Eslam Mohamed Atia

**Assignment 1**: Customer Churn Prediction for Tele Company

* **Business Understanding: Meet with stakeholders to define customer churn, understand its business impact, and set specific objectives, such as reducing churn by a designated percentage in three months.**
* **Data Understanding: Analyze the dataset to explore customer demographics, account details, services used, and churn status, aiming to identify patterns or correlations related to churn.**
* **Data Preparation**: Clean and preprocess the data by addressing missing values and filtering out irrelevant information, ensuring high-quality and complete data for model training.
* **Modeling**: Select and apply appropriate algorithms (e.g., logistic regression, decision trees) to train a model that predicts the likelihood of customer churn.
* **Evaluation**: Assess the model’s performance using metrics like accuracy and precision, refining it as necessary to enhance prediction quality.
* **Deployment**: Collaborate with the engineering team to deploy the model, establishing a monitoring process for real-time identification of at-risk customers, enabling proactive business responses.

**Business Understanding**:

The first step involves meeting with stakeholders to understand the business impact of customer churn, clarifying what defines a "churned" customer, and setting specific objectives, such as reducing churn by a certain percentage within the next three months. This step is essential for a clear understanding of the problem and aligns the project with business goals.

**Data Understanding**:

Next, I would explore the dataset provided, analyzing columns like customer demographics, account details, services used, and churn status. This helps identify any patterns or correlations, such as whether service issues are linked to higher churn rates.

**Data Preparation**

Data cleaning and preprocessing would follow, involving tasks like handling missing values and filtering out irrelevant data. This step ensures the data is both high-quality and complete, ready for model training.

**Modeling**

I would then select appropriate algorithms, such as logistic regression, decision trees, or more advanced models, to predict the likelihood of customer churn. The model would be trained on the dataset to identify customers at risk of leaving.

**Evaluation**

Once the model is trained, I would evaluate its performance using metrics such as accuracy and precision to ensure it meets business requirements. Based on the results, I would refine the model as needed to improve prediction quality.

**Deployment**

Finally, working with the engineering team, I would deploy the model in production. A monitoring process would be set up to enable real-time identification of customers at risk of churn, allowing the business to respond proactively.