# Architecture of Artificial Neural Networks (ANN)

The Artificial Neural Network (ANN) used to forecast customer attrition in the telecom industry is described in this article along with its architecture and setup.

1. Layer of Input  
   Twenty input features (after normalisation and categorical variable encoding)
2. Secret Layers  
     
   64 neurones in Hidden Layer 1, Activation: ReLU, Dropout: 0.2  
     
   32 neurones in Hidden Layer 2, Activation: ReLU, Dropout: 0.2
3. Layer of Output  
     
   One neurone utilised for binary classification (churn or no churn) with sigmoid activation
4. Configuration for Compilation  
     
   Adam is the optimiser.  
     
   Binary Crossentropy as the Loss Function  
     
   Accuracy, F1 Score, Recall, and AUC-ROC are evaluation metrics.
5. Configuration for Training  
     
   Periods: 50  
     
   32 is the batch size.  
     
   Split for Validation: 0.2  
     
   EarlyStopping: Made it possible to halt training when the model stops becoming better.
6. Utilised Tools and Libraries  
     
   Python  
     
   TensorFlow  
     
   Keras  
     
   Scikit-learn  
     
   Pandas  
     
   NumPy  
     
   SMOTE, or imbalanced-learn