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**Business Understanding:**

To effectively reduce customer churn, first analyze the company's challenges and identify the primary factors contributing to churn. Setting a target to reduce churn within the next three months, develop strategic retention plans based on these insights to enhance customer loyalty.

**Data Understanding:**

**1-** Review the dataset provided by the data engineer, focusing on all features, including customer demographics, account details, services used, and churn status. If any issues arise, consult the data engineer for clarification.

**2-**Use visualization tools to examine feature distributions, especially against the churn target, to gain a comprehensive understanding of each factor's impact on customer behavior.

**Data Preparation:**After analyzing the data, conduct preprocessing steps:

**1-** Address any missing values using the most appropriate handling methods.

2-Detect and manage outliers that could affect model accuracy either by dropping them or using imputation techniques.

**2-**Confirm data types are correctly assigned, and apply encoding to categorical features. Perform encoding after splitting data into train and test sets.

**3-**Consider normalizing or standardizing features to enhance model accuracy and performance.

**Model Selection:**Divide the data into training and testing sets. Select the most appropriate model type (classification or regression) based on the churn target. Leverage your understanding of the data to filter out irrelevant modeling techniques, and use model evaluation metrics such as F1 score, recall, precision, or R² score to select the best-performing model.

**Evaluation:**Test the model on new scenarios to validate its predictive accuracy and ensure it effectively identifies at-risk customers, facilitating proactive retention measures.

**Deployment:**Deploy the model in a production environment to enable real-time churn predictions and to drive ongoing customer retention efforts.