**Algorithms explored with Weka (tool):**

* **Logistic Regerssion**
  + **Schema 1:**

Scheme: weka.classifiers.functions.Logistic -R 1.0E-8 -M -1 -num-decimal-places 4 -batch-size 50

Relation: employee-attenuation-predicting-weka.filters.unsupervised.attribute.NumericToNominal-Rfirst-last

Instances: 2381

Attributes: 11

Test mode: evaluate on training data

=== Summary ===

Correctly Classified Instances 2381 100 %

Incorrectly Classified Instances 0 0 %

Kappa statistic 1

Mean absolute error 0

Root mean squared error 0

Relative absolute error 0 %

Root relative squared error 0 %

Total Number of Instances 2381

=== Confusion Matrix ===

a b <-- classified as

765 0 | a = 0

0 1616 | b = 1

* + **Schema 2:**

Scheme: weka.classifiers.functions.Logistic -R 1.0E-8 -M -1 -num-decimal-places 4 -batch-size 50

Relation: employee-attenuation-predicting-weka.filters.unsupervised.attribute.NumericToNominal-Rfirst-last

Instances: 2381

Attributes: 11

Test mode: split 66.0% train, remainder test

=== Summary ===

Correctly Classified Instances 559 69.0123 %

Incorrectly Classified Instances 251 30.9877 %

Kappa statistic 0.2399

Mean absolute error 0.3068

Root mean squared error 0.542

Relative absolute error 70.611 %

Root relative squared error 117.0071 %

Total Number of Instances 810

=== Confusion Matrix ===

a b <-- classified as

104 148 | a = 0

103 455 | b = 1

* + **Schema 3:**

Scheme: weka.classifiers.functions.Logistic -C -R 1.0E-8 -M -1 -num-decimal-places 4

Relation: employee-attenuation-predicting-weka.filters.unsupervised.attribute.NumericToNominal-Rfirst-last

Instances: 2381

Attributes: 11

Total Business Value

Emp\_ID

Age

Gender

City

Education\_Level

Salary

Joining Designation

Designation

Quarterly Rating

Target

Test mode: 10-fold cross-validation

=== Summary ===

Correctly Classified Instances 1738 72.9945 %

Incorrectly Classified Instances 643 27.0055 %

Kappa statistic 0.3468

Mean absolute error 0.2752

Root mean squared error 0.5002

Relative absolute error 63.0835 %

Root relative squared error 107.1069 %

Total Number of Instances 2381

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

0.481 0.152 0.599 0.481 0.534 0.351 0.708 0.586 0

0.848 0.519 0.775 0.848 0.810 0.351 0.708 0.801 1

Weighted Avg. 0.730 0.401 0.719 0.730 0.721 0.351 0.708 0.732

=== Confusion Matrix ===

a b <-- classified as

368 397 | a = 0

246 1370 | b = 1

* **Random Forest**
* **Schema 1:**

**Schema: RandomTree -K 0 -M 1.0 -V 0.001 -S 1 -do-not-check-capabilities**

**Using method of training set:**

=== Summary ===

Correctly Classified Instances 2381 100 %

Incorrectly Classified Instances 0 0 %

Kappa statistic 1

Mean absolute error 0.1054

Root mean squared error 0.1434

Relative absolute error 24.1693 %

Root relative squared error 30.7067 %

Total Number of Instances 2381

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 0

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 1

Weighted Avg. 1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000

=== Confusion Matrix ===

a b <-- classified as

765 0 | a = 0

0 1616 | b = 1

* **Schema 2:**

**Schema: RandomTree -K 0 -M 1.0 -V 0.001 -S 1 -do-not-check-capabilities**

**Using method of cross-validation**

=== Stratified cross-validation ===

=== Summary ===

Correctly Classified Instances 1880 78.9584 %

Incorrectly Classified Instances 501 21.0416 %

Kappa statistic 0.4843

Mean absolute error 0.2894

Root mean squared error 0.3862

Relative absolute error 66.3416 %

Root relative squared error 82.7063 %

Total Number of Instances 2381

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

0.550 0.097 0.728 0.550 0.627 0.494 0.821 0.725 0

0.903 0.450 0.809 0.903 0.853 0.494 0.821 0.885 1

Weighted Avg. 0.790 0.336 0.783 0.790 0.781 0.494 0.821 0.834

=== Confusion Matrix ===

a b <-- classified as

421 344 | a = 0

157 1459 | b = 1

* **Schema 3:**

**Schema: RandomTree -K 10 -M 1.0 -V 0.001 -S 1 -depth 10 -do-not-check-capabilities**

**Using cross-validation 10folds:**

**== Stratified cross-validation ===**

=== Summary ===

Correctly Classified Instances 1910 80.2184 %

Incorrectly Classified Instances 471 19.7816 %

Kappa statistic 0.5091

Mean absolute error 0.285

Root mean squared error 0.3844

Relative absolute error 65.3345 %

Root relative squared error 82.3105 %

Total Number of Instances 2381

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

0.548 0.077 0.770 0.548 0.640 0.523 0.823 0.726 0

0.923 0.452 0.812 0.923 0.864 0.523 0.823 0.888 1

Weighted Avg. 0.802 0.332 0.798 0.802 0.792 0.523 0.823 0.836

=== Confusion Matrix ===

a b <-- classified as

419 346 | a = 0

125 1491 | b = 1