PRESENTATION

PHASE 3 PROJECT

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OVERVIEW

creating a model that has a high prediction for customers that will stop working with Syria telecommunication company that is having a high revenue lose due to the customers that stop working with them.

BUSINESS PROBLEM

1 high revenue lose in the Syria telecommunication company

2 identification of churns in the Syria company.

OBJECTIVES

1. predict whether a customer would leave so Syria telecommunication can intervene early and reduce revenue loss
2. creating a model that is at least 92% accurate
3. create a model that has few missed churns.

DATA DESCRIPTION

the Syria dataset contains 21 columns such as states ,churns for customers that let the company, number voice mail messages and many others.5 rows containing different datatypes.

STEPS

- data loading
- dta cleaning
- creation of models
- evaluation of models
- recommendation
- conclusion

DTA LOADING

in the data loading ,loaded the dataset into pandas to create a data frame that was used in the project processes

DATA CLEANING

find if there is any miss data in the dataset ,drop the columns that are not needed, chane the numerical data to categorical data by encoding.

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LOGISTIC REGRESSION MODEL

identifying the features and the target, train_ test split the model, scaling the model, creating and fitting the model then making predictions

EVALUATION

it is 74% accurate ,and 33% of the customers predicted to leave actually do and 29 customers predicted to stay actually stayed meaning there was revenue loss that was not accounted for.

DECISION TREE

identify the feature and target ,train_ test split the model ,creating the model and fitting the model then making predictions.

EVALUATION

it is 90% accurate,66% of the customers predicted to leave actually left,36 customers predicted to stay actually left.

TUNED DECISION TREE

defining the grid parameters, running grid search CV, identify the best model.

EVALUATION

it is 92% accurate ,76% of the customers predicted to leave actually left,32 predicted to stay actually left.

RECOMENDATION

- the Syria telecommunication company should use the model with the highest accuracy.

- they should use the model with at least 75% prediction of the churns.

CONCLUSIONS

- the tuned model achieves high predictive accuracy while maintaining strong churn detection, making it more effective for balancing revenue protection and customer retention cost.