Data Analytics with Cognos

Group 2

Project : customer churn prediction

1. **Data Collection:**
Gather historical data on customer interactions, transactions, and behaviors. This data will serve as the foundation for your analysis.

2. **Data Preprocessing:**
Clean and preprocess the data. This may involve handling missing values, removing duplicates, and encoding categorical variables.

3. **Feature Engineering:**
Create relevant features that could be indicative of customer churn. These features might include customer demographics, usage patterns, customer service interactions, and more.

4. **Exploratory Data Analysis (EDA):**
Perform EDA to gain insights into the data. Visualizations and statistical analysis can help you understand patterns and correlations.

5. **Data Splitting:**
Divide your dataset into training and testing sets. This is crucial for evaluating the performance of your churn prediction model.

6. **Model Selection:**
Choose a machine learning algorithm suitable for your problem. Common choices include logistic regression, decision trees, random forests, and neural networks.

7. **Model Training:**
Train your chosen model on the training data. You'll use the historical data to teach the model to recognize patterns associated with customer churn.

8. **Model Evaluation:**
Evaluate the model's performance using the testing data. Metrics like accuracy, precision, recall, and F1-score are commonly used for binary classification tasks like churn prediction.

9. **Hyperparameter Tuning:**
Fine-tune the model's hyperparameters to improve its performance. Techniques like cross-validation can help with this.

10. **Deployment:**
Once satisfied with your model's performance, deploy it to make real-time predictions. You might integrate it into your business processes or use it to prioritize customer retention efforts.

11. **Monitoring and Maintenance:**
Continuously monitor the model's performance in a production environment. Retrain it periodically with fresh data to ensure it remains accurate.

12. **Interpretability:**
Consider using techniques to interpret the model's predictions, especially in industries where transparency is crucial. Explainable AI methods can help provide insights into why a customer is predicted to churn.

13. **Feedback Loop:**
Use the predictions and insights from the model to implement strategies for retaining customers, such as targeted marketing campaigns or personalized offers .Remember that customer churn prediction is an ongoing process, and it's essential to adapt your model and strategies as customer behavior and market dynamics change.

2023-09-27