 10.1

Predict_model_MAE MAE: 37.37
Predict_model_MAE RMSE: 141.6
Predict_model_MAE Avg Error: 16.5



4.Recommendations



1

Pop-coupon to encourage **more interaction**

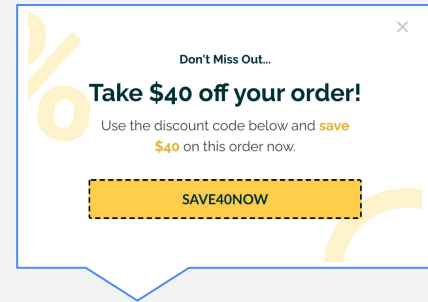
2

Allocate advertising budget on **Q4**

- Christmas, Halloween, Thanksgiving, Black Friday, Cyber Monday etc.

3

Target customers who pay **more** in the **first order**





4.Recommendations



4

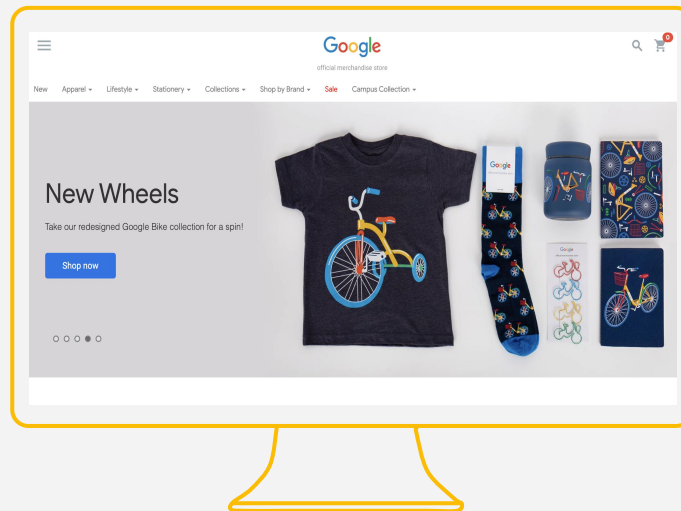
Provide special offers on **office** goods, **lifestyle** items and **electronic** products

5

Target Chromebook users who used **ChromOS** as their main operation system

6

Efficient allocation of ads budget by focusing more on **direct visitors**





5. Conclusion



pCLV model could be applied to other business



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Thanks

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