

Name : Rldho Achmad F

NIM : L200174005

Class : X

Practicum Report Module 9

Practicum

1. Decision Tree using Weka

a. Open file Cuaca.arff with Weka

Weka Explorer

Preprocess | Classify | Cluster | Associate | Select attributes | Visualize

Open file... | Open URL... | Open DB... | Generate... | Undo | Edit... | Save...

Filter: Choose **None** [Apply] [Stop]

Current relation
Relation: Cuaca
Instances: 14
Attributes: 5
Sum of weights: 14

Attributes
[All] [None] [Invert] [Pattern]

No.	Name
1	<input checked="" type="checkbox"/> Cuaca
2	<input type="checkbox"/> Suhu
3	<input type="checkbox"/> Kelembaban_Udara
4	<input type="checkbox"/> Berangin
5	<input type="checkbox"/> Bermain_Tenis

[Remove]

Selected attribute
Name: Cuaca
Missing: 0 (0%)
Distinct: 3
Type: Nominal
Unique: 0 (0%)

No.	Label	Count	Weight
1	Cerah	5	5.0
2	Mendung	4	4.0
3	Hujan	5	5.0

Class: Bermain_Tenis (Nom) [Visualize All]

5 4 5

5 4 5

Status
OK [Log] x 0

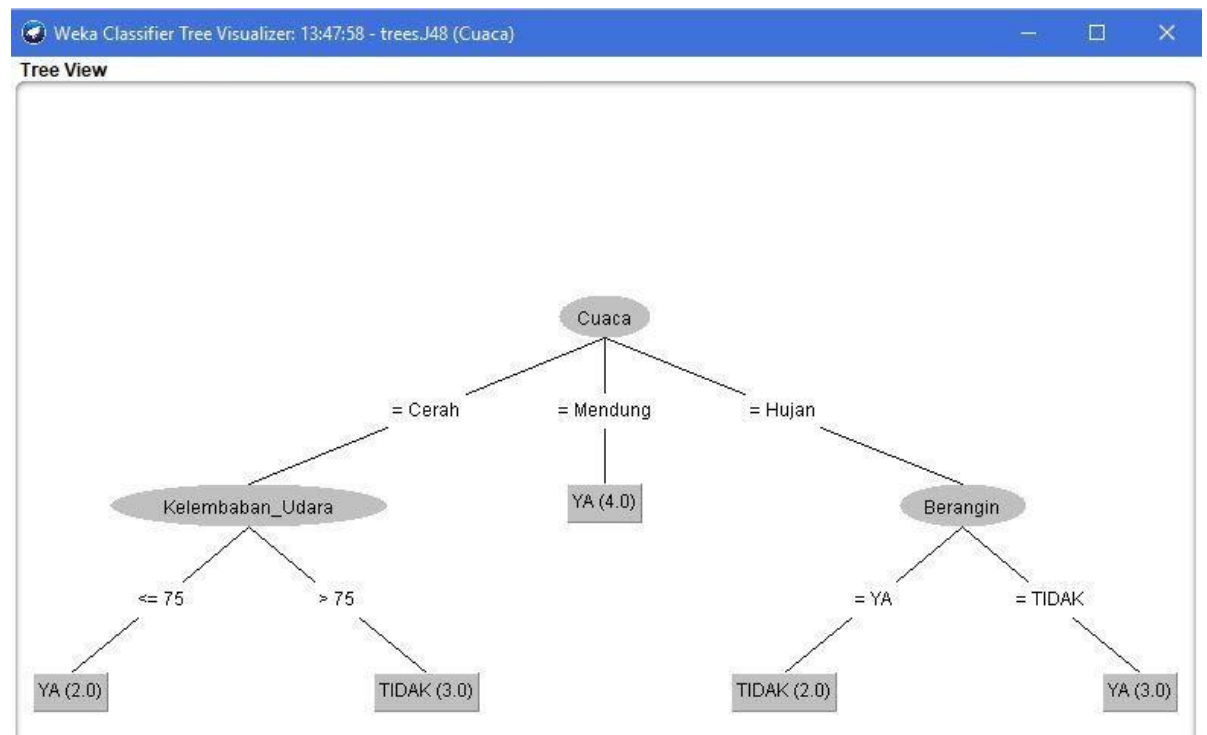
b. Classify the output using Decision Tree

The screenshot shows the Weka Explorer interface. The 'Classifier' tab is selected, and the 'J48 -C 0.25 -M 2' classifier is chosen. The 'Test options' section shows 'Use training set' selected. The 'Classifier output' pane displays the following information:

```
=== Run information ===  
  
Scheme:      weka.classifiers.trees.J48 -C 0.25 -M 2  
Relation:     Cuaca  
Instances:    14  
Attributes:   5  
Cuaca  
Suhu  
Kelembaban_Udara  
Berangin  
Bermain_Tenis  
Test mode:    evaluate on training data  
  
=== Classifier model (full training set) ===  
  
J48 pruned tree  
-----  
  
Cuaca = Cerah  
|  Kelembaban_Udara <= 75: YA (2.0)  
|  Kelembaban_Udara > 75: TIDAK (3.0)  
Cuaca = Mendung: YA (4.0)  
Cuaca = Hujan  
|  Berangin = YA: TIDAK (2.0)  
|  Berangin = TIDAK: YA (3.0)  
  
Number of Leaves :    5  
Size of the tree :    8
```

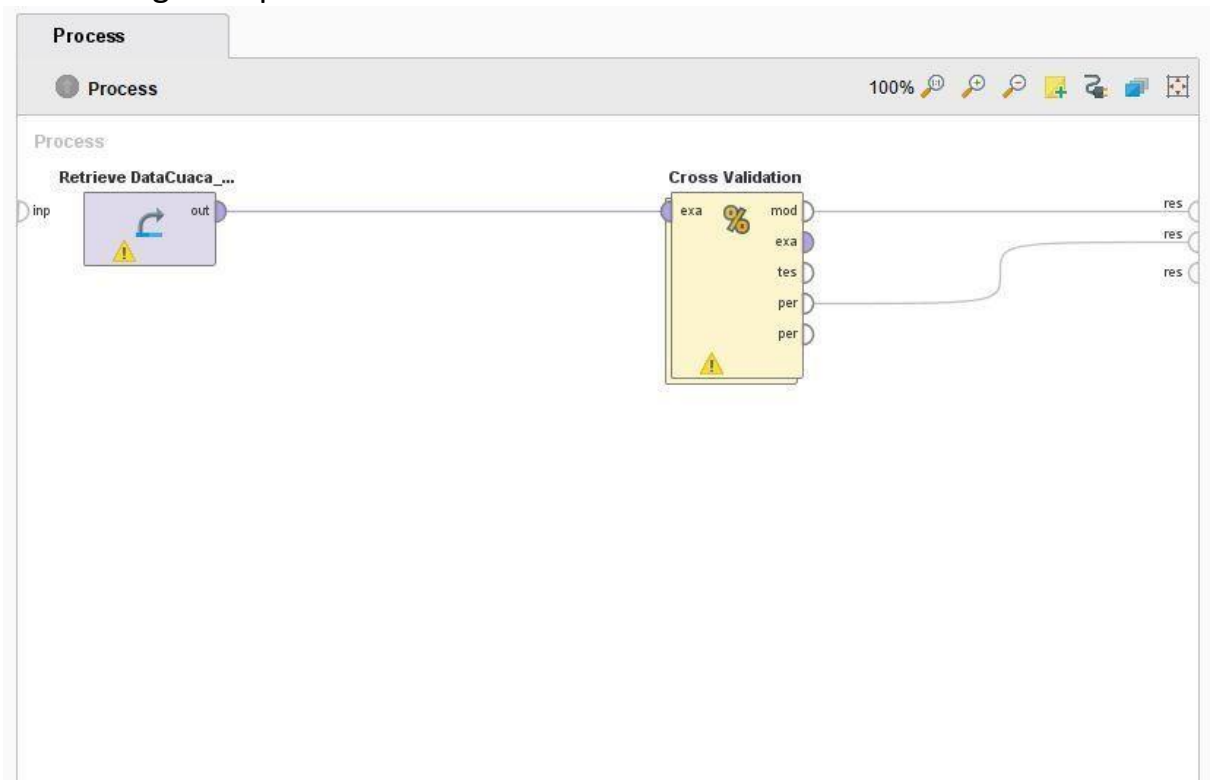
The 'Result list' shows '13:47:58 - trees.J48'. The 'Status' bar at the bottom indicates 'OK'.

c. The Visualize Tree

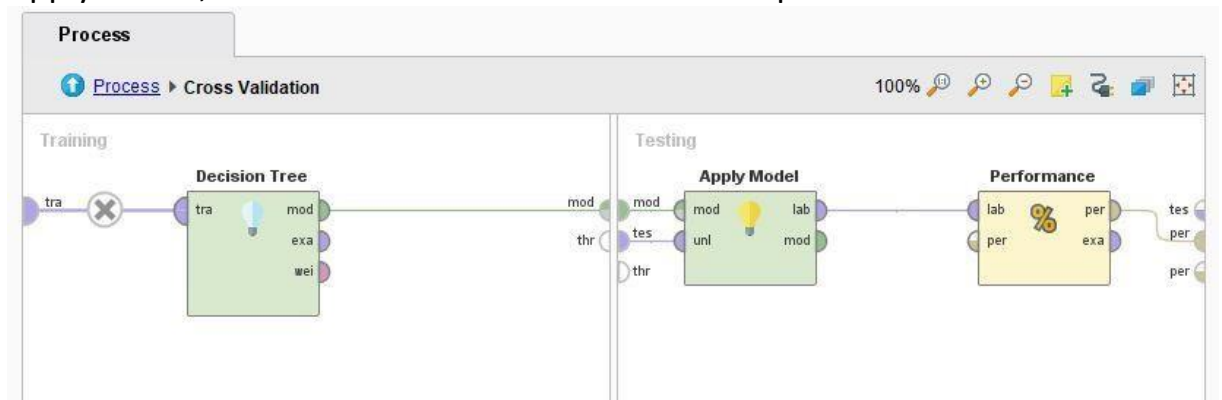


2. Decision Tree using RapidMiner

- a. Model by using DataCuaca_Training with Cross Validation then connecting each port



- b. Double click on Cross Validation enter the Decision Tree operator, Apply Model, and Performance then connect each port



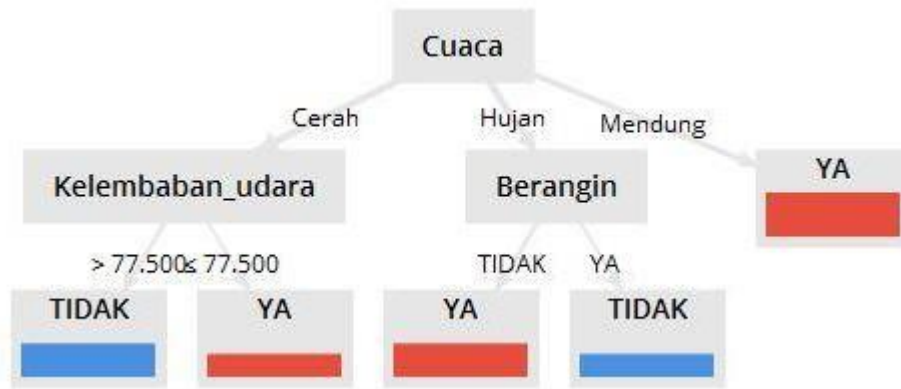
- c. Then press the Run button

☒ Table View
 ☐ Plot View

accuracy: 60.00% +/- 45.95% (micro average: 64.29%)

	true TIDAK	true YA	class precision
pred. TIDAK	2	2	50.00%
pred. YA	3	7	70.00%
class recall	40.00%	77.78%	

d. Decision Tree Result



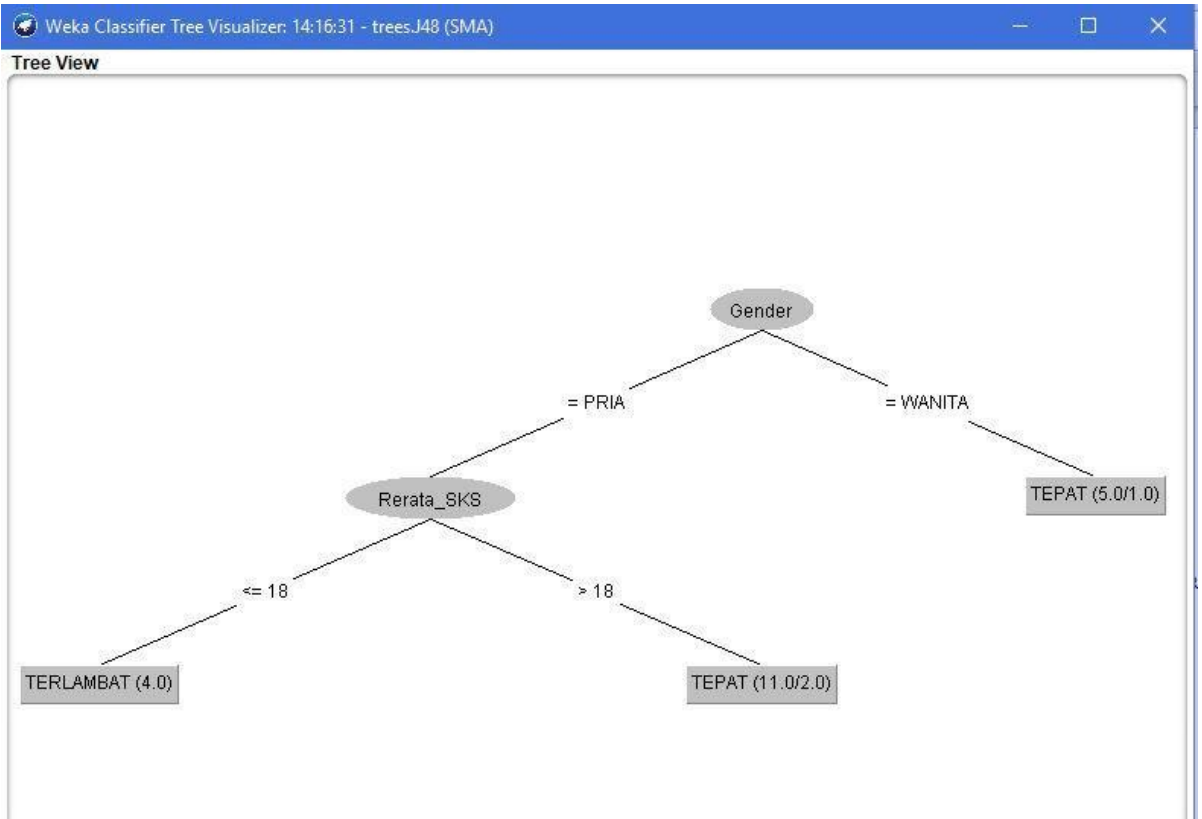
Task

1.

	A	B	C	D	E	F
1	Cuaca	Suhu	Kelembaban_udara	Berangin	Bermain_Tenis	
2	Cerah	75	65	TIDAK	YA	
3	Cerah	80	68	YA	YA	
4	Cerah	83	87	YA	TIDAK	
5	Mendung	70	96	TIDAK	YA	
6	Mendung	68	81	TIDAK	YA	
7	Hujan	65	75	TIDAK	YA	
8	Hujan	64	85	YA	TIDAK	
9						
10						

2. Using file ARFF SMA Training

a. Decision Tree and Classifier Output



Classifier output

```
=== Classifier model (full training set) ===
J48 pruned tree
-----

Gender = PRIA
|  Rerata_SKS <= 18: TERLAMBAT (4.0)
|  Rerata_SKS > 18: TEPAT (11.0/2.0)
Gender = WANITA: TEPAT (5.0/1.0)

Number of Leaves   :    3
Size of the tree   :    5

Time taken to build model: 0.03 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances      17      85  %
Incorrectly Classified Instances     3      15  %
Kappa statistic                     0.6341
Mean absolute error                  0.2436
Root mean squared error              0.349
```

- b. Number of leaf nodes in the decision tree = 3
 The total number of vertices in the decision tree = 5
 The time needed for the training process = 0.03 seconds
 The level of classification accuracy = 85%
 Inaccurate classification rate = 15%

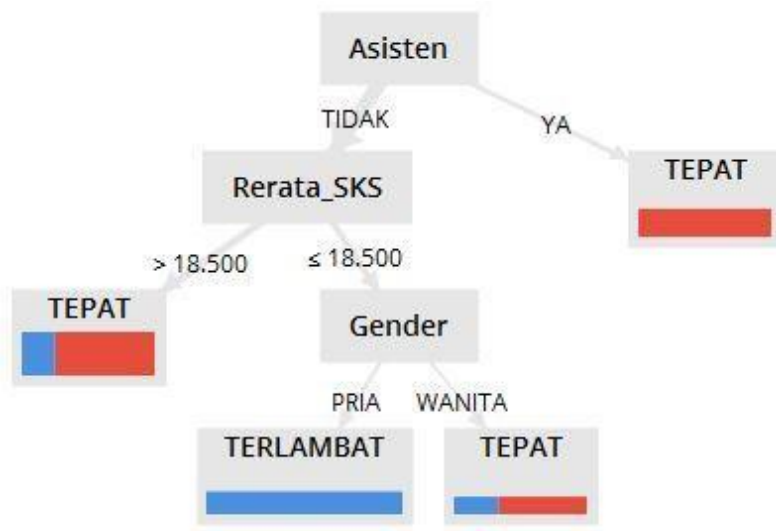
3. Using file Excel SMA Training

a. Result and Decision Tree

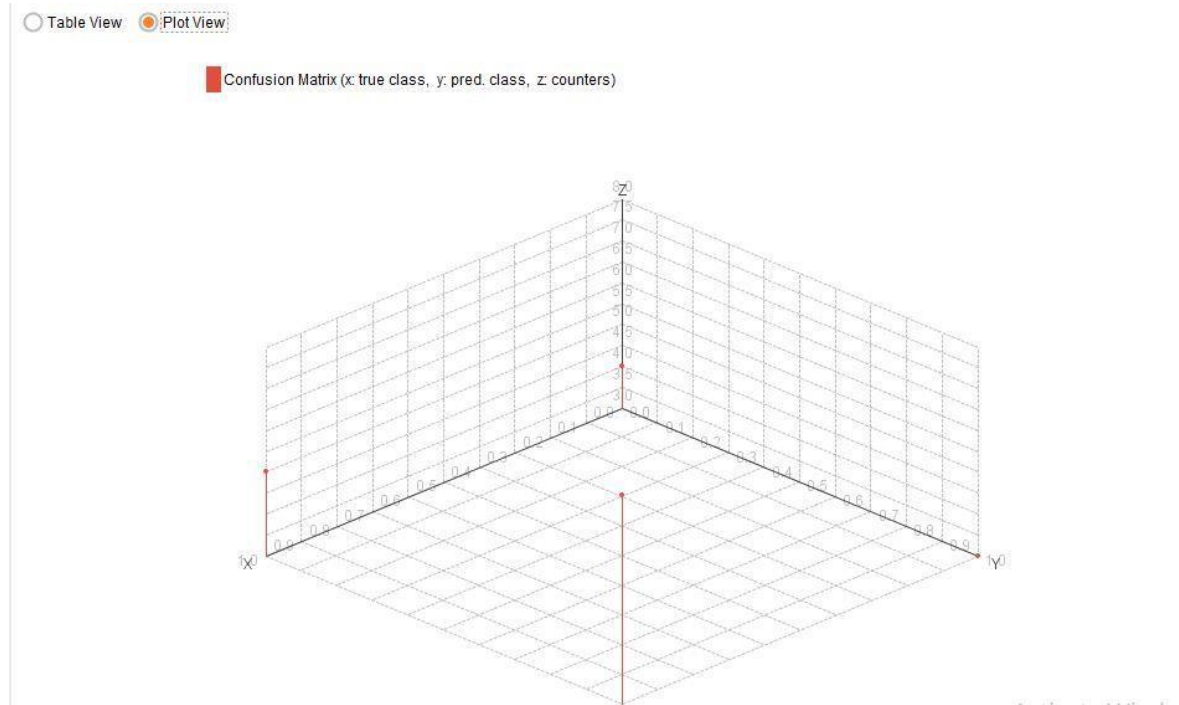
☒ Table View ☐ Plot View

accuracy: 60.00% +/- 21.08% (micro average: 60.00%)

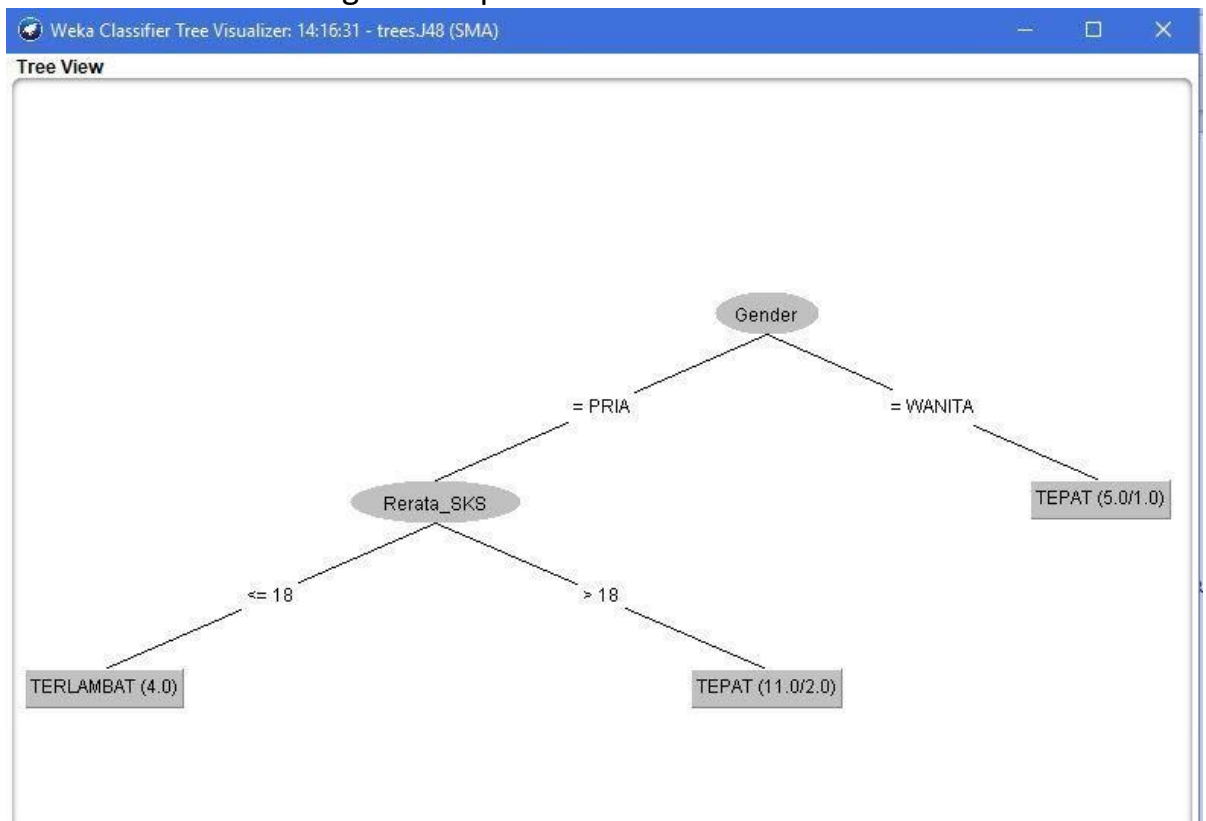
	true TERLAMBAT	true TEPAT	class precision
pred. TERLAMBAT	4	5	44.44%
pred. TEPAT	3	8	72.73%
class recall	57.14%	61.54%	



b. Plot View



4. Classification according to the question number 2



Classification:

a. TEPAT

Gender = Wanita

Gender = Pria, Rerata_SKS > 18

b. TERLAMBAT

Gender = Pria, Rerata_SKS \leq 18