

Final eclipse2 - org.ml.pom.xml - Eclipse IDE

File Edit Source Navigate Search Project Run Window Help

Project Explorer

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 - org.ml
 - DataAnalysis.java
 - LinearReg.java
 - LogisticReg.java
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 - data_banknote_authentication_training.arff
 - data_banknote_authentication_training1.arff
 - data_banknote_authentication(1).csv
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org.ml.pom.xml

```
3 <groupId>com</groupId>
4 <artifactId>org.ml</artifactId>
5 <version>0.0.1-SNAPSHOT</version>
6 <dependencies>
7 <dependency>
```

Overview | Dependencies | Dependency Hierarchy | Effective POM | pom.xml

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<terminated> C:\Users\patte\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_15.0.2.v20210201-0955\jre\bin\javaw.exe (08-May-2021, 7:54:09 pm)

[INFO] -----[jar]-----

[INFO] --- maven-resources-plugin:2.6:resources (default-resources) @ org.ml ---

[WARNING] Using platform encoding (Cp1252 actually) to copy filtered resources, i.e. build is platform dependent!

[INFO] Copying 0 resource

[INFO] --- maven-compiler-plugin:3.1:compile (default-compile) @ org.ml ---

[INFO] Changes detected - recompiling the module!

[WARNING] File encoding has not been set, using platform encoding Cp1252, i.e. build is platform dependent!

[INFO] Compiling 3 source files to C:\Users\patte\Desktop\Final eclipse2\org.ml\target\classes

[INFO] --- maven-resources-plugin:2.6:testResources (default-testResources) @ org.ml ---

[WARNING] Using platform encoding (Cp1252 actually) to copy filtered resources, i.e. build is platform dependent!

[INFO] Copying 0 resource

[INFO] --- maven-compiler-plugin:3.1:testCompile (default-testCompile) @ org.ml ---

[INFO] Nothing to compile - all classes are up to date

[INFO] --- maven-surefire-plugin:2.12.4:test (default-test) @ org.ml ---

[INFO] --- maven-jar-plugin:2.4:jar (default-jar) @ org.ml ---

[INFO] Building jar: C:\Users\patte\Desktop\Final eclipse2\org.ml\target\org.ml-0.0.1-SNAPSHOT.jar

[INFO] --- maven-install-plugin:2.4:install (default-install) @ org.ml ---

[INFO] Installing C:\Users\patte\Desktop\Final eclipse2\org.ml\target\org.ml-0.0.1-SNAPSHOT.jar to C:\Users\patte\.m2\repository\com\org.ml\0.0.1-SNAPSHOT\org.ml-0.0.1-SNAPSHOT.jar

[INFO] Installing C:\Users\patte\Desktop\Final eclipse2\org.ml\pom.xml to C:\Users\patte\.m2\repository\com\org.ml\0.0.1-SNAPSHOT\org.ml-0.0.1-SNAPSHOT.pom

[INFO] BUILD SUCCESS

[INFO] Total time: 3.544 s

[INFO] Finished at: 2021-05-08T19:54:21+05:30

project/dependencies/dependency/#text

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19:54 08-05-2021

Final eclipse2 - org.ml/src/main/java/org.ml/DataAnalysis.java - Eclipse IDE

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org.ml/pom.xml

```
1 package org.ml;
2
3 import java.io.IOException;
4
5 import tech.tablesaw.api.Table;
```

Markers Properties Servers Data Source Explorer Snippets Console

<terminated> DataAnalysis [Java Application] C:\Users\patte\p2\pool\plugins\org.eclipse.justopenjdk.hotspot.jre.full.win32.x86_64_15.0.2.v20210201-0955\jre\bin\javaw.exe (08-May-2021, 7:54:52 pm - 7:54:55 pm)

1372 rows X 5 cols

data_banknote_authentication (1).csv

Variance	Skewness	Curtosis	Entropy	Class
3.6216	8.6661	-2.8073	-0.44699	0
4.5459	8.1674	-2.4586	-1.4621	0
3.866	-2.6383	1.9242	0.10645	0
3.4566	9.5228	-4.0112	-3.5944	0

data_banknote_authentication (1).csv

Variance	Skewness	Curtosis	Entropy	Class
-1.3887	-4.8773	6.4774	0.34179	1
-3.7583	-13.4586	17.5932	-2.7771	1
-3.5637	-8.3827	12.393	-1.2823	1
-2.5419	-0.65804	2.6842	1.1952	1

Structure of data_banknote_authentication (1).csv

Index	Column Name	Column Type
0	Variance	DOUBLE
1	Skewness	DOUBLE
2	Curtosis	DOUBLE
3	Entropy	DOUBLE
4	Class	INTEGER

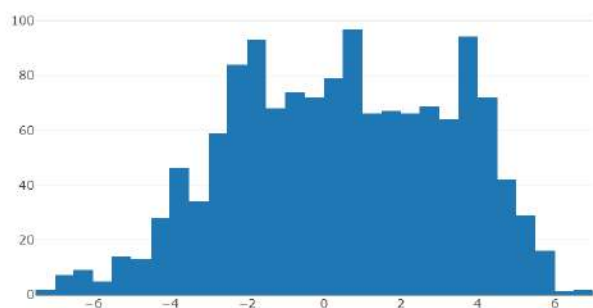
data_banknote_authentication (1).csv

Summary	Variance	Skewness	Curtosis	Entropy	Class
Count	1372	1372	1372	1372	1372
sum	595.084772699998	2637.468481520002	1917.5444048900017	-1634.9527454999989	610
Mean	0.4337352570699696	1.9223531206414035	1.3976271172667638	-1.1916565200437328	0.44460641399416895
Min	-7.0421	-13.7731	-5.2861	-8.5482	0
Max	6.8248	12.9516	17.9274	2.4495	1
Range	13.8669	26.7247	23.2135	10.9977	1
Variance	8.081299121945154	34.44570967967512	18.576359377624264	4.414256203357667	0.2471116611596257
Std. Dev	2.8427625862785577	5.86904674369485	4.310830090106595	2.101013137359609	0.4971032701256608

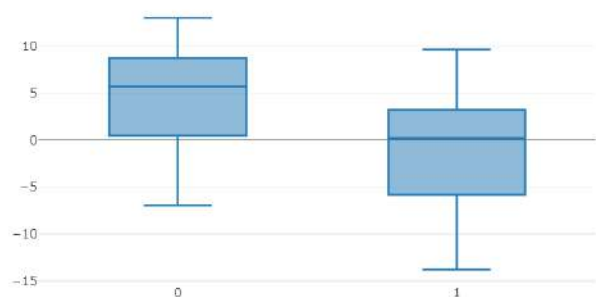
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Distribution of VARIANCE



Class Distribution



Final eclipse2 - org.ml/src/main/java/org/ml/LinearReg.java - Eclipse IDE

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org.ml/pom.xml

```
1 package org.ml;
2
3 import weka.classifiers.Evaluation;
4 import weka.classifiers.functions.LinearRegression;
5 import weka.core.Instances;
6 import weka.core.converters.ConverterUtils.DataSource;
7
8 public class LinearReg {
9     public static void main(String[] args) throws Exception {
10         DataSource source = new DataSource("C:\\\\Users\\patte\\\\Desktop\\\\Final eclipse2\\\\org
11         Instances dataset = source.getDataSet();
12         dataset.setClassIndex(dataset.numAttributes()-1);
13         //Linear Regression
14         LinearRegression lr = new LinearRegression();
15         lr.buildClassifier(dataset);
16
17         Evaluation lreval = new Evaluation(dataset);
18         lreval.evaluateModel(lr, dataset);
19         System.out.println(lreval.toSummaryString());
20
21     }
22 }
23
24 }
25
```

org.ml

 - org.ml
 - LinearReg
 - main(String[]): void

Markers Properties Servers Data Source Explorer Snippets Console

<terminated> LinearReg [Java Application] C:\\Users\\patte\\p2\\pool\\plugins\\org.eclipse.justi.openjdk hotspot.jre.full.win32.x86_64_15.0.2.v20210201-0955\\jre\\bin\\javaw.exe (08-May-2021, 7:55:59 pm - 7:56:04 pm)

Correlation coefficient	0.93
Mean absolute error	0.1354
Root mean squared error	0.1827
Relative absolute error	27.4233 %
Root relative squared error	36.7632 %
Total Number of Instances	1372

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19:56 08-05-2021 ENG

Final eclipse2 - org.ml/src/main/java/org/ml/LogisticReg.java - Eclipse IDE

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 - data_banknote_authentication_training1.arff
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 - data_banknote_authentication_training.arff
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 - LogisticReg.java
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 - pom.xml

org.ml/pom.xml

```
1 package org.ml;
2
3 import java.util.Arrays;
4
5 import weka.classifiers.Classifier;
6 import weka.classifiers.evaluation.Evaluation;
7 import weka.core.Instance;
8 import weka.core.Instances;
9 import weka.core.converters.ConverterUtils.DataSource;
10
11 public class LogisticReg {
12
13
```

Outline

 - org.ml
 - LogisticReg
 - getInstances(String) : Instances
 - main(String[]) : void

Markers Properties Servers Data Source Explorer Snippets Console

<terminated> LogisticReg [Java Application] C:\Users\pattel.p2\pool\plugins\org.eclipse.justopenjdk\hotspot\jre.full.win32.x86_64_15.0.2.v20210201-0955\jre\bin\javaw.exe (08-May-2021, 7:56:37 pm)

1098

**** Logistic Regression Evaluation with Datasets ****

Correctly Classified Instances	271	98.9051 %
Incorrectly Classified Instances	3	1.0949 %
Kappa statistic	0.9779	
Mean absolute error	0.0123	
Root mean squared error	0.0898	
Relative absolute error	2.4887 %	
Root relative squared error	18.0217 %	
Total Number of Instances	274	

Confusion matrix:
[148.0, 1.0]
[2.0, 123.0]

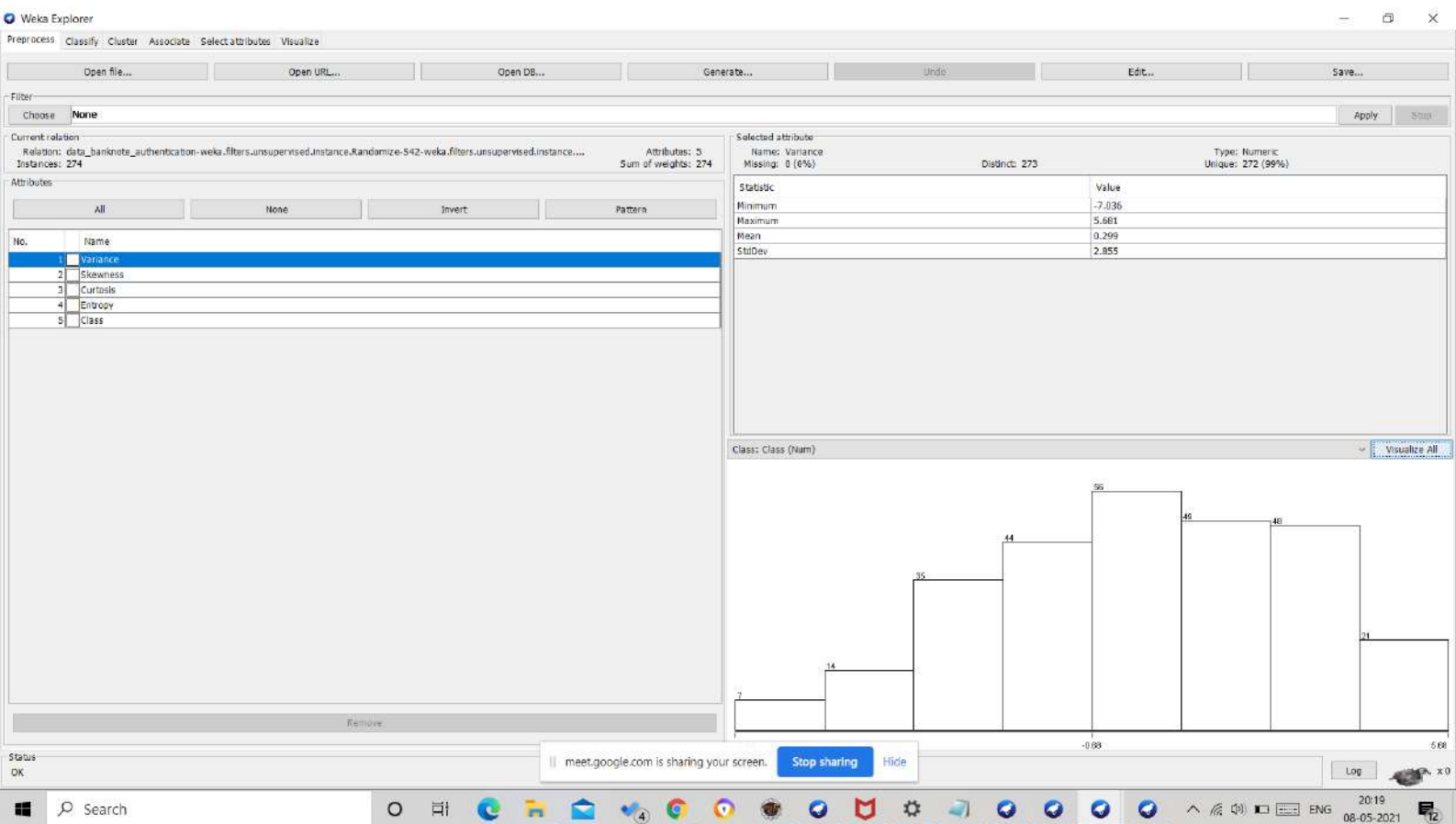
Area under the curve
0.9997852348993289

[Correct, Incorrect, Kappa, Total cost, Average cost, KB relative, KB information, Correlation, Complexity 0, Complexity scheme, Complexity improvement, MAE, Recall :0.98
Precision:0.99
F1 score:0.99
Accuracy:0.99

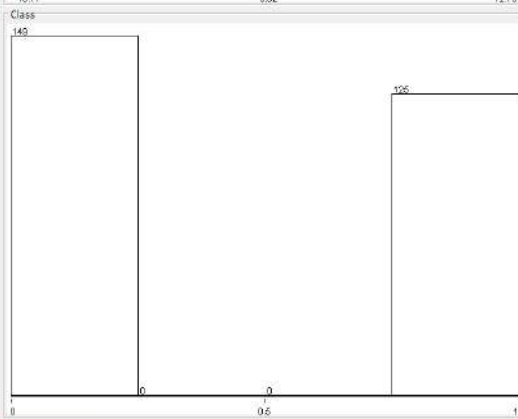
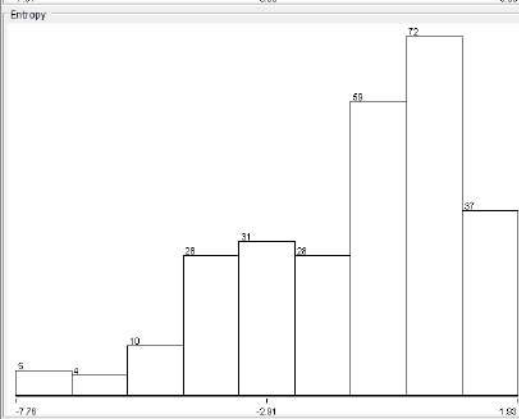
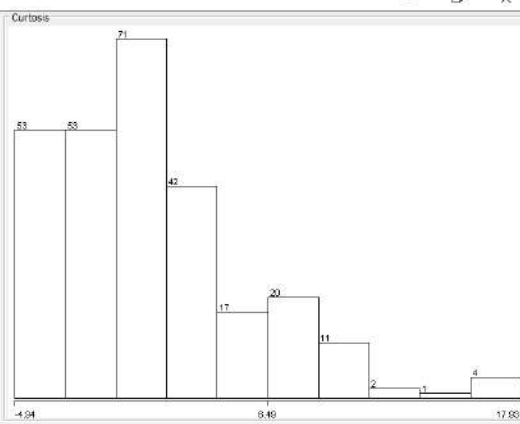
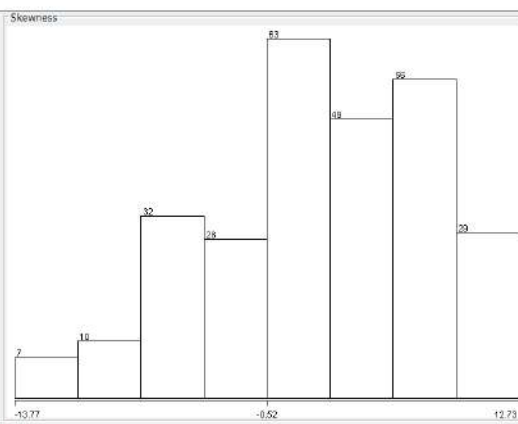
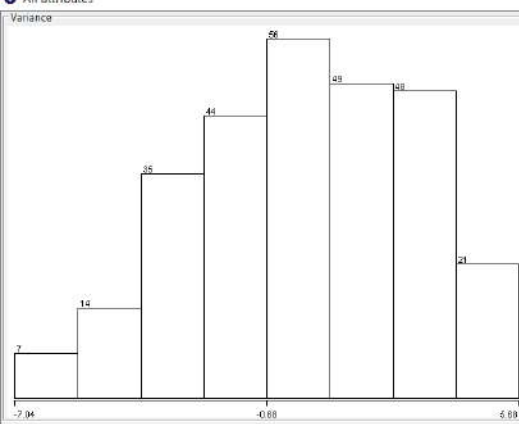
Predicted label:
1.0

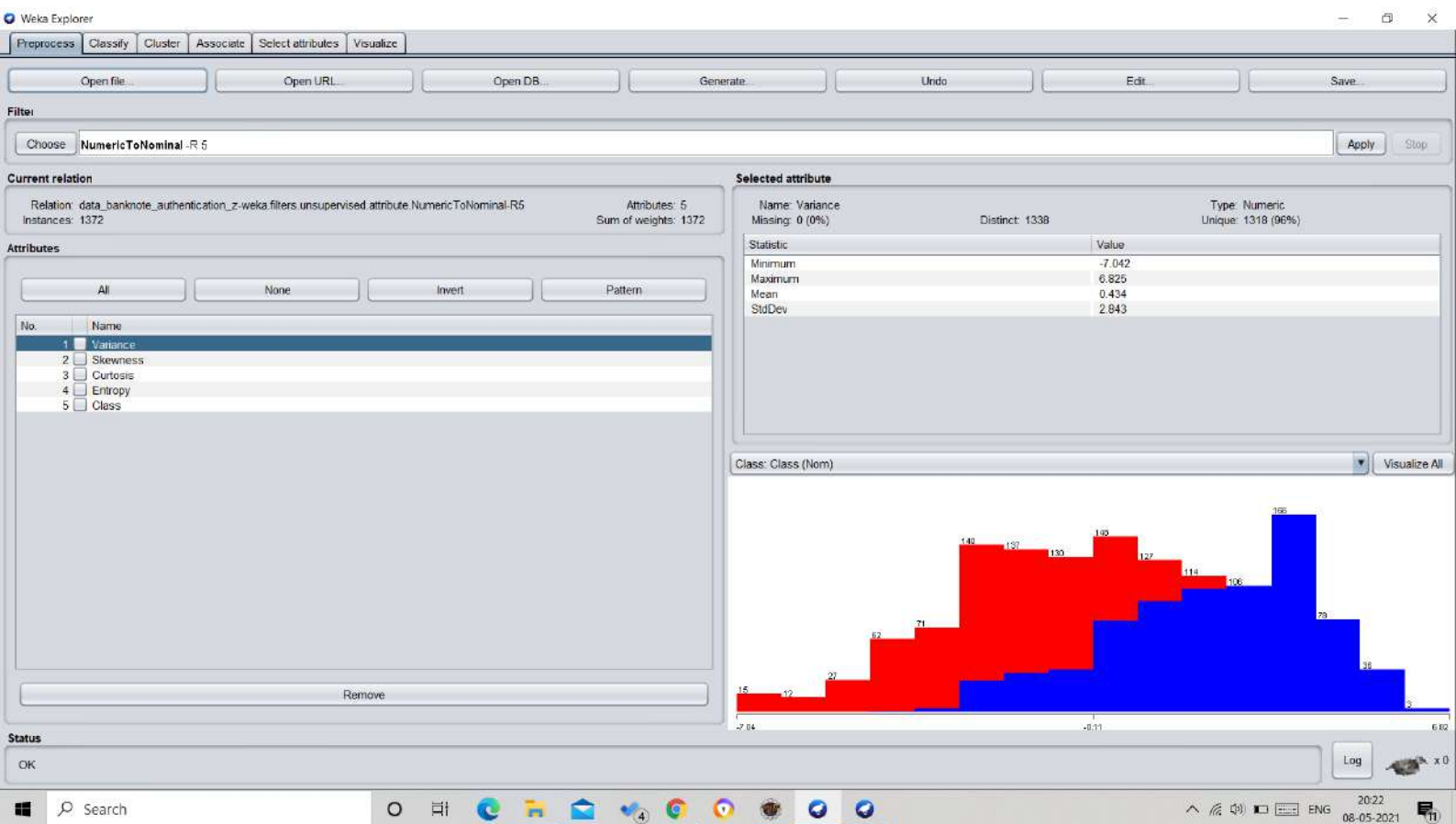
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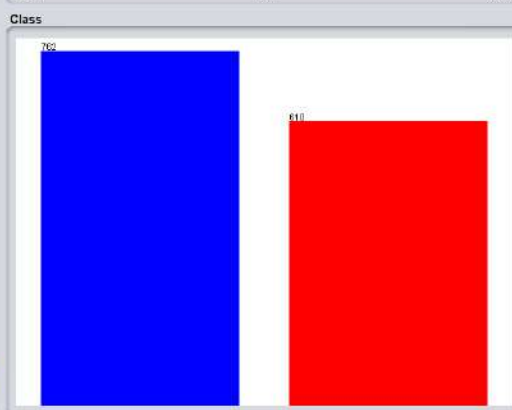
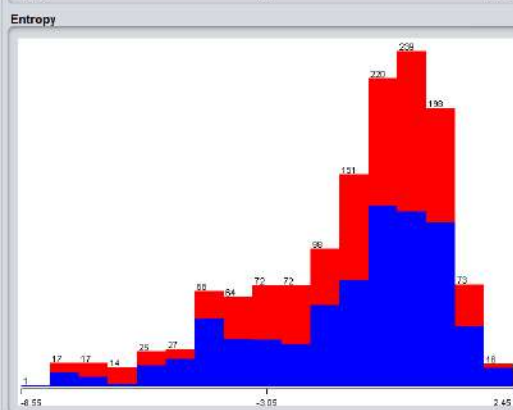
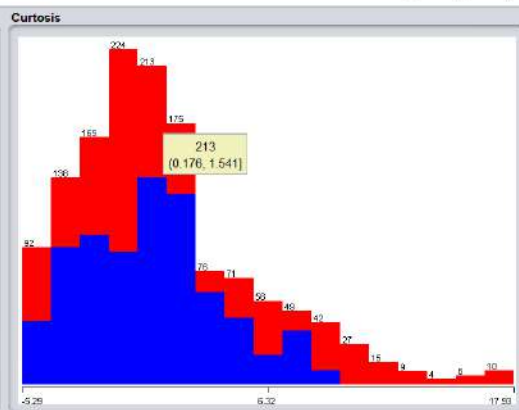
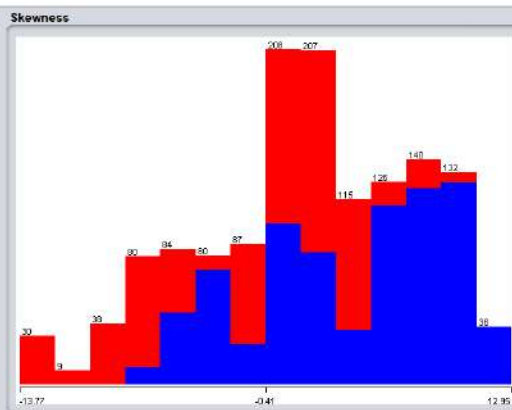
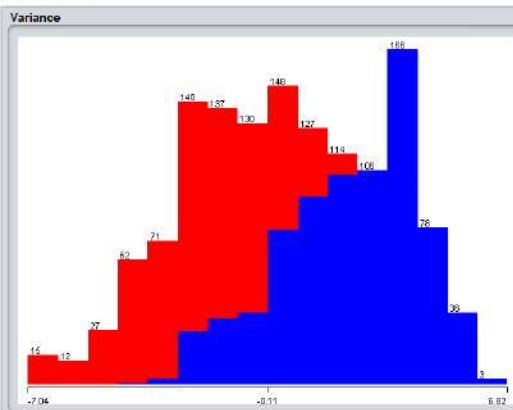


All attributes





All attributes



Weka Explorer

Preprocess Classify Cluster Associate Select attributes Visualize

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 % 66

More options...

(Nom) Class

Start Stop

Result list (right-click for options)

10:54:10 - functions Logistic

Classifier output

=== Run information ===

Scheme: weka.classifiers.functions.Logistic -R 1.0E-8 -M -1 -num-decimal-places 4
Relation: data_banknote_authentication_z-weka.filters.unsupervised.attribute.NumericToNominal-R5
Instances: 1372
Attributes: 5
Variance
Skewness
Curtosis
Entropy
Class

Test mode: 10-fold cross-validation

=== Classifier model (full training set) ===

Logistic Regression with ridge parameter of 1.0E-8
Coefficients...

Variable	Class
	0
=====	
Variance	7.9594
Skewness	4.151
Curtosis	5.2875
Entropy	0.6053
Intercept	-7.3219

Odds Ratios...

Variable	Class
	0
=====	
Variance	2590.0439
Skewness	66.0852
Curtosis	197.8461

Status

OK Log

Search

20:45 08-05-2021

Weka Explorer

Preprocess Classify Cluster Associate Select attributes Visualize

Classifier

Choose Logistic -R 1.0E-6 -M 1 -num-decimal-places 4

Test options

☐ Use training set

☐ Supplied test set Set...

☒ Cross-validation Folds 10

☐ Percentage split % 66

More options...

(Norm) Class

Start Stop

Result list (right-click for options)

18:54:10 - functions Logistic

Classifier output

127	1:0	1:0	1
128	1:0	1:0	1
129	1:0	1:0	1
130	1:0	1:0	1
131	1:0	1:0	1
132	1:0	1:0	1
133	1:0	1:0	1
134	1:0	1:0	1
135	1:0	1:0	0.985
136	1:0	1:0	1
137	1:0	1:0	0.688
138	1:0	1:0	1
1	2:1	1:0	+ 0.678
2	2:1	1:0	+ 0.905
3	2:1	2:1	1
4	2:1	2:1	1
5	2:1	2:1	1
6	2:1	2:1	1
7	2:1	2:1	1
8	2:1	2:1	1
9	2:1	2:1	1
10	2:1	2:1	1
11	2:1	2:1	1
12	2:1	2:1	1
13	2:1	2:1	1
14	2:1	1:0	+ 0.965
15	2:1	2:1	1
16	2:1	2:1	1
17	2:1	2:1	1
18	2:1	2:1	1
19	2:1	2:1	1
20	2:1	2:1	1
21	2:1	2:1	1
22	2:1	2:1	1

Status

OK Log

Search

20:45 08-05-2021 ENG

Weka Explorer

Preprocess Classify Cluster Associate Select attributes Visualize

Classifier

Choose Logistic -R 1.0E-6 -M 1 -num-decimal-places 4

Test options

☐ Use training set

☐ Supplied test set Set...

☒ Cross-validation Folds 10

☐ Percentage split % 66

More options...

(Nom) Class

Start Stop

Result list (right-click for options)

10:54:10 - functions Logistic

Classifier output

```
131 1:0 1:0 1
132 1:0 1:0 1
133 1:0 1:0 1
134 1:0 1:0 1
135 1:0 1:0 1
136 1:0 1:0 1
137 1:0 1:0 1

=== Stratified cross-validation ===
=== Summary ===
Correctly Classified Instances 1360 99.1254 %
Incorrectly Classified Instances 12 0.8746 %
Kappa statistic 0.9823
Mean absolute error 0.012
Root mean squared error 0.0814
Relative absolute error 2.4278 %
Root relative squared error 16.3751 %
Total Number of Instances 1372

=== Detailed Accuracy By Class ===
          TP Rate  FP Rate  Precision  Recall  F-Measure  MCC  ROC Area  PRC Area  Class
          0.992  0.010  0.992  0.992  0.992  0.982  1.000  1.000  0
          0.990  0.008  0.990  0.990  0.990  0.982  1.000  1.000  1
Weighted Avg.  0.991  0.009  0.991  0.991  0.991  0.982  1.000  1.000

=== Confusion Matrix ===
  a  b  <-- classified as
756 6 |   a = 0
6 604 |   b = 1
```

Status

OK

Log