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Class : X

## Practicum Report Module 9

### Practicum

1. Decision Tree using Weka  
a. Open file Cuaca.arff with Weka

The screenshot shows the Weka Explorer window with the 'Cuaca' dataset loaded. The 'Attributes' list on the left includes 'Cuaca', 'Suhu', 'Kelembaban\_Udara', 'Berangin', and 'Bermain\_Tenis'. The 'Selected attribute' table on the right shows the following data:

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

Below the table, the 'Class' is set to 'Bermain\_Tenis (Nom)' and the 'Visualize All' button is visible. The status bar at the bottom shows 'OK' and a 'Log' button.

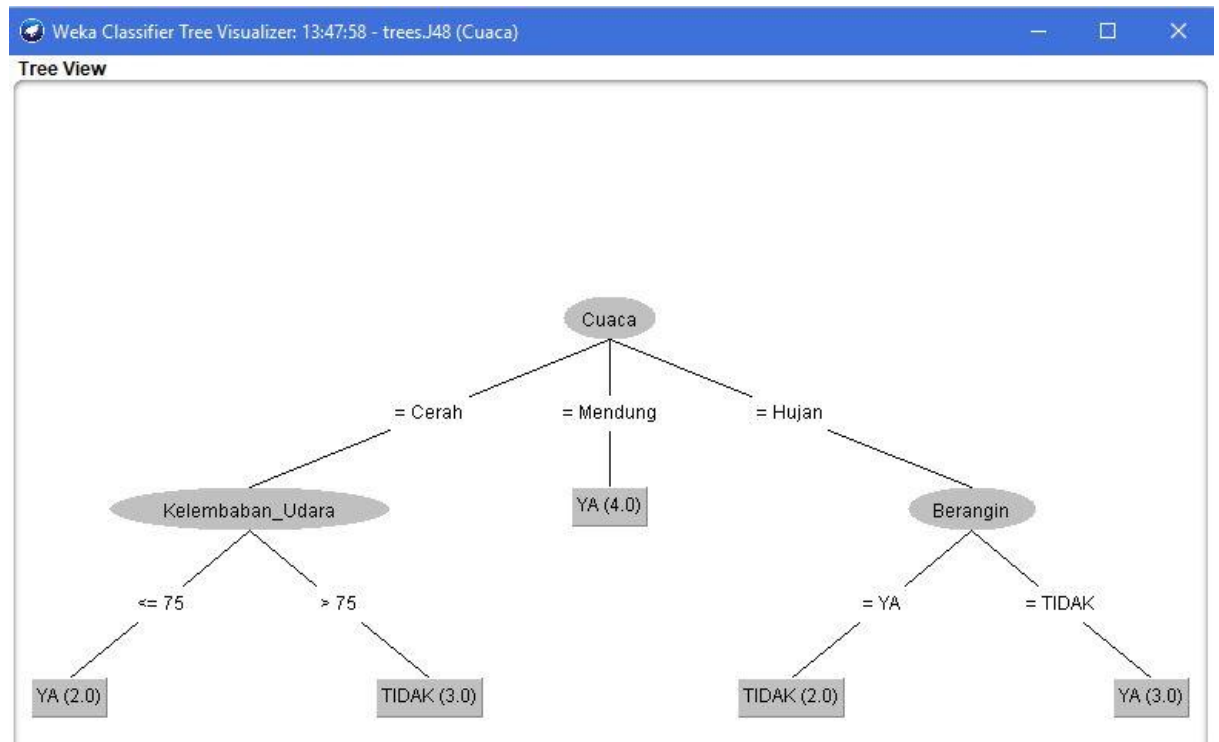
b. Classify the output using Decision Tree

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
```

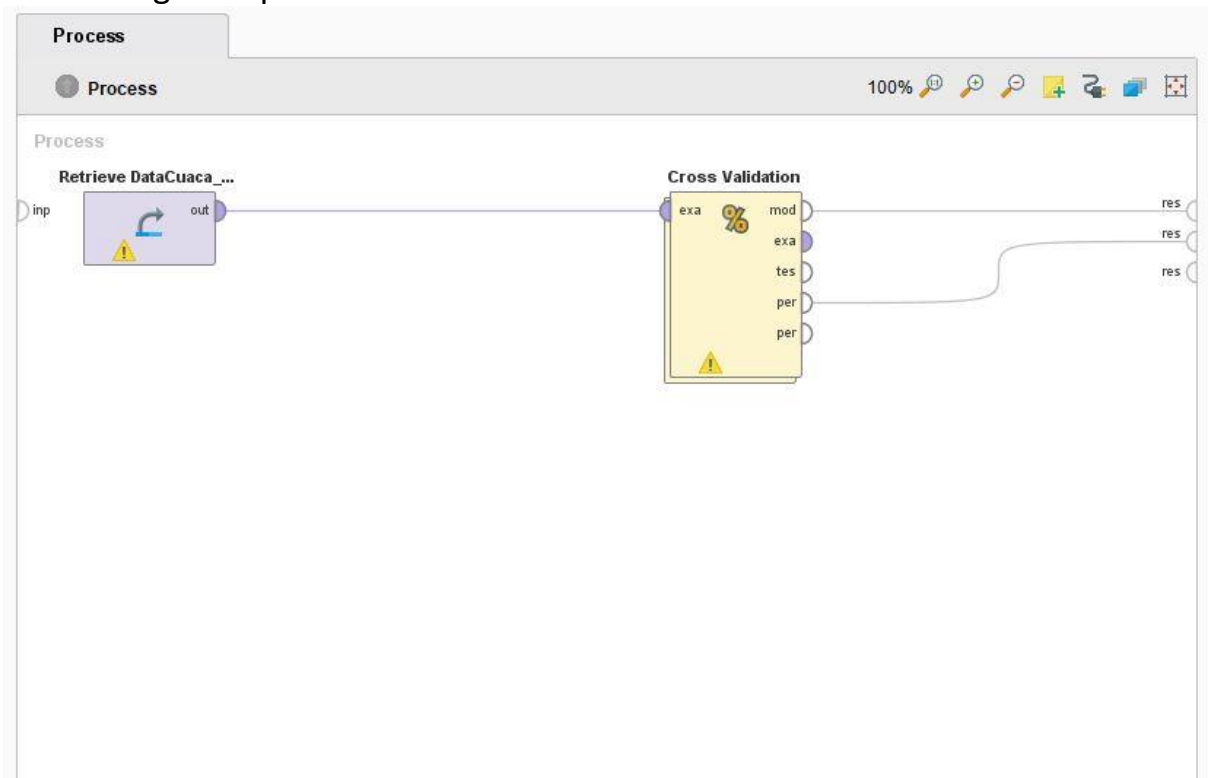
The 'Result list' shows '13:47:58 - trees.J48'. The 'Status' bar at the bottom indicates 'OK'.

c. The Visualize Tree

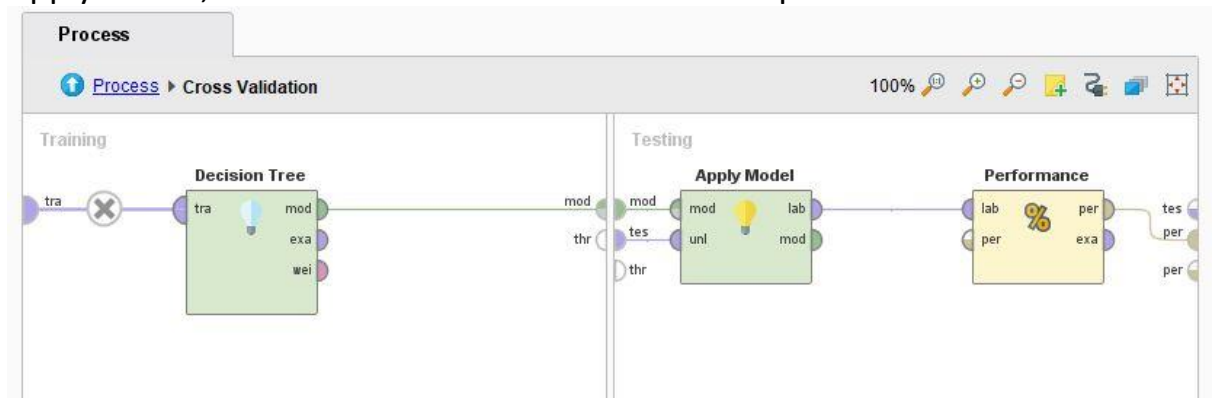


## 2. Decision Tree using RapidMiner

- Model by using DataCuaca\_Training with Cross Validation then connecting each port



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



- 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



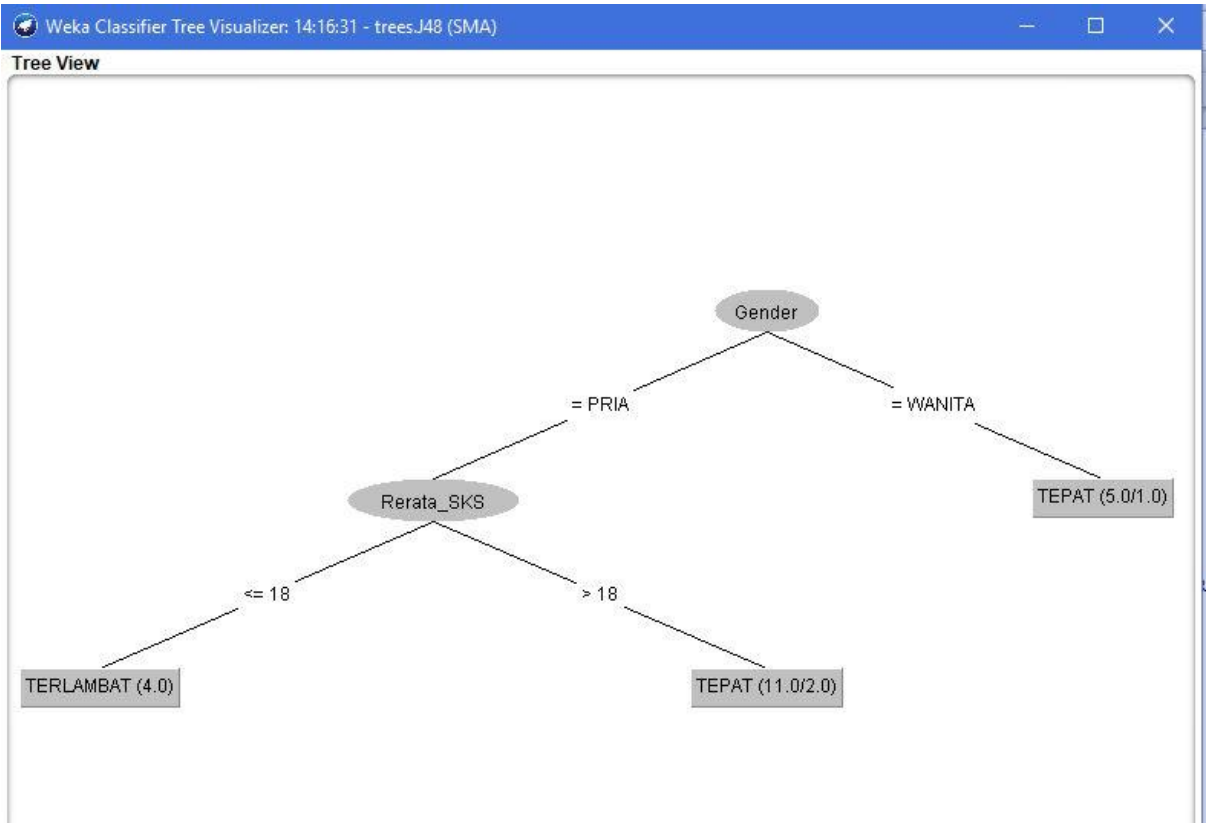
#### Task

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%

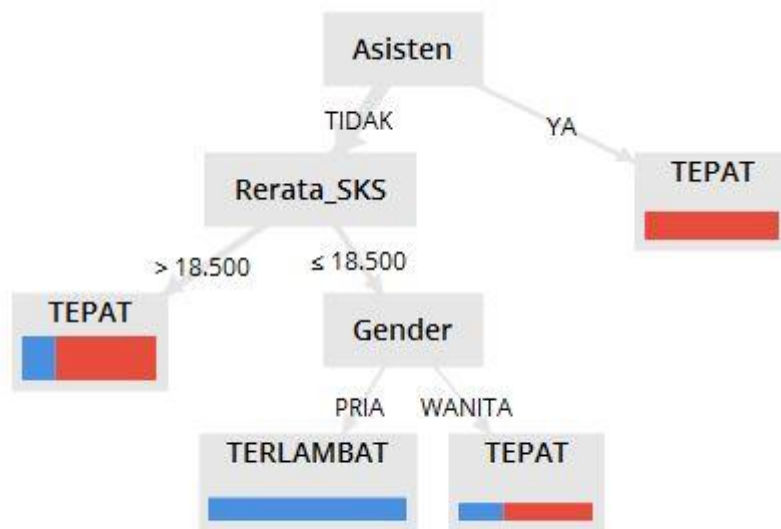
### 3. Using file Excel SMA Training

#### a. Result and Decision Tree

☒ Table View ☐ Plot View

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

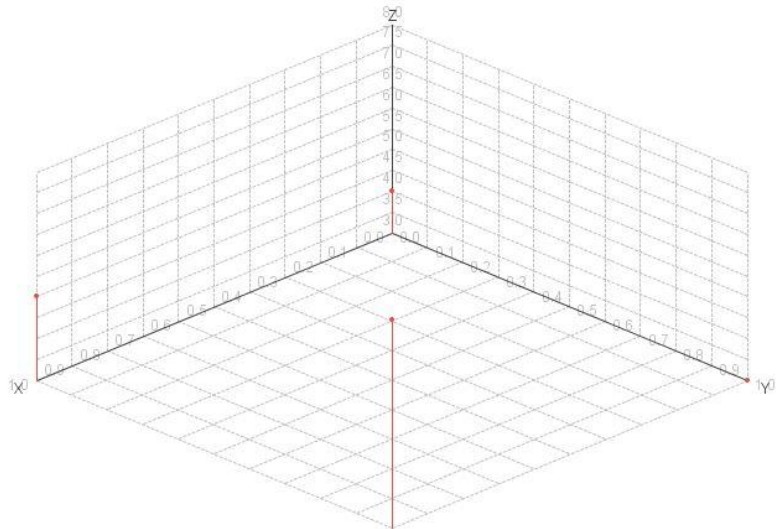
	true TERLAMBAT	true TEPAT	class precision
pred. TERLAMBAT	4	5	44.44%
pred. TEPAT	3	8	72.73%
class recall	57.14%	61.54%	



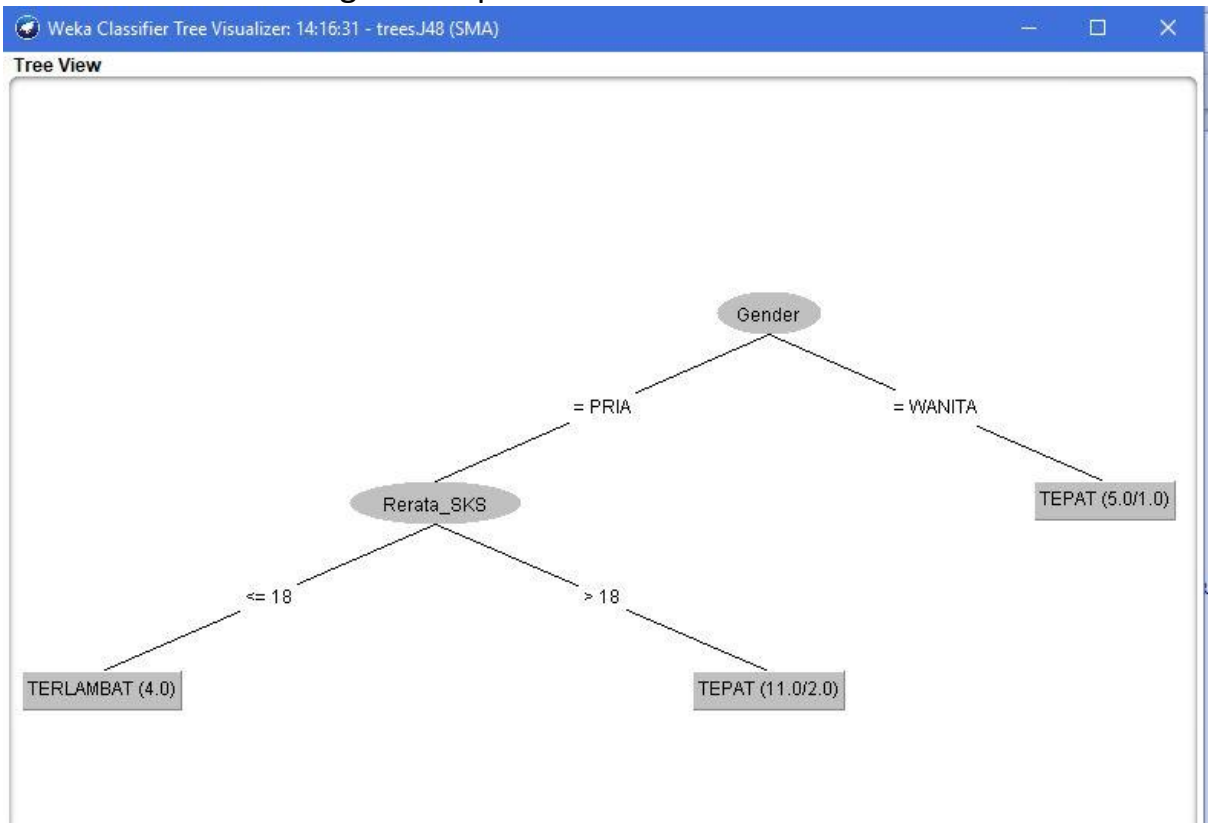
## b. Plot View

☐ Table View ☒ Plot View

Confusion Matrix (x: true class, y: pred. class, z: counters)



## 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