**Supervised Learning Instruction Manual**

**Technology requirements**

Python 3.6

Tensorflow 2.0.0

Pandas 0.24.2

Numpy 1.16.4

Scikit-learn 0.21.3

**Binary Classification**:

To implement a python code, it requires 2 arguments, SETTING NUMBER, CLAFFIER, FILE NUMBER.

Command

python ml\_bin.py -cls CLASSIFIER -set SETTING NUMBER -file FILE NUMBER

The following are the information on the arguments.

SETTING NUMBER

1: ‘Diff’ (21 features)

2: ‘Diff’ and ‘#’ (42 features)

3: ‘Diff’, ‘#’, ‘BytesAvg Diff’ (63 features)

4: All features

CLASSIFIER

GB: Gradient Boosting

RF: Random Forest

LR: Logistic Regression

SVM: Support Vector Machine

DNN: Deep Neural Network

FILE NUMER

1: Train1.csv Test1.csv

2: Train2.csv Test2.csv

3: Train3.csv Test3.csv

4: Train4.csv Test4.csv

5: Train5.csv Test5.csv

Command Example

python ml\_bin.py -cls DNN -set 1 -file 1

python ml\_bin.py -cls SVM -set 2 -file 2

python ml\_bin.py -cls GB -set 3 -file 3

python ml\_bin.py -cls RF -set 2 -file 4

ml\_bin.py will create binary\_classification\_report.csv, binary\_cm.csv

* binary\_classification\_report contains results of precision, recall, f1-score, support, accuracy, macro avg, and weighted avg
* binary\_cm.csv contains confusion matrix results