Streamlit Uygulama 1

Custom Purchase Analysis

☐ Show dataframe

☑ Show describe statistic

	count	mean	std	min	25%	50%	75%	max
Age	1,500	44.2987	15.5373	18	31	45	57	70
Gender	1,500	0.5047	0.5001	0	0	1	1	1
AnnualIncome	1,500	84,249.1643	37,629.4931	)1.5125	,028.9792	,699.5815	,167.7729	,785.1765
NumberOfPurchases	1,500	10.42	5.8874	0	5	11	15	20
ProductCategory	1,500	2.0127	1.428	0	1	2	3	4
TimeSpentOnWebsite	1,500	30.469	16.9844	1.037	16.1567	30.9395	44.3699	59.9911
LoyaltyProgram	1,500	0.3267	0.4692	0	0	0	1	1
DiscountsAvailed	1,500	2.5553	1.7052	0	1	3	4	5
PurchaseStatus	1,500	0.432	0.4955	0	0	0	1	1

Visualization Options

Select visualization type

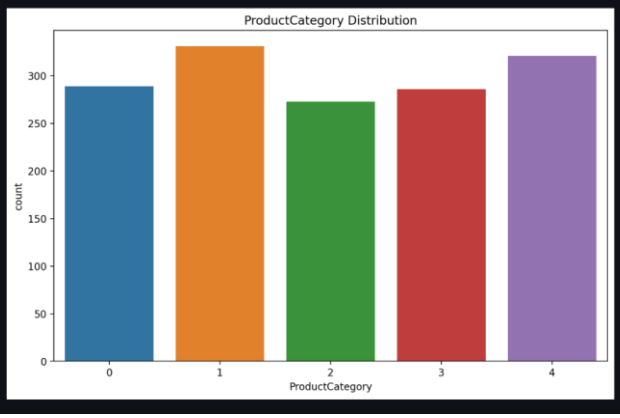
Categorical

Categorical Features

Select categorical feature

ProductCategory

ProductCategory Distribution



Visualization Options

Select visualization type

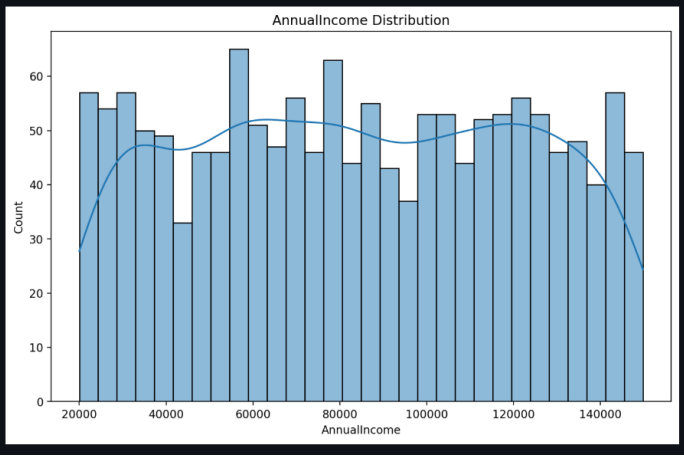
Numerical

Numerical Features

Select numerical feature

AnnualIncome

AnnualIncome Distribution



Classification Model Evaluation

Which algorithm?

Decision Tree

- Decision Tree
- Random Forest
- Support Vector Machine
- LightGBM

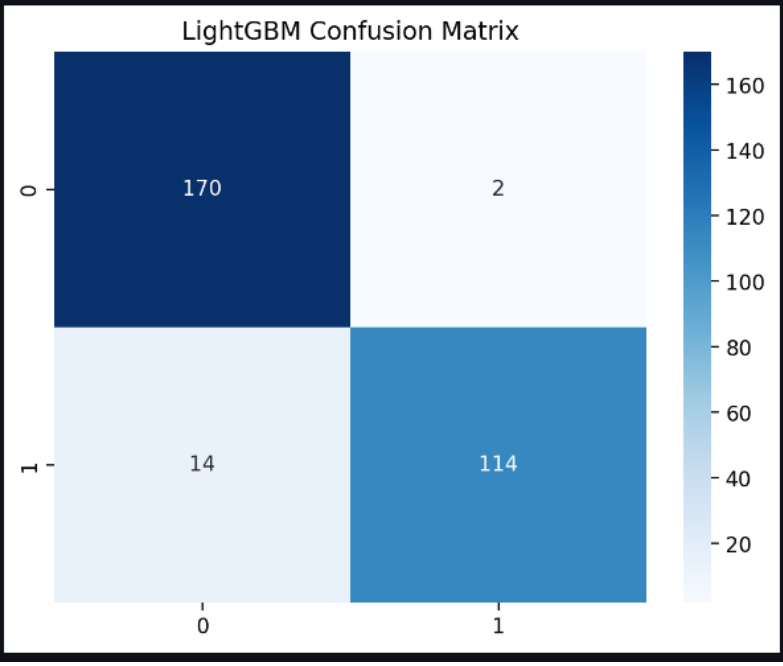
Which algorithm?

LightGBM

LightGBM Metrics

	Metric	LightGBM
0	Accuracy	0.9467
1	Precision	0.9828
2	Recall	0.8906
3	F1 Score	0.9344

LightGBM Confusion Matrix



Study Summary

In this study, three classification models were evaluated for predicting customer purchase behavior:

- Random Forest
- Decision Tree Classifier
- Support Vector Machine (SVM)
- LightGBM

Random Forest ve LightGBM stood out with high accuracy, precision, recall, and F1 scores. These model are recommended to predict customer purchasing behavior due to their reliability and good performance.