CS 513 E– KDD PROJECT PROPOSAL: (Telco Customer Churn Prediction)

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Project Group No: (19)

Problem Statement: Develop a classification model to predict whether a customer will churn (leave) a telecommunications company's service or not

Dataset Description: The dataset contains information on telecom customers such as their demographics, usage patterns, and account information. The target variable is whether the customer churned (1) or not (0). The dataset has 7,043 observations and 20 input features.

- Customers who left within the last month – the column is called Churn
- Services that each customer has signed up for – phone, multiple lines, internet, online security, online backup, device protection, tech support, and streaming TV and movies
- Customer account information – how long they've been a customer, contract, payment method, paperless billing, monthly charges, and total charges
- Demographic info about customers – gender, age range, and if they have partners and dependents

Source of Dataset:
https://www.kaggle.com/datasets/blastchar/telco-customer-churn

Implementation Strategy and algorithms used: (List different models)
We have decided to implement and compare 9 different models among three different group members. We have chosen a few models from our course and few from outside the course. The following are the models selected by us:

1. Decision Trees
2. Naive Bayes Classifier
3. AdaBoost Classifier
4. Multilayer Perceptron
5. Bagging along with Random Forest
6. K-nearest neighbor with Grid Search CV
7. Logistic Regression with Grid Search CV
8. Random Forest with Randomized Search CV
9. Support Vector Machine with Grid Search CV

Model metrics and Evaluation (List evaluation metrics like: AUC-ROC, Confusion matrix , F1, Recall, Precision): The evaluation metric for this competition is Precision. Precision is the ratio of true positives to all predicted positives.

Team Members: Group 19

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