

ENTRANCE TEST (No.2)
Position: Data Analyst Intern/Fresher

1. Problem Statement

Customer churn prediction is a critical aspect of business management, particularly for industries like telecommunications, internet service providers, pay TV companies, insurance firms, and alarm monitoring services. It involves understanding and addressing customer attrition, which refers to the loss of clients or customers.

For businesses in these sectors, measuring customer attrition is a vital business metric. This is because retaining an existing customer is significantly more cost-effective than acquiring a new one. As a result, these companies often have customer service branches dedicated to re-engaging customers who are considering leaving. This is because the long-term value of recovered customers far outweighs that of newly acquired ones.

To address customer churn, predictive analytics comes into play, churn prediction models to assess the likelihood of customers leaving. These models prioritize a small list of potential defectors, enabling businesses to concentrate their customer retention efforts on those who are most at risk of churning.

2. Key Questions:

- a. What is the significance of Churn Rate for stakeholders (Customers, MCI, etc.)? (1pt)
- b. What are the characteristics of each Type of Customer (Churn or Not Churn)? (2.5pt)
- c. Which ML modeling can be implemented and represent model results? including features input and explaining features important. (4.5pt)
- d. What actions regarding qualitative and quantitative analytics could be implemented to enhance retention rate? (2pt)

This analysis aims to leverage comprehensive customer data to improve customer engagement and satisfaction for MCI's offerings.

3. Requirements:

- Clear, simple, optimized code (if possible) + code explanation. (OOP is a plus but optional)
- Slide is clear, insightful and delightful (optional)
- English is a must (If slide and code are not presented in English, your result will be eliminated)
- Please show Step by Step training modeling in Appendix

Keyword: Binary Classification, Python, EDA, Statistical Significance

4. Reference:

Priority on clarifying insights and descriptive statistics. You can refer to the way statistics are described in these articles:

- [Home Credit Complete EDA & Feature Importance](#)
- [What Determines Price of a Laptop?](#)
- [HR Analytics Prediction - Why do people resign?](#)