1. **Project Idea 1: Elo Personalized Loyalty Score Prediction**

<https://www.kaggle.com/c/elo-merchant-category-recommendation>

* + **Objective**: Develop algorithms to predict individual loyalty scores for Elo cardholders, using provided datasets to uncover customer loyalty signals.
  + **Data Utilized**: Elo's datasets including **train.csv** (training set with card IDs and loyalty scores), **test.csv** (test set for predictions), **historical\_transactions.csv** (3 months of historical transactions), **new\_merchant\_transactions.csv** (transactions at new merchants over 2 months), and **merchants.csv** (merchant information).
  + **Approach**:
    - Perform data exploration to identify patterns and correlations.
    - Preprocess data, handling missing values and outliers, and encode categorical variables.
    - Engage in feature engineering to create new predictive attributes.
    - Select and train various machine learning models, optimizing them through cross-validation and hyperparameter tuning.
    - Evaluate model performance and predict loyalty scores for the test set.
  + **Impact**: This project aims to enable Elo to deliver more relevant and personalized promotions, enhancing customer satisfaction and merchant partnerships.

1. **Project Idea 2: Telco Customer Churn Analysis and Prediction**

<https://www.kaggle.com/datasets/blastchar/telco-customer-churn>

* + **Objective**: Analyze and predict customer churn in the telecom industry, focusing on identifying high-risk customers and understanding patterns in churn behavior.
  + **Data Utilized**: Customer data from a telecom company including demographics, service subscriptions, billing information, and churn status. Key attributes include CustomerID, Gender, Age, Service Types, Contract Details, Monthly Charges, Tenure, and Churn.
  + **Approach**:
    - Conduct an in-depth analysis of customer data to understand churn patterns, focusing on demographic factors, service preferences, and usage behavior.
    - Develop a classification model to predict potential churn, prioritizing the recall metric due to the imbalanced nature of the data.
    - Identify key factors influencing customer retention and propose strategies for targeted customer engagement.
  + **Impact**: The goal is to enable telecom companies to reduce churn rates by implementing effective retention strategies, thereby maintaining a stable customer base and increasing profitability.