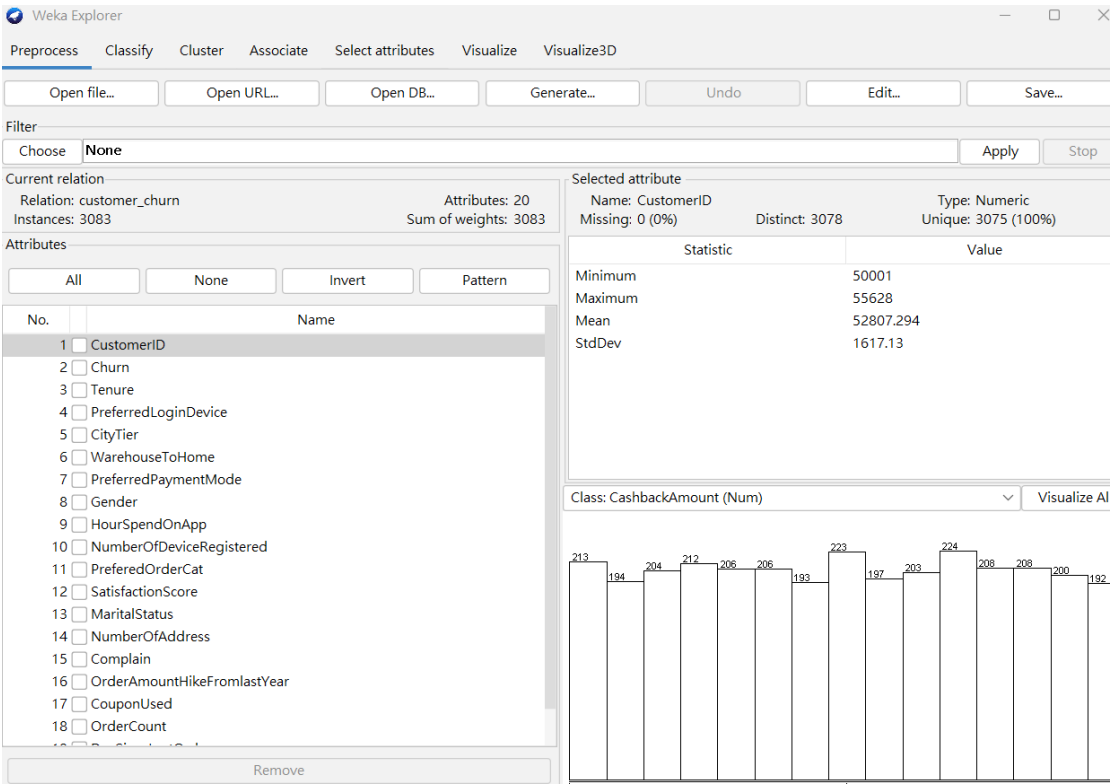
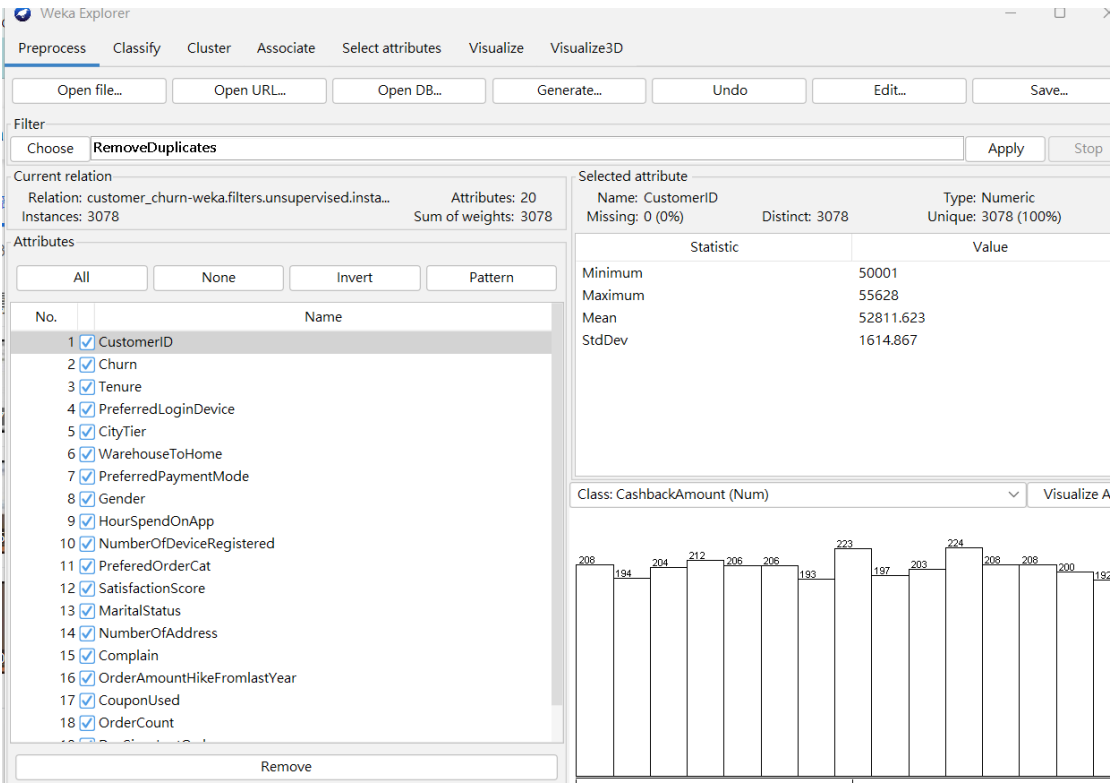


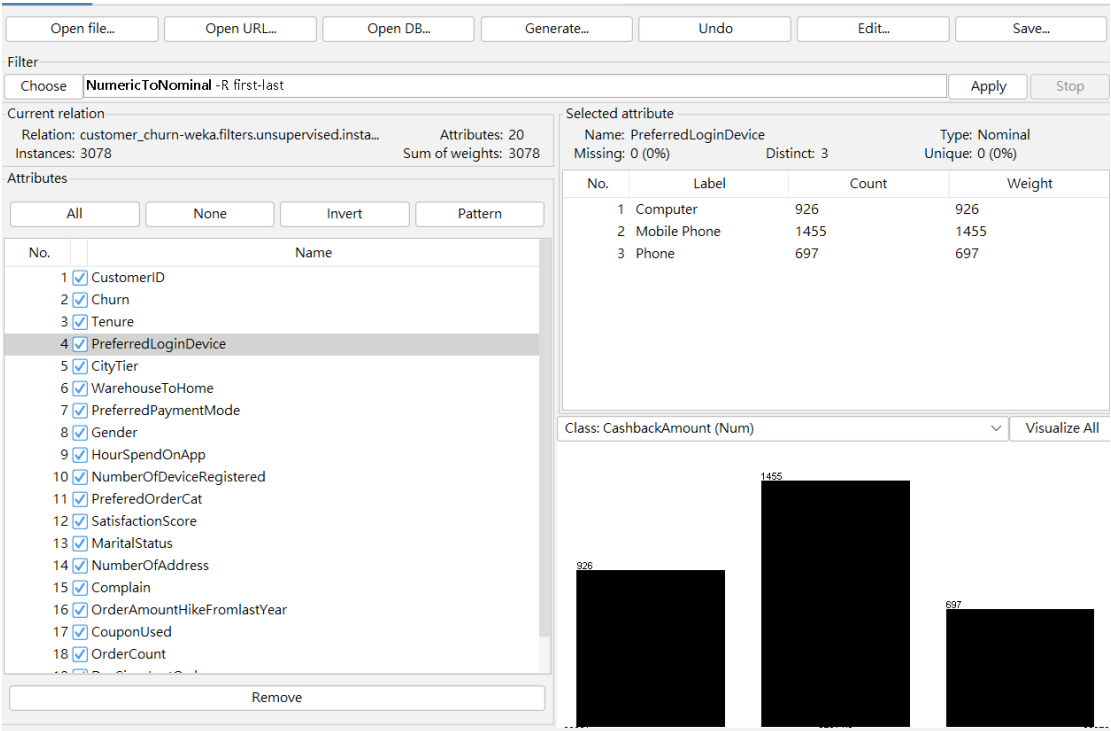
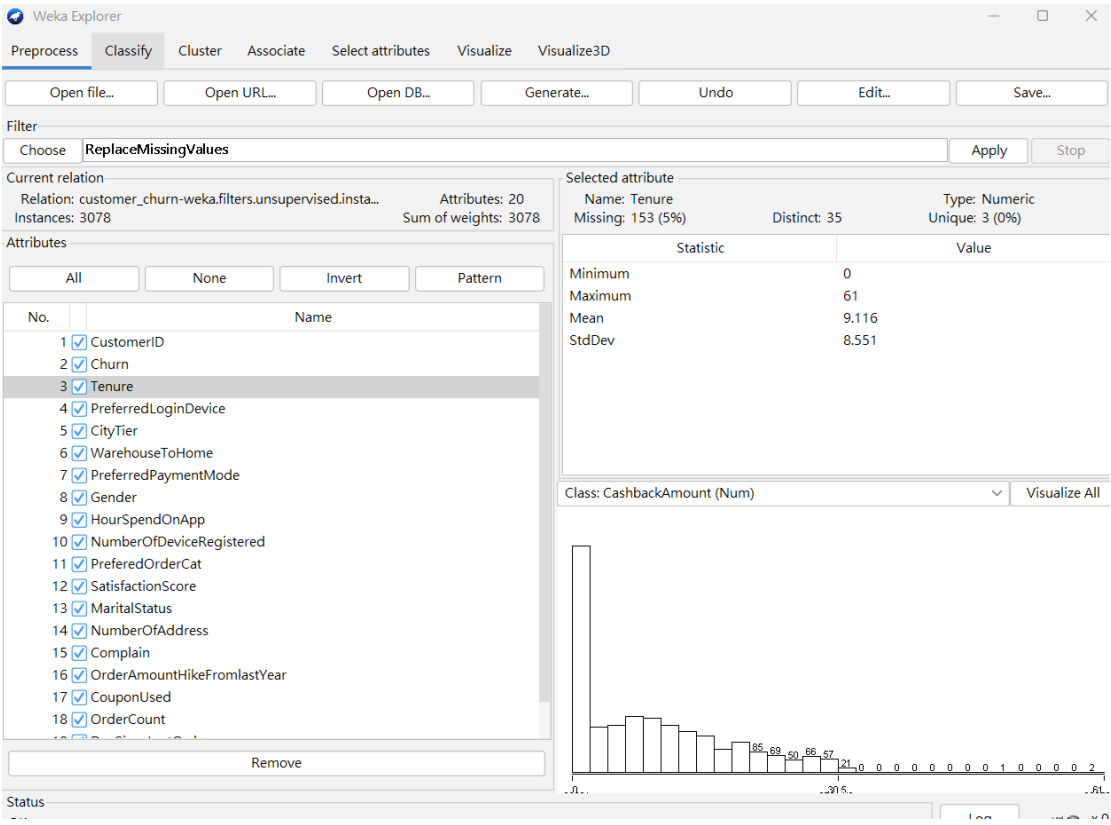
第一題 列出資料筆數、屬性數量以及每個欄位的空值個數



第二題(剩 3078 筆)



第三題 資料前處理



第四題

Decision Tree

Classifier

Choose **Logistic -R 1.0E-8 -M -1 -num-decimal-places 4**

Test options

☐ Use training set

☐ Supplied test set

Set...

☐ Cross-validation

Folds 10

☒ Percentage split

% 70

More options...

(Nom) Churn

▼

Start

Stop

Result list (right-click for options)

22:46:34 - trees.J48

22:46:52 - functions.SMO

22:48:07 - functions.Logistic

Classifier output

Time taken to build model: 0.07 seconds

=== Evaluation on test split ===

Time taken to test model on test split: 0.03 seconds

=== Summary ===

| | | |
|----------------------------------|-----------|-----------|
| Correctly Classified Instances | 702 | 81.7229 % |
| Incorrectly Classified Instances | 157 | 18.2771 % |
| Kappa statistic | 0.467 | |
| Mean absolute error | 0.3017 | |
| Root mean squared error | 0.3916 | |
| Relative absolute error | 73.2209 % | |
| Root relative squared error | 87.0821 % | |
| Total Number of Instances | 859 | |

=== Detailed Accuracy By Class ===

| | TP Rate | FP Rate | Precision | Recall | F-Measure | MCC | ROC Area | PRC Area | Class |
|---------------|---------|---------|-----------|--------|-----------|-------|----------|----------|-------|
| | 0.969 | 0.573 | 0.813 | 0.969 | 0.884 | 0.510 | 0.703 | 0.819 | 0 |
| | 0.427 | 0.031 | 0.844 | 0.427 | 0.567 | 0.510 | 0.703 | 0.534 | 1 |
| Weighted Avg. | 0.817 | 0.421 | 0.822 | 0.817 | 0.795 | 0.510 | 0.703 | 0.739 | |

=== Confusion Matrix ===

a b <-- classified as

599 19 | a = 0

138 103 | b = 1

SVM

Classifier

Choose **Logistic -R 1.0E-8 -M -1 -num-decimal-places 4**

Test options

☐ Use training set

☐ Supplied test set

Set...

☐ Cross-validation

Folds 10

☒ Percentage split

% 70

More options...

(Nom) Churn

▼

Start

Stop

Result list (right-click for options)

22:46:34 - trees.J48

22:46:52 - functions.SMO

22:48:07 - functions.Logistic

Classifier output

Time taken to build model: 17.92 seconds

=== Evaluation on test split ===

Time taken to test model on test split: 0.02 seconds

=== Summary ===

| | | |
|----------------------------------|-----------|-----------|
| Correctly Classified Instances | 742 | 86.3795 % |
| Incorrectly Classified Instances | 117 | 13.6205 % |
| Kappa statistic | 0.6587 | |
| Mean absolute error | 0.1362 | |
| Root mean squared error | 0.3691 | |
| Relative absolute error | 33.0608 % | |
| Root relative squared error | 82.0735 % | |
| Total Number of Instances | 859 | |

=== Detailed Accuracy By Class ===

| | TP Rate | FP Rate | Precision | Recall | F-Measure | MCC | ROC Area | PRC Area | Class |
|---------------|---------|---------|-----------|--------|-----------|-------|----------|----------|-------|
| | 0.913 | 0.261 | 0.900 | 0.913 | 0.906 | 0.659 | 0.826 | 0.884 | 0 |
| | 0.739 | 0.087 | 0.767 | 0.739 | 0.753 | 0.659 | 0.826 | 0.640 | 1 |
| Weighted Avg. | 0.864 | 0.213 | 0.862 | 0.864 | 0.863 | 0.659 | 0.826 | 0.815 | |

=== Confusion Matrix ===

a b <-- classified as

564 54 | a = 0

63 178 | b = 1

Logistic Regression

Classifier

Choose

Logistic -R 1.0E-8 -M -1 -num-decimal-places 4

Test options

☐ Use training set

☐ Supplied test set

Set...

☐ Cross-validation

Folds

10

☒ Percentage split

%

70

More options...

(Nom) Churn

Start

Stop

Result list (right-click for options)

22:46:34 - trees.J48

22:46:52 - functions.SMO

22:48:07 - functions.Logistic

Classifier output

Time taken to build model: 19.78 seconds

=== Evaluation on test split ===

Time taken to test model on test split: 0.01 seconds

=== Summary ===

| | | |
|----------------------------------|-----------|-----------|
| Correctly Classified Instances | 722 | 84.0512 % |
| Incorrectly Classified Instances | 137 | 15.9488 % |
| Kappa statistic | 0.6054 | |
| Mean absolute error | 0.1799 | |
| Root mean squared error | 0.3518 | |
| Relative absolute error | 43.6581 % | |
| Root relative squared error | 78.2278 % | |
| Total Number of Instances | 859 | |

=== Detailed Accuracy By Class ===

| | TP Rate | FP Rate | Precision | Recall | F-Measure | MCC | ROC Area | PRC Area | Class |
|---------------|---------|---------|-----------|--------|-----------|-------|----------|----------|-------|
| | 0.888 | 0.282 | 0.890 | 0.888 | 0.889 | 0.605 | 0.891 | 0.946 | 0 |
| | 0.718 | 0.112 | 0.715 | 0.718 | 0.716 | 0.605 | 0.891 | 0.761 | 1 |
| Weighted Avg. | 0.841 | 0.234 | 0.841 | 0.841 | 0.841 | 0.605 | 0.891 | 0.894 | |

=== Confusion Matrix ===

a

b

<-- classified as

549

69

|

a = 0

68

173

|

b = 1