**Customer Churn Prediction in Telcom Industry – ANN with Keras**

##### Data Set: We considered the WA\_Fn-UseC\_-Telco-Customer-Churn.csv data to predict the customer churn in a telecom industry considering several factors.

##### Dataset preview:

A screenshot of a computer

Description automatically generated with medium confidence

**Data Understanding and Feature Engineering**:

We dropped the customer\_id column as it not going to add any weightage to the churn prediction.

Table

Description automatically generated with medium confidence

All the features are in Object data types except SeniorCitizen, tenure, Monthly Charges. So we need to convert those data types.

Graphical user interface, text, application

Description automatically generated

##### *Since "No internet service" or "No phone service" mean? I believe it means NO !!! Here we should just replace them with NO*

##### Text Description automatically generated We replaced all the *"No internet service" or "No phone service"* with *No* and then encoded the Yes and No to 1 and 0 respectively to convert the data to int data.

##### Graphical user interface, text, application Description automatically generated

##### For the remaining categorical values we are going to perform one hot encoding.

##### For Gender we are replacing Female=1 and Male=0.

##### Normalisation of data:

##### As all columns now are numeric ones in 0s and 1s, these three columns ['InternetService','Contract','PaymentMethod'] are not in the same SCALE. we are using standard scalar to normalise the data.

##### Exploratory Data Analysis:

#### From the Visualizations we can say that data dataset is imbalanced. Here I'm going to use imblearn.over\_sampling SMOTE to introduce more instances in order to have better balance before splitting the data into Training & Testing.

##### Chart, bar chart Description automatically generatedChart, bar chart Description automatically generated with medium confidenceChart, bar chart Description automatically generated

##### Modelling:

##### Graphical user interface Description automatically generated with medium confidence

##### Accuracy:

##### Table Description automatically generated

##### Our ANN with keras gave us an accuracy of 81% in predicting the customer churn.