

Churn Prediction

1. Introduction to Customer Churn Prediction

- Define customer churn and its impact on businesses.
- Explain the importance of predictive analytics in reducing churn.

2. Data Collection and Preprocessing

- Discuss data sources and types of data required.
- Address data cleaning, handling missing values, and outlier detection.

3. Feature Engineering

- Describe the process of selecting and creating relevant features.
- Mention techniques like one-hot encoding and feature scaling.

4. Data Splitting and Validation

- Explain the need for data splitting into training, validation, and test sets.
- Highlight the importance of cross-validation for model evaluation.

5. Model Selection

- Discuss popular machine learning algorithms for churn prediction (e.g., logistic regression, decision trees, random forests, neural networks).
- Mention the pros and cons of each algorithm.

6. Model Training and Hyperparameter Tuning

- Detail the process of training the chosen model.
- Discuss hyperparameter tuning techniques like grid search or random search.

7. Model Evaluation

- Describe evaluation metrics (accuracy, precision, recall, F1-score, ROC AUC) for churn prediction.
- Provide guidance on interpreting model performance.

8.Handling Class Imbalance

- Explain techniques for dealing with imbalanced datasets (e.g., oversampling, undersampling, SMOTE).

9.Feature Importance

- Discuss methods to identify important features for churn prediction (e.g., feature importance scores, SHAP values).

10.Deployment and Monitoring

- Explain how to deploy the churn prediction model in a production environment.
- Discuss the importance of ongoing monitoring and model retraining.

11.Ethical Considerations

- Highlight the need to ensure fairness and avoid bias in churn prediction models.
- Mention legal and ethical considerations related to customer data.

12.Conclusion

- Summarize the key takeaways for building an effective customer churn prediction model.