**Data Scientist Interview Assignment: Churn Model Development**

**Objective:**

Develop a predictive model to identify customers likely to churn from the bank. The goal is to help the bank take proactive measures to retain high-value customers.

**Dataset:**

You will receive a synthetic dataset containing customer information. The dataset includes the following columns:

1. **CustomerID**: Unique identifier for the customer.
2. **Age**: Age of the customer.
3. **Tenure**: Number of years the customer has been with the bank.
4. **Balance**: Customer's bank balance.
5. **NumProducts**: Number of products the customer uses at the bank.
6. **HasCreditCard**: Indicator of whether the customer has a credit card (1: Yes, 0: No).
7. **IsActiveMember**: Indicator of whether the customer is an active member (1: Yes, 0: No).
8. **EstimatedSalary**: Estimated annual salary of the customer.
9. **Churn**: Target variable indicating whether the customer churned (1: Yes, 0: No).

**Presentation:**

The presentation during the interview should cover the following:

* **Model Development**: An overview of the methodology used to build the churn model, including a justification for the chosen approach. The use of multiple methodologies is encouraged if relevant.
* **Model Evaluation**: A detailed analysis of the model's performance, supported by appropriate evaluation metrics (e.g., precision, recall, ROC-AUC).
* **Model Conclusions**: Key findings derived from the model, highlighting patterns or insights about customer churn.
* **Recommendations**:
  + Actions the bank can take to reduce churn and retain customers.
  + Practical applications of the model within the bank’s operations.
  + Suggestions for future improvements to enhance the model’s effectiveness.
* **Implementation Plan**: Clear and actionable steps for integrating the model into the bank’s systems and processes for maximum impact.

**Deadline**: Submit all materials 24 hours before the interview.

**Data set:**

