Q1

Without percentage split 66%

	Alone	Bagging	AdaboostM1
Naive Bayes	91.8367%	92.8571%	100%
Logistic	100%	98.9796%	100%
MultiayerPerceptron	100%	100%	100%
J48	97.9595%	97.9592%	100%
Random Forest	100%	98.9796	100%
IBK	100%	98.9796%	100%

Alone

```
Correctly Classified Instances          90               91.8367 %
Incorrectly Classified Instances         8                8.1633 %

Correctly Classified Instances          98              100      %
Incorrectly Classified Instances         0                0      %

Correctly Classified Instances          98              100      %
Incorrectly Classified Instances         0                0      %

Correctly Classified Instances          96               97.9592 %
Incorrectly Classified Instances         2                2.0408 %

Correctly Classified Instances          98              100      %
Incorrectly Classified Instances         0                0      %

Correctly Classified Instances          98              100      %
Incorrectly Classified Instances         0                0      %
```

Bagging

```
Correctly Classified Instances          91               92.8571 %
Incorrectly Classified Instances         7                7.1429 %

Correctly Classified Instances          97               98.9796 %
Incorrectly Classified Instances         1                1.0204 %

Correctly Classified Instances          98              100      %
Incorrectly Classified Instances         0                0      %

Correctly Classified Instances          96               97.9592 %
Incorrectly Classified Instances         2                2.0408 %

Correctly Classified Instances          97               98.9796 %
Incorrectly Classified Instances         1                1.0204 %

Correctly Classified Instances          97               98.9796 %
Incorrectly Classified Instances         1                1.0204 %
```

AdaboostM1

```
Correctly Classified Instances          98              100      %
Incorrectly Classified Instances         0                0      %

Correctly Classified Instances          98              100      %
Incorrectly Classified Instances         0                0      %
```

```
Correctly Classified Instances          98               100      %
Incorrectly Classified Instances         0                 0      %
```

```
Correctly Classified Instances          98               100      %
Incorrectly Classified Instances         0                 0      %
```

```
Correctly Classified Instances          98               100      %
Incorrectly Classified Instances         0                 0      %
```

```
Correctly Classified Instances          98               100      %
Incorrectly Classified Instances         0                 0      %
```

With Percentage split 66%

	Alone	Bagging	AdaboostM1
Naive Bayes	87.8788%	87.8788%	90.9091%
Logistic	93.9394%	100%	93.9394%
MultiayerPerceptron	90.9091%	96.9697%	90.9091%
J48	78.7879%	78.7879%	90.9091%
Random Forest	75.7576%	72.7273%	72.7273%
IBK	84.8485%	81.8182%	84.8485%

Alone

```
Correctly Classified Instances          29               87.8788 %
Incorrectly Classified Instances         4               12.1212 %
```

```
Correctly Classified Instances          31               93.9394 %
Incorrectly Classified Instances         2                6.0606 %
```

```
Correctly Classified Instances          30               90.9091 %
Incorrectly Classified Instances         3                9.0909 %
```

```
Correctly Classified Instances          26               78.7879 %
Incorrectly Classified Instances         7               21.2121 %
```

```
Correctly Classified Instances          25               75.7576 %
Incorrectly Classified Instances         8               24.2424 %
```

```
Correctly Classified Instances          28               84.8485 %
Incorrectly Classified Instances         5               15.1515 %
```

Bagging

```
Correctly Classified Instances          29               87.8788 %
Incorrectly Classified Instances         4               12.1212 %
```

```
Correctly Classified Instances          33               100      %
Incorrectly Classified Instances         0                 0      %
```

Correctly Classified Instances	32	96.9697 %
Incorrectly Classified Instances	1	3.0303 %

Correctly Classified Instances	26	78.7879 %
Incorrectly Classified Instances	7	21.2121 %

Correctly Classified Instances	24	72.7273 %
Incorrectly Classified Instances	9	27.2727 %

Correctly Classified Instances	27	81.8182 %
Incorrectly Classified Instances	6	18.1818 %

AdaboostM1

Correctly Classified Instances	30	90.9091 %
Incorrectly Classified Instances	3	9.0909 %

Correctly Classified Instances	31	93.9394 %
Incorrectly Classified Instances	2	6.0606 %

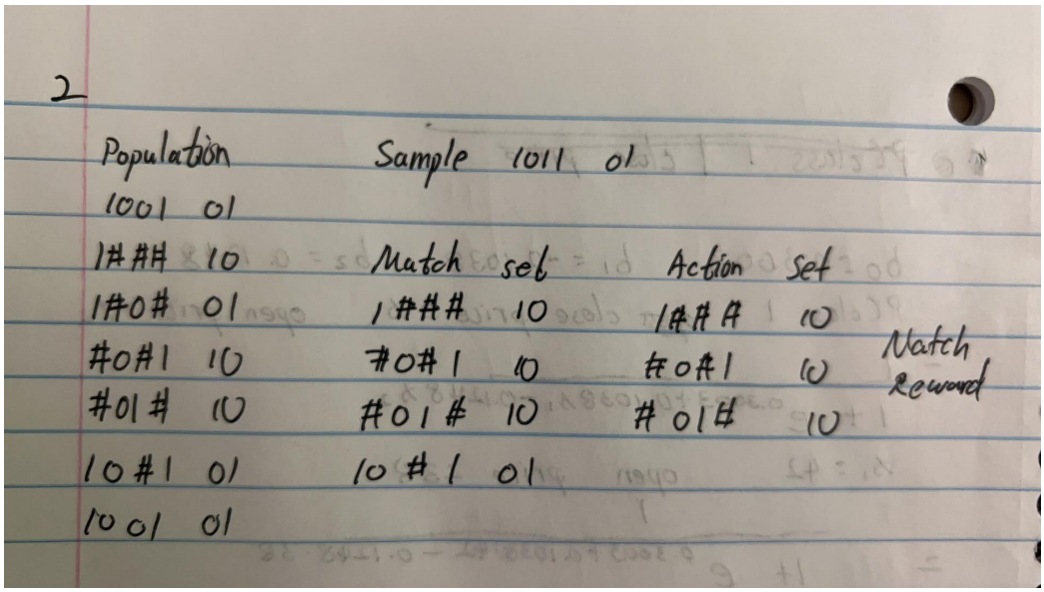
Correctly Classified Instances	30	90.9091 %
Incorrectly Classified Instances	3	9.0909 %

Correctly Classified Instances	30	90.9091 %
Incorrectly Classified Instances	3	9.0909 %

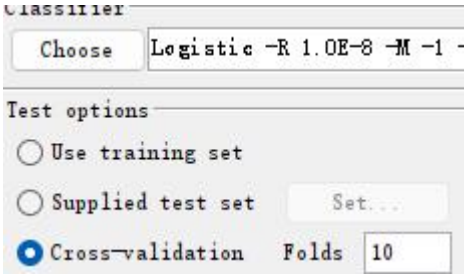
Correctly Classified Instances	24	72.7273 %
Incorrectly Classified Instances	9	27.2727 %

Correctly Classified Instances	28	84.8485 %
Incorrectly Classified Instances	5	15.1515 %

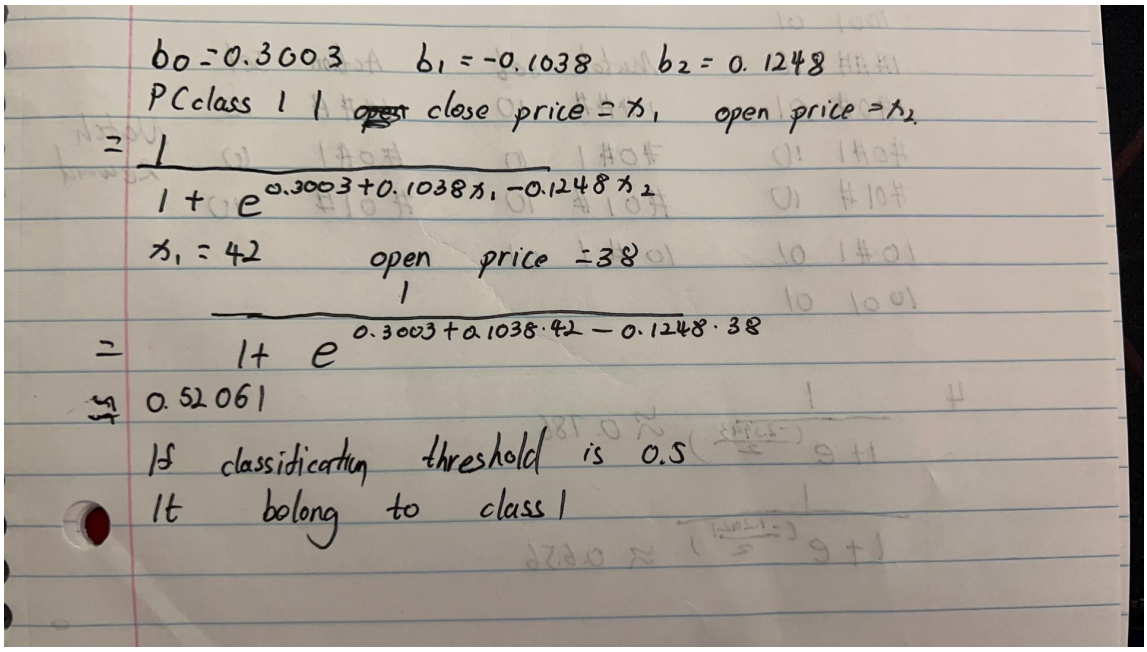
Q2



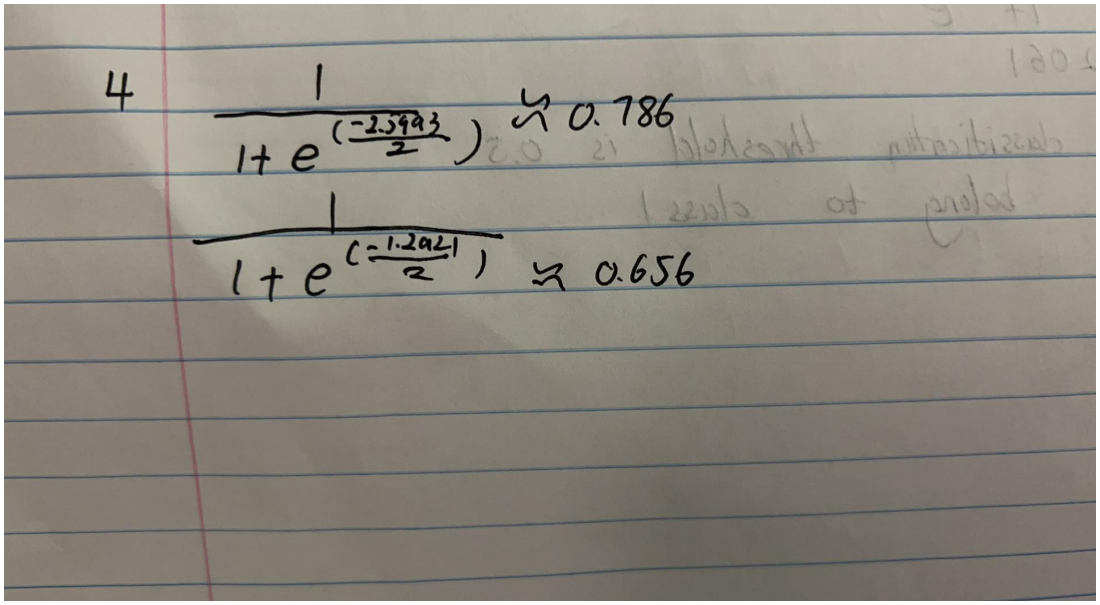
Q3



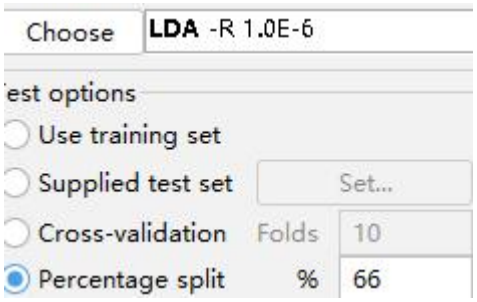

```
Logistic Regression with ridge parameter of 1.0E-8
Coefficients...
                Class
Variable            0
=====================
ClosePrice    -0.1038
OpenPrice      0.1248
Intercept      0.3003


Odds Ratios...
                Class
Variable            0
=====================
ClosePrice     0.9014
OpenPrice      1.1329


=== Summary ===

Correctly Classified Instances        1552               78.7018 %
Incorrectly Classified Instances       420               21.2982 %
Kappa statistic                          0.5815
Mean absolute error                      0.3589
Root mean squared error                  0.4114
Relative absolute error                 72.2613 %
Root relative squared error             82.5526 %
Total Number of Instances             1972

=== Detailed Accuracy By Class ===

               TP Rate   FP Rate   Precision   Recall  F-Measure  MCC      ROC Area  PRC Area  Class
                 0.932    0.336    0.702      0.932     0.801      0.609    0.896     0.847     0
                 0.664    0.068    0.919      0.664     0.771      0.609    0.896     0.903     1
Weighted Avg.    0.787    0.191    0.820      0.787     0.785      0.609    0.896     0.877

=== Confusion Matrix ===

   a   b   <-- classified as
 844  62 |   a = 0
 358 708 |   b = 1
```


$b_0 = 0.3003$ $b_1 = -0.1038$ $b_2 = 0.1248$
PC class 1 | close price $= x_1$ open price $= x_2$
$= \frac{1}{1 + e^{0.3003 + 0.1038 x_1 - 0.1248 x_2}}$
$x_1 = 42$ open price $= 38$
$= \frac{1}{1 + e^{0.3003 + 0.1038 \cdot 42 - 0.1248 \cdot 38}}$
≈ 0.52061
If classidicating threshold is 0.5
It bolong to class 1

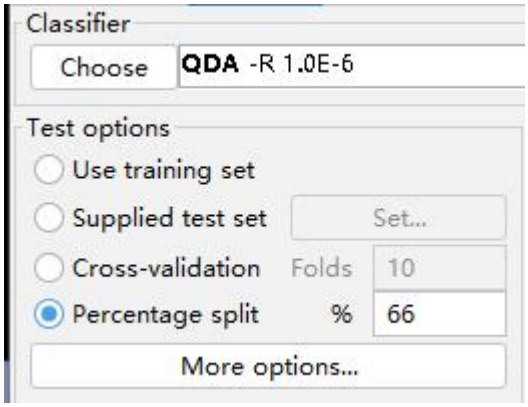
Q4


4 $\frac{1}{1 + e^{(\frac{-2.5993}{2})}} \approx 0.786$
$\frac{1}{1 + e^{(\frac{-1.2821}{2})}} \approx 0.656$

Q5


Choose
LDA -R 1.0E-6
est options
Use training set
Supplied test set
Set...
Cross-validation
Folds
10
Percentage split
%
66

```
Correctly Classified Instances          80               68.3761 %
Incorrectly Classified Instances        37               31.6239 %
Kappa statistic                          0.3041
Mean absolute error                      0.4207
Root mean squared error                  0.4555
Relative absolute error                 86.5648 %
Root relative squared error             93.1353 %
Total Number of Instances              117

=== Detailed Accuracy By Class ===

               TP Rate   FP Rate   Precision   Recall  F-Measure  MCC      ROC Area  PRC Area  Class
                 0.500    0.205     0.595      0.500     0.543      0.307    0.702     0.594     1
                 0.795    0.500     0.725      0.795     0.758      0.307    0.702     0.802     2
Weighted Avg.    0.684    0.389     0.676      0.684     0.677      0.307    0.702     0.724

=== Confusion Matrix ===

  a  b   <-- classified as
 22 22 |  a = 1
 15 58 |  b = 2
```




```
=== Summary ===

Correctly Classified Instances          73               62.3932 %
Incorrectly Classified Instances        44               37.6068 %
Kappa statistic                          0.2942
Mean absolute error                      0.406
Root mean squared error                  0.4693
Relative absolute error                 83.5428 %
Root relative squared error             95.9529 %
Total Number of Instances              117

=== Detailed Accuracy By Class ===

               TP Rate   FP Rate   Precision   Recall  F-Measure  MCC      ROC Area  PRC Area  Class
                 0.841    0.507     0.500      0.841     0.627      0.336    0.742     0.601     1
                 0.493    0.159     0.837      0.493     0.621      0.336    0.742     0.827     2
Weighted Avg.    0.624    0.290     0.710      0.624     0.623      0.336    0.742     0.742

=== Confusion Matrix ===

  a  b   <-- classified as
 37  7 |  a = 1
 37 36 |  b = 2
```

I will choose LDA because it has higher correctly classified instances percentage.