**Summary Report**

In this project, I tackled a customer churn prediction challenge. First, I loaded the data and performed data preprocessing by dropping unnecessary columns and ensuring there were no missing or duplicated values. I then conducted exploratory data analysis (EDA) to understand the data distribution and relationships between variables.

Next, I split the data into training, validation, and test sets and applied one-hot encoding to categorical features. I also scaled numerical features using Min-Max scaling. For modeling, I experimented with Logistic Regression and Random Forest classifiers, evaluating them using accuracy, precision, recall, and F1-score. Cross-validation was employed to assess model performance robustness.

However, these traditional machine learning models yielded only modest results due to the lack of strong feature relationships. To explore deeper, I implemented a neural network with dropout layers and trained it using binary cross-entropy loss. Unfortunately, even the deep learning model struggled to achieve high accuracy, highlighting the complexity of the churn prediction problem.

In conclusion, despite various attempts, the predictive performance remained limited, suggesting a need for more informative features or alternative modeling techniques.