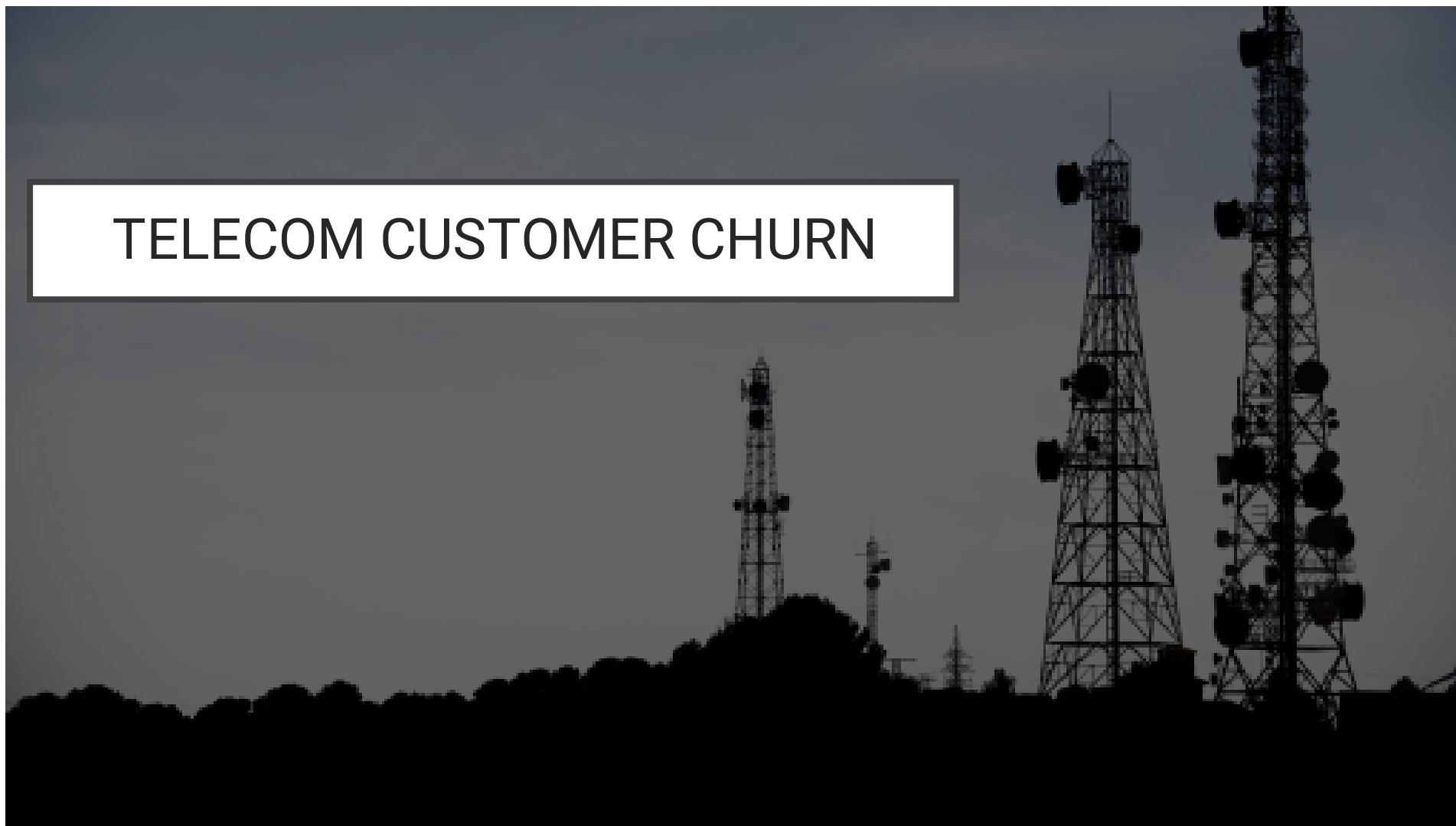


TELECOM CUSTOMER CHURN



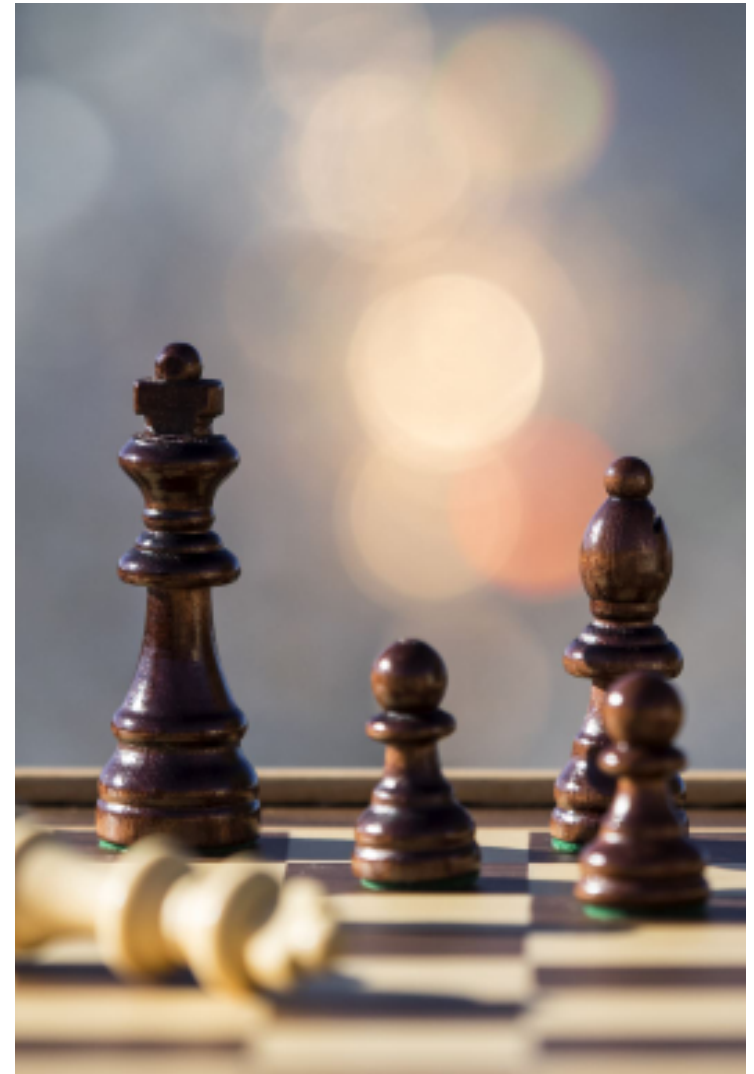
GROUP MEMBER INFORMATION

- Mukul Rai 700748568
- Shiva Godesala 700733582
- Jaya Sai Charan Sammeta 700739775
- Shruthi Vallap Reddy 700744517



ROLES AND RESPONSIBILITIES

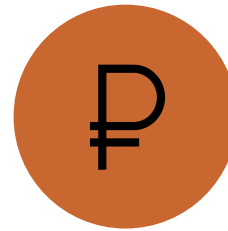
- Mukul - ML techniques, Report
- Shiva - PPT, Report
- Jaya sai charan - Papers collection, Report
- Shruthi - Exploratory Data Analysis, Report



MOTIVATION



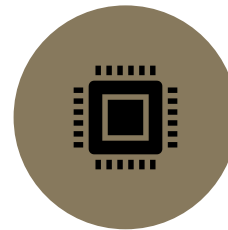
Customer churn can have a significant negative impact on telecom companies.



Acquiring new customers can be significantly more expensive than retaining existing ones.



Predicting customer churn allows telecom companies to proactively address customer concerns and improve the overall customer experience.



Today's highly competitive telecom industry, gaining a competitive edge is crucial.

OBJECTIVE



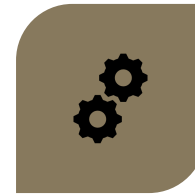
Develop A churn prediction model



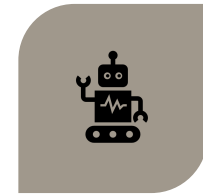
Obtain the relation between the customer's characteristics and the churn



Provide the telecom companies an easy and effective way to predict customers who are going to churn

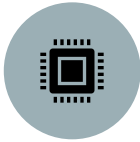


Gain competitive advantage



Increase customer retention

RELATED WORK



Presents a comprehensive review of various machine learning algorithms used for churn prediction in the telecom industry.



Random forests, gradient boosting, and deep learning for churn prediction in the telecom industry.



A comparative study of machine learning algorithms for predicting customer churn in the telecom industry.

PROBLEM STATEMENT



Customer churn is a critical challenge faced by many businesses across various industries.



Losing customers can result in revenue loss, reduced market share, and increased costs to acquire new customers.



To proactively address this issue, businesses need to identify customers who are likely to churn and take appropriate actions to retain them.



Predictive model that can accurately forecast which customers are at risk of churning.

PROPOSED SOLUTION



High-level implementation outline for telecom churn prediction using logistic regression, support vector machine (SVM), adaptive boosting (ADA), XGBoost, and random forest algorithms.



Logistic regression is a binary classification technique that is commonly used for churn prediction.



Using ADA in telecom churn prediction can provide telecom companies with a powerful tool to accurately identify customers at risk of churning and take appropriate actions to retain them.

RESULTS

```
models = ['Logistic regression model', 'Random Forest', 'Support Vecor Machine (SVM)', 'ADA Boost', 'xgboost']  
accuracy_scores = [lrR, rforestR, svmR, AdaBoostR, xgboostR]  
  
df = pd.DataFrame({'Model Name': models, 'Accuracy Score': accuracy_scores})  
print(df)
```

	Model Name	Accuracy Score
0	Logistic regression model	0.807583
1	Random Forest	0.808813
2	Support Vecor Machine (SVM)	0.820185
3	ADA Boost	0.815920
4	xgboost	0.809524

Fig 01: Comparison of model accuracy

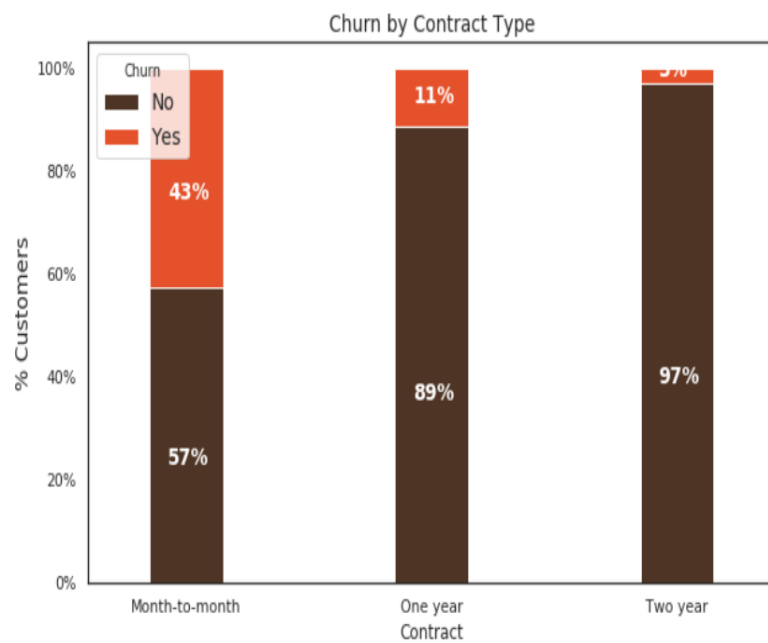


Fig 1 Churn by contract type

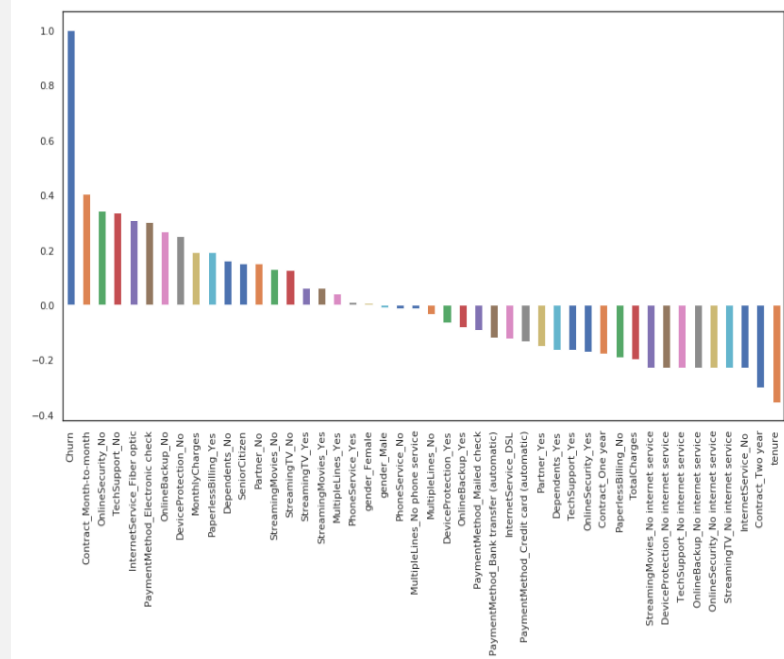


Fig 2 Churn with other variables

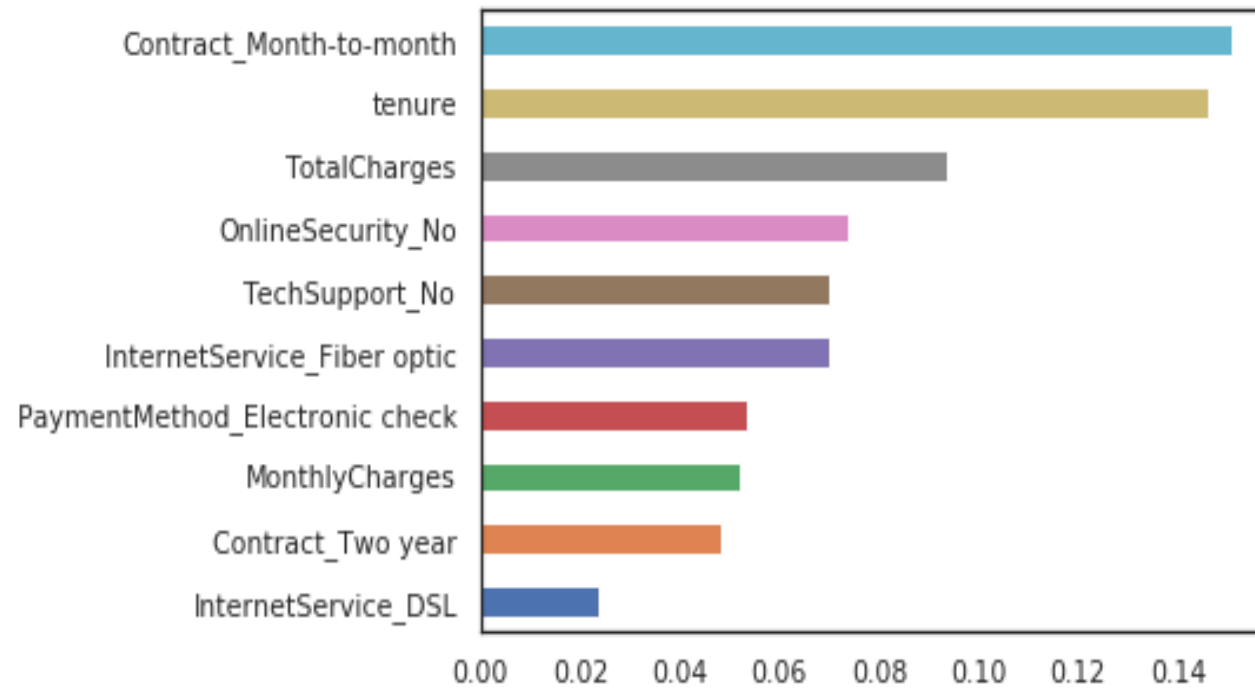


Fig 4: Features Importance graph

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- [2] Gunes, E., & Buyukyilmaz, Y. (2019). Predicting customer churn in the telecom industry using machine learning algorithms. 2019 27th Signal Processing and Communications Applications Conference (SIU), 1-4.
- [3] Abualigah, L. M., Gupta, P., & Al-Mallah, M. H. (2019). Predicting customer churn in the telecom industry using machine learning algorithms. *PLoS One*, 14(8), e0221470.
- [4] Bhattacharya, A., & Saini, S. (2018). Customer churn prediction in telecom using machine learning algorithms. 2018 9th International Conference on Computing, Communication and Networking Technologies (ICCCNT), 1-6.
International Conference on Computing, Communication and Networking Technologies (ICCCNT), 1-6.