

ASSIGNMENT 9

24/04/24

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REGNO : 20214272
GROUP : CS6D
TOPIC : DATA MINING LAB
CODE : CS-16202

Objective 1.1 :

Applications Places Viena Explorer Wed 11:59 AM

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...

(Non) play

Start Step

Result list (right-click for options)

11:49:00 - trees.J48

11:51:58 - trees.J48

Classifier output

Number of leaves : 5

Size of the tree : 8

Time taken to build model: 0 seconds

=== Stratified cross-validation ===

Summary

Correctly Classified Instances	7	50	%
Incorrectly Classified Instances	7	50	%
Kappa statistic	-0.0426		
Mean absolute error	0.4567		
Root mean squared error	0.5301		
Relative absolute error	87.5 %		
Root relative squared error	131.3987 %		
Total Number of Instances	14		

=== Detailed Accuracy By Class ===

	TP Rate	FP Rate	Precision	Recall	F-Measure	ROC	ROC Area	PRC Area	Class
yes	0.556	0.600	0.625	0.556	0.588	-0.043	0.633	0.758	yes
no	0.400	0.444	0.333	0.400	0.364	-0.043	0.633	0.457	no
Weighted Avg.	0.500	0.544	0.521	0.500	0.506	-0.043	0.633	0.650	

=== Confusion Matrix ===

a b <- classified as

5 4 | a = yes

3 2 | b = no

Status OK Log 0

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Objective 1.2 :

Applications Places Viena Explorer Wed 11:59 AM

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...

(Non) play

Start Step

Result list (right-click for options)

11:49:00 - trees.J48

11:51:58 - trees.J48

Classifier output

Size of the tree : 8

=== Stratified cross-validation ===

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=== Confusion Matrix ===

a b <- classified as

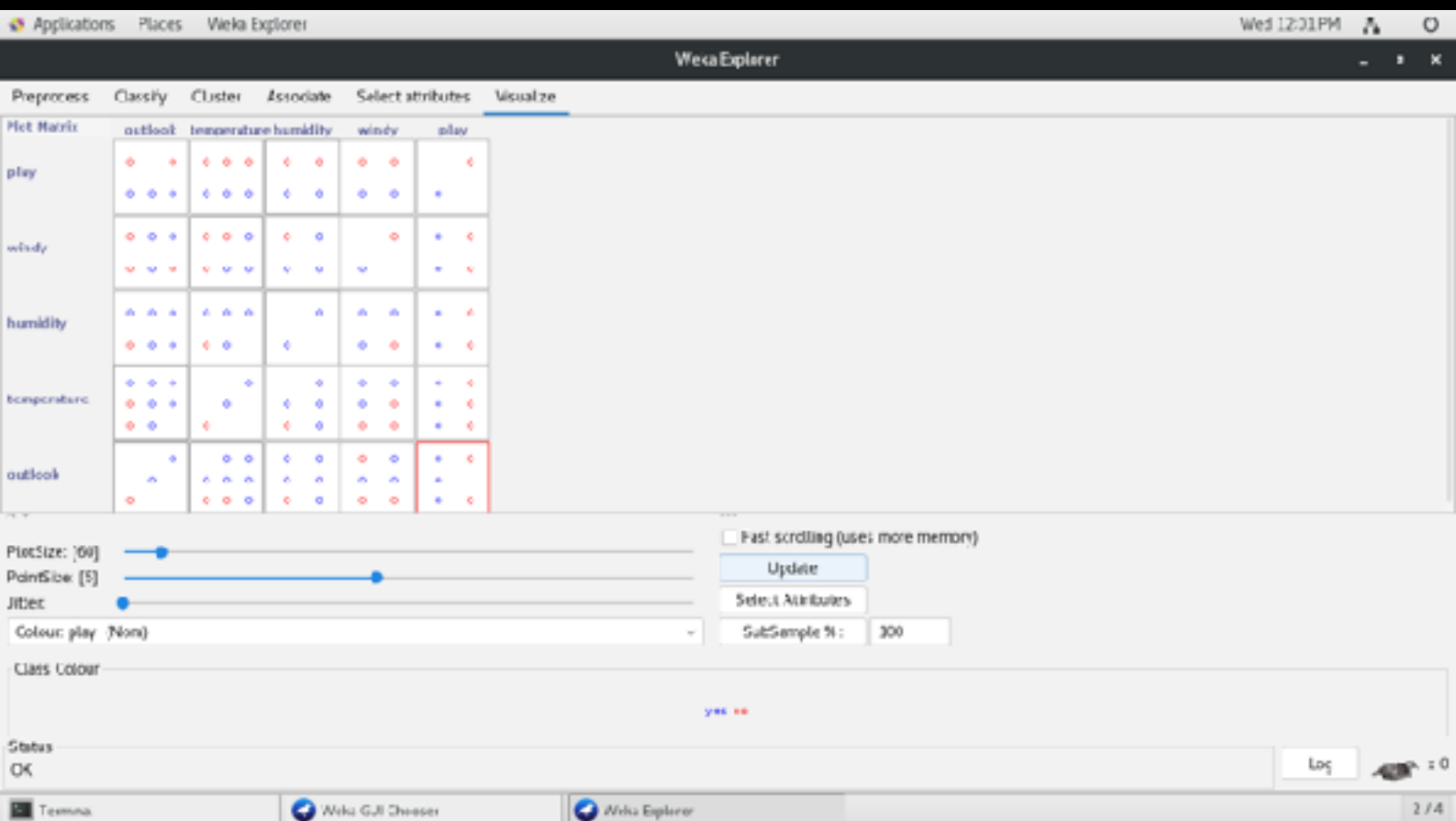
5 4 | a = yes

3 2 | b = no

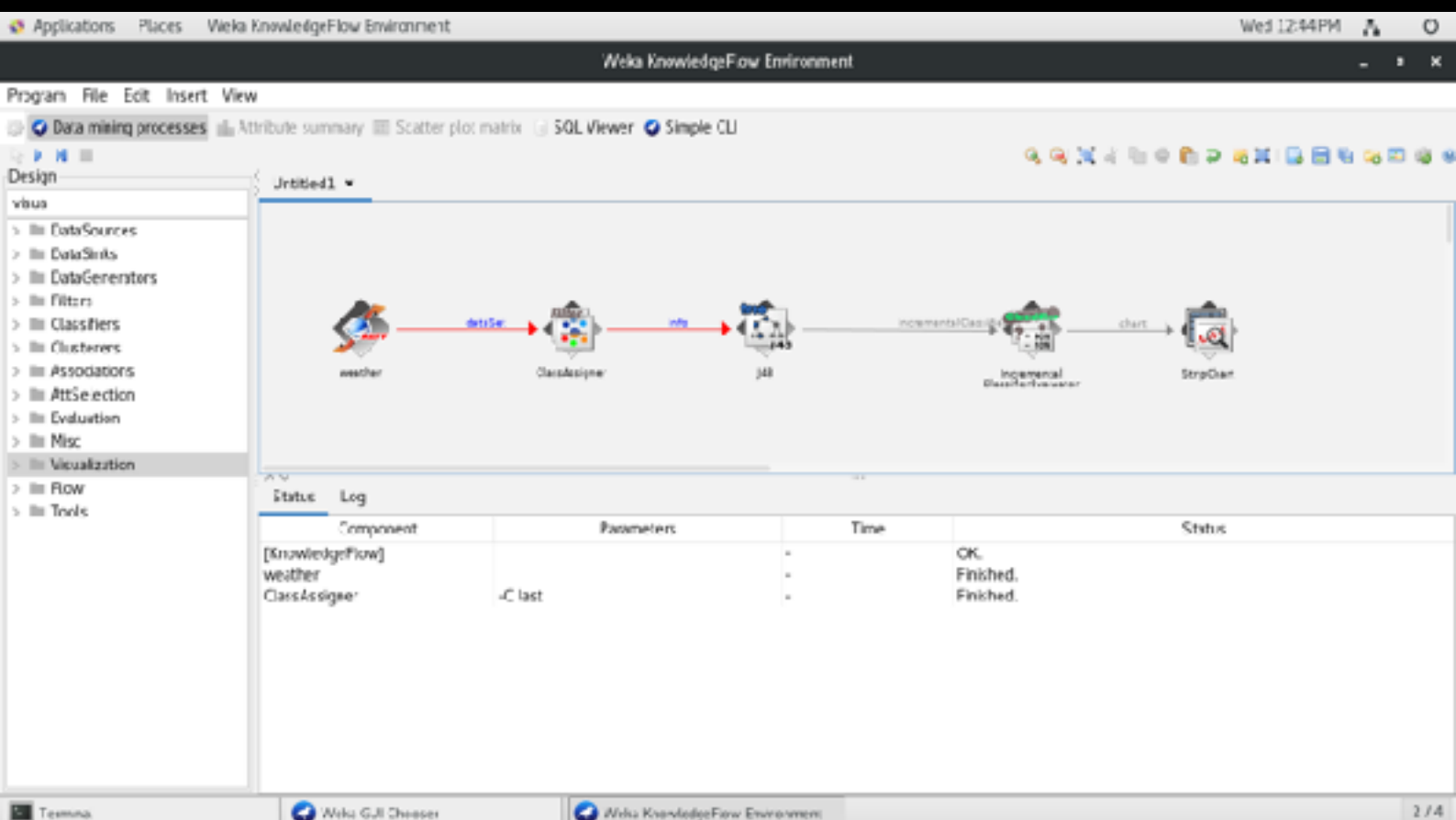
Status OK Log 0

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Objective 1.3 :



Objective 2 :



```

import pandas as pd
from weka.classifiers import Classifier
from weka.core.converters import Loader
from weka.classifiers import Evaluation
from weka.core.classes import Random

# Load dataset
loader =
Loader(classname="weka.core.converters.ArffLoader")
data = loader.load_file("weather.nominal.arff")
data.class_is_last()
# Preprocess the data (not necessary for this dataset)
# Implement J48 algorithm
cls =
Classifier(classname="weka.classifiers.trees.J48")
cls.build_classifier(data)
# Verify the result
evaluation = Evaluation(data)
evaluation.crossvalidate_model(cls, data, 10,
Random(1))
# Print classification results
print("Classification Results:")
print(evaluation.summary())
# Print entropy values and Kappa statistic
print("Entropy:", evaluation.mean_entropy())
print("Kappa:", evaluation.kappa())
# Extract if-then rules
print("If-then rules:")
print(cls)

```

Correctly Classified Instances	7	50	%
Incorrectly Classified Instances	7	50	%
Kappa statistic	-0.0426		
Mean absolute error	0.4167		
Root mean squared error	0.5984		
Relative absolute error	87.5	%	
Root relative squared error	121.2987	%	
Total Number of Instances	14		