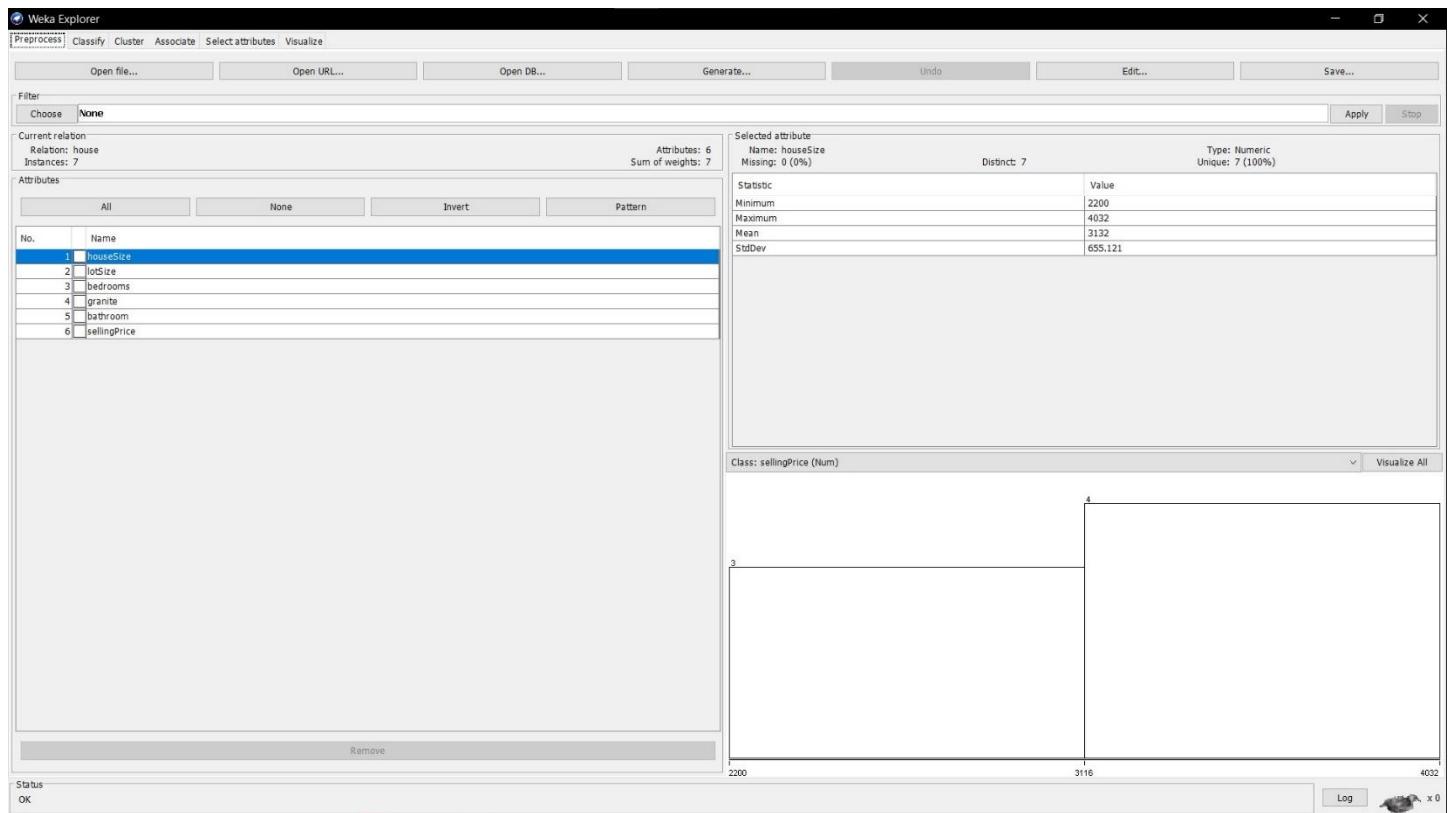
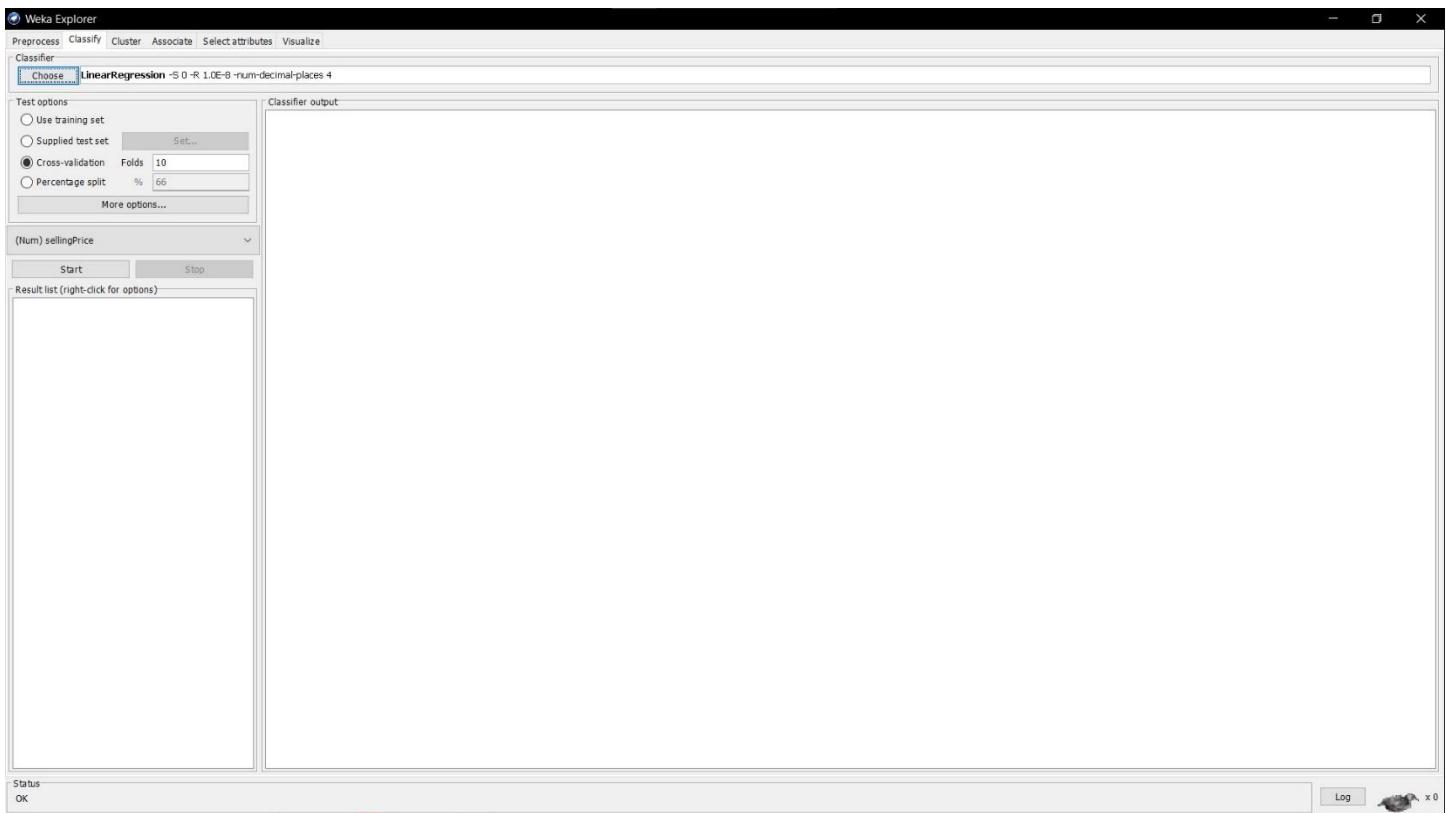


WEKA Lab Exercise

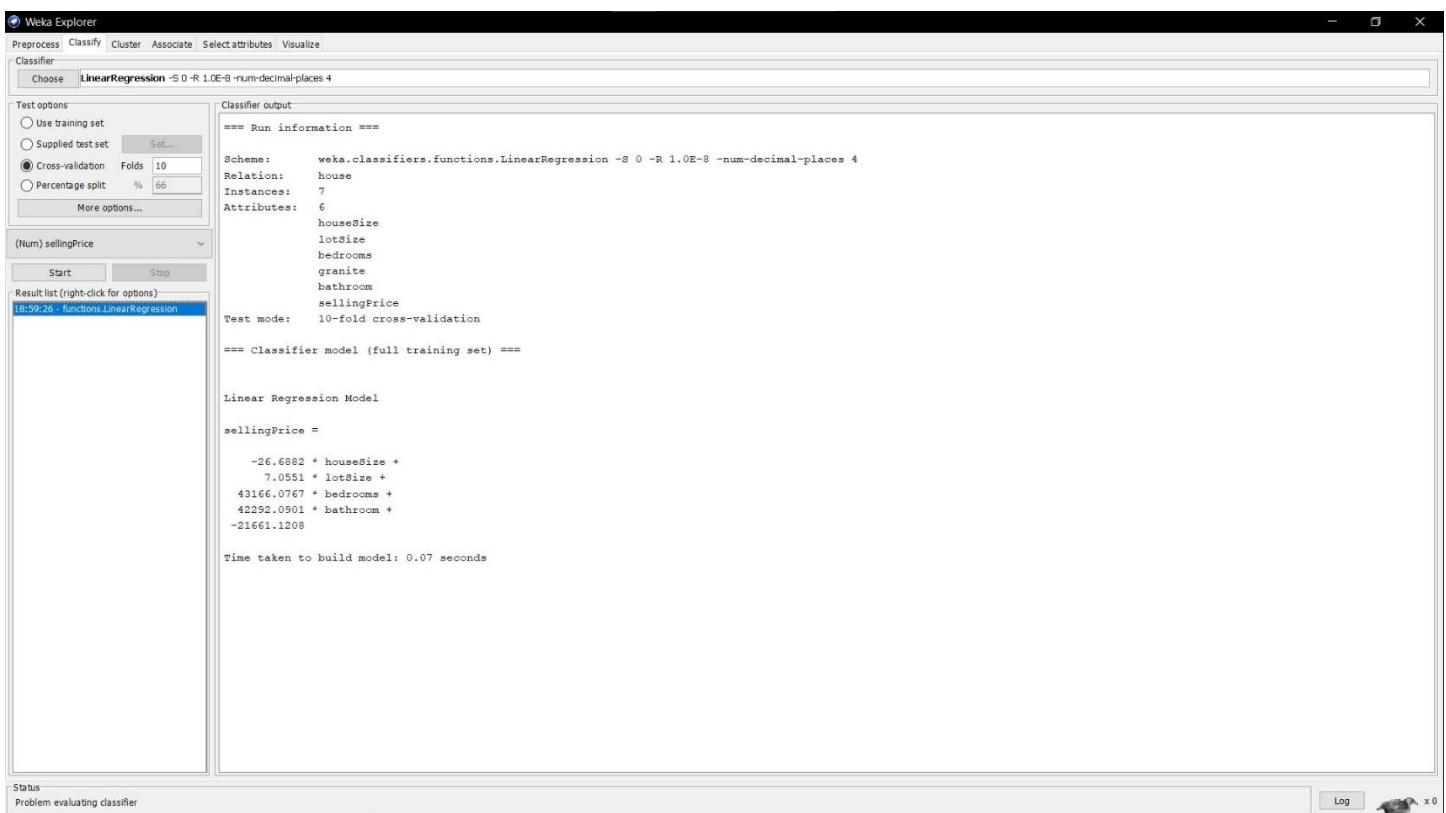
PART 1:



Load Houses



Linear Regression Classifier



Selling Price Start Build

Weka Explorer

Preprocess Classify Cluster Associate Select attributes Visualize

Classifier

Choose **LinearRegression -S 0 -R 1.0E-8 -num-decimal-places 4**

Test options

Use training set

Supplied test set Set...

Cross-validation Folds 10

Percentage split % 66

More options...

(Num) class

Start Stop

Result list (right-click for options)

19:01:34 - functions.LinearRegression

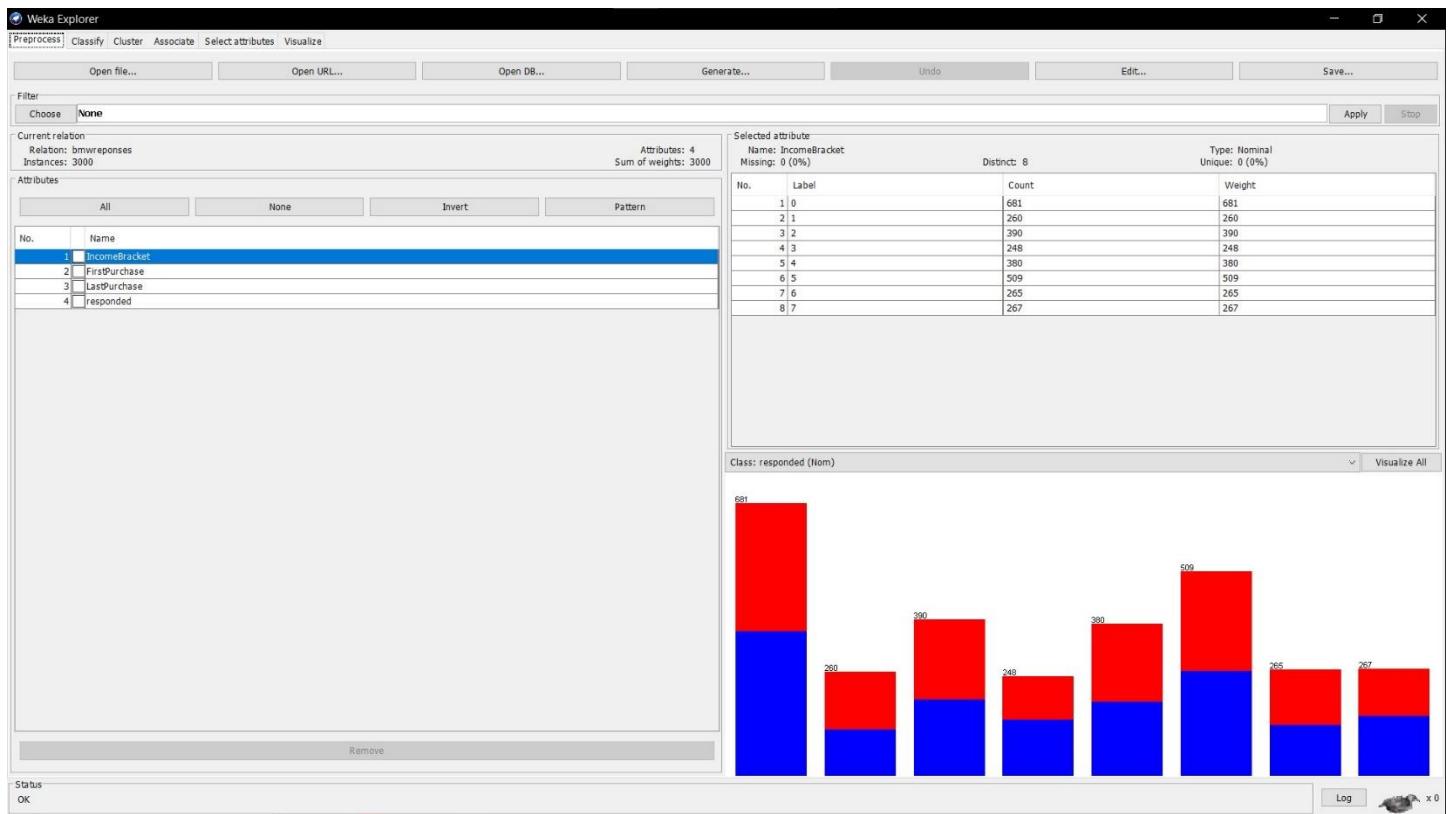
```
acceleration
model
origin
class
Test mode: 10-fold cross-validation
==== Classifier model (full training set) ====
Linear Regression Model
class =
-2.2744 * cylinders=6,3,5,4 +
-4.4421 * cylinders=3,5,4 +
6.74 * cylinders=5,4 +
0.012 * displacement +
-0.0355 * horsepower +
-0.0056 * weight +
1.6184 * model=75,71,76,74,77,78,79,81,82,80 +
1.8307 * model=77,78,79,81,82,80 +
1.8958 * model=79,81,82,80 +
1.7754 * model=81,82,80 +
1.167 * model=82,80 +
1.2522 * model=80 +
2.1363 * origin=2,3 +
37.9165
Time taken to build model: 0.14 seconds
==== Cross-validation ====
==== Summary ====
Correlation coefficient 0.9245
Mean absolute error 2.252
Root mean squared error 2.9755
Relative absolute error 34.3876 %
Root relative squared error 37.9994 %
Total Number of Instances 398
```

Status OK

Log  x 0

Load AutoMPG and Class Start Build

PART 2:



Load BMW Training

```
Weka Explorer
Preprocess Classify Cluster Associate Select attributes Visualize
Classifier
Choose J48 C 0.25 -M 2
Test options
 Use training set
 Supplied test set Set...
 Cross-validation Folds 10
 Percentage split % 66
More options...
(Nom) responded
Start Stop
Result list (right-click for options)
19:04:09 - trees.J48
Classifier output
|   |   LastPurchase > 200512
|   |   |   FirstPurchase <= 200306: 0 (46.0/17.0)
|   |   |   FirstPurchase > 200306: 1 (88.0/30.0)
|   |   IncomeBracket = 6: 0 (143.0/59.0)
|   |   IncomeBracket = 7
|   |   |   LastPurchase <= 200508: 1 (34.0/11.0)
|   |   |   LastPurchase > 200508: 0 (118.0/51.0)

Number of Leaves : 28
Size of the tree : 43

Time taken to build model: 0.07 seconds

==== Stratified cross-validation ====
==== Summary ====

Correctly Classified Instances      1642      54.7333 %
Incorrectly Classified Instances    1358      45.2667 %
Kappa statistic                   0.0933
Mean absolute error               0.49
Root mean squared error           0.5038
Relative absolute error           58.0236 %
Root relative squared error      100.7747 %
Total Number of Instances         3000

==== Detailed Accuracy By Class ====

          TP Rate FP Rate Precision Recall  F-Measure MCC    ROC Area PRC Area Class
          0.592   0.499   0.551   0.592   0.571   0.094   0.550   0.538   1
          0.501   0.408   0.543   0.501   0.521   0.094   0.550   0.537   0
Weighted Avg.  0.547   0.454   0.547   0.547   0.546   0.094   0.550   0.538

==== Confusion Matrix ====

a   b   <-- classified as
903 622 | a = 1
736 739 | b = 0
```

Responded Start Build

Visualize Tree

Weka Explorer

Preprocess Classify Cluster Associate Select attributes Visualize

Classifier

Choose J48 -C 0.25 -M 2

Test options

Use training set

Supplied test set Set...

Cross-validation Folds 10

Percentage split % 66

More options...

Classifier output

```
| IncomeBracket = 6: 0 (143.0/59.0)
| IncomeBracket = 7
| | LastPurchase <= 200508: 1 (34.0/11.0)
| | LastPurchase > 200508: 0 (118.0/51.0)
```

Number of Leaves : 28

Size of the tree : 43

(Nom) responded

Start Stop

Result list (right-click for options)

19:04:09 - trees.J48
19:06:54 - trees.J48

```
Time taken to build model: 0.01 seconds

==== Evaluation on test set ===

Time taken to test model on supplied test set: 0.01 seconds

==== Summary ===

Correctly Classified Instances      835      55.6667 %
Incorrectly Classified Instances    665      44.3333 %
Kappa statistic                      0.1156
Mean absolute error                  0.4891
Root mean squared error              0.5
Relative absolute error              97.79 %
Root relative squared error         99.9582 %
Total Number of Instances           1500

==== Detailed Accuracy By Class ===

          TP Rate   FP Rate   Precision   Recall   F-Measure   MCC   ROC Area   PRC Area   Class
          0.622     0.506     0.541     0.622     0.579     0.117     0.564     0.527     1
          0.494     0.378     0.576     0.494     0.532     0.117     0.564     0.565     0
Weighted Avg.                   0.557     0.441     0.559     0.557     0.555     0.117     0.564     0.546     0

==== Confusion Matrix ===

      a     b  <- classified as
457 278 |  a = 1
387 378 |  b = 0
```

Status OK Log

Load BMW Test Set and Start Build