ISE529 ANN Classification

Due Date: Nov. 7th, Tuesday, 11:59PM

# Data Preprocess

* 1. Import the libraries, please use TensorFlow 2 (default version on Google Colab is 2.14.0) to build your model.
  2. Load the dataset, use columns [3:-1] as the X set.
  3. Encode the categorical variables.
  4. Train test split and feature scaling.

# Build the Model

* 1. Build a keras sequential model with 2 more Dense Layers
  2. Set the unit number and activation function of those layers
  3. Add a Dense Layer as output layer, with unit = 1 and activation function = sigmoid.

# Training

* 1. Compile the model with adam optimizer, binary\_crossentropy as loss function, metrics = [‘accuracy’].
  2. Fit the model on the train set with more than 100 epochs. (Optional: set an early stop)

# Predicting

* 1. Use our ANN model to predict if the customer with the following informations will leave the bank:

Geography: France Credit Score: 600 Gender: Male

Age: 40 years old Tenure: 3 years

Balance: $ 60000 Number of Products: 2

Does this customer have a credit card ? Yes Is this customer an Active Member: Yes Estimated Salary: $ 50000

So, should we say goodbye to that customer ?

Note: you need to input an 2-dimensional array/list, for example: [[ \*your data ]], and you need to manually convert the categorical data into encoded form.

* 1. Predict the test set result, set the threshold as 0.5, and calculate the confusion matrix and accuracy score.

# Report

* 1. Write a brief summary of your model architecture, and the test result.

You are recommended to use Google Colab for this assignment, so you can skip the installation and set up of TensorFlow.