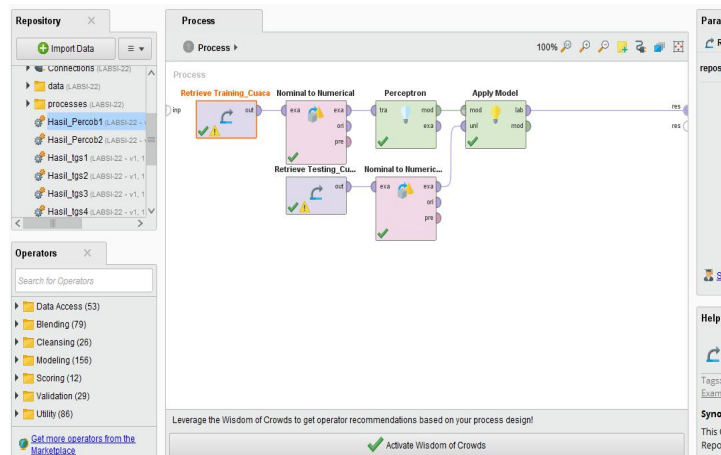


NAMA : Prihadina Ayunia W
 NIM : L200170007
 KELAS : A

MODUL 13

1. Prediksi Nilai Kelas Atribut dengan Neuron Perceptron



ExampleSet (Apply Model)

Open in: [Turbo Prep](#) [Auto Model](#) Filter (7 / 7 examples): all

| Row No. | prediction(B... | confidence(... | confidence(... | Cuaca = Cer... | Cuaca = Me... | Cuaca = Huj... | Berangin = T... | Berangin = YA | Suhu |
|---------|-----------------|----------------|----------------|----------------|---------------|----------------|-----------------|---------------|------|
| 1 | TIDAK | 1.000 | 0.000 | 1 | 0 | 0 | 1 | 0 | 75 |
| 2 | TIDAK | 1.000 | 0.000 | 1 | 0 | 0 | 0 | 1 | 80 |
| 3 | TIDAK | 1.000 | 0.000 | 1 | 0 | 0 | 0 | 1 | 83 |
| 4 | TIDAK | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 70 |
| 5 | TIDAK | 1.000 | 0.000 | 0 | 1 | 0 | 1 | 0 | 68 |
| 6 | TIDAK | 1.000 | 0.000 | 0 | 0 | 1 | 0 | 1 | 65 |
| 7 | TIDAK | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 64 |

ExampleSet (Apply Model)

Open in

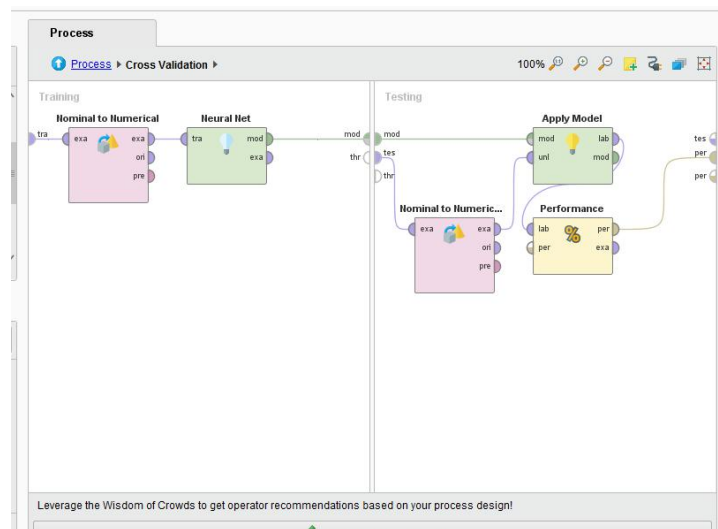
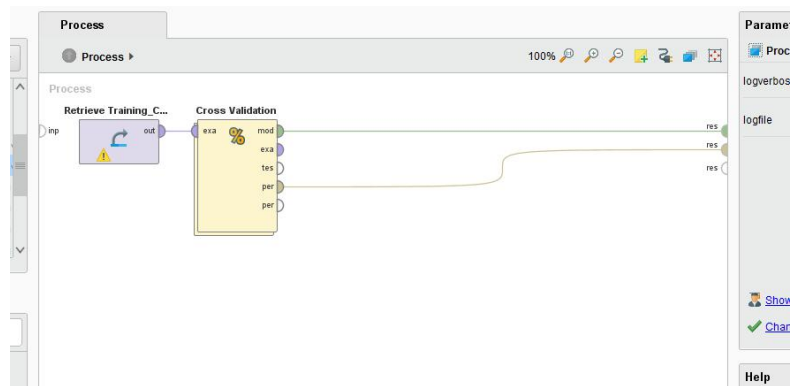
Turbo Prep

Auto Model

Filter (7 / 7 examples): all

| ion(B... | confidence[... | confidence[... | Cuaca = Cer... | Cuaca = Me... | Cuaca = Huj... | Berangin = T... | Berangin = YA | Suhu | Kelembapan... |
|----------|----------------|----------------|----------------|---------------|----------------|-----------------|---------------|------|---------------|
| | 1.000 | 0.000 | 1 | 0 | 0 | 1 | 0 | 75 | 65 |
| | 1.000 | 0.000 | 1 | 0 | 0 | 0 | 1 | 80 | 68 |
| | 1.000 | 0.000 | 1 | 0 | 0 | 0 | 1 | 83 | 87 |
| | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 70 | 96 |
| | 1.000 | 0.000 | 0 | 1 | 0 | 1 | 0 | 68 | 81 |
| | 1.000 | 0.000 | 0 | 0 | 1 | 0 | 1 | 65 | 75 |
| | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 64 | 85 |

2. Mengetahui Nilai Performance Vector pada Jaringan Saraf Tiruan



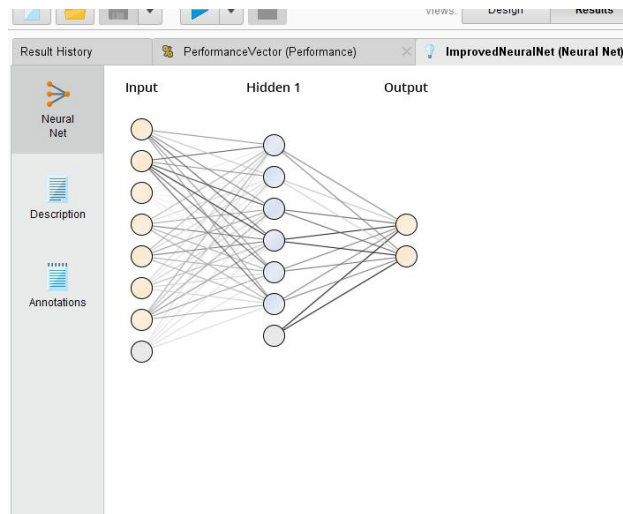
☒ Table View
 ☐ Plot View

accuracy: 50.00% +/- 47.14% (micro average: 57.14%)

| | true TIDAK | true YA | class precision |
|--------------|------------|---------|-----------------|
| pred. TIDAK | 2 | 3 | 40.00% |
| pred. YA | 3 | 6 | 66.67% |
| class recall | 40.00% | 66.67% | |

Tab ImprovedNeuralNet (Neural Net), memperlihatkan arsitektur syaraf.

a) Neural Net, digunakan untuk melihat bentuk arsitektur JST



| Neural Net | ImprovedNeuralNet |
|-------------|--|
| Description | Hidden 1 ===== |
| Annotations | Node 1 (Sigmoid) ----- Cuaca = Cerah: -0.646 Cuaca = Mendung: 0.985 Cuaca = Hujan: -0.127 Berangin = TIDAK: 0.491 Berangin = YA: -0.496 Suhu: -0.277 Kelembapan_Udara: -0.596 Bias: -0.213 Node 2 (Sigmoid) ----- Cuaca = Cerah: -0.371 Cuaca = Mendung: 0.652 Cuaca = Hujan: -0.118 Berangin = TIDAK: 0.263 Berangin = YA: -0.292 Suhu: -0.178 Kelembapan_Udara: -0.440 Bias: -0.114 Node 3 (Sigmoid) ----- Cuaca = Cerah: -0.758 |

| Result History | PerformanceVector (Performance) |
|----------------|---|
| Neural Net | Node 3 (Sigmoid) ----- Cuaca = Cerah: -0.758 Cuaca = Mendung: 1.156 Cuaca = Hujan: -0.090 Berangin = TIDAK: 0.579 Berangin = YA: -0.633 Suhu: -0.310 Kelembapan_Udara: -0.642 Bias: -0.197 Node 4 (Sigmoid) ----- Cuaca = Cerah: -1.035 Cuaca = Mendung: 1.411 Cuaca = Hujan: -0.099 Berangin = TIDAK: 0.826 Berangin = YA: -0.806 Suhu: -0.432 Kelembapan_Udara: -0.708 Bias: -0.204 Node 5 (Sigmoid) ----- Cuaca = Cerah: -0.677 Cuaca = Mendung: 1.023 Cuaca = Hujan: -0.154 Berangin = TIDAK: 0.520 Berangin = YA: -0.514 Suhu: -0.291 Kelembapan_Udara: -0.628 |

Result History PerformanceVector (Performance) Improv

Neural Net

Description

Annotations

Node 6 (Sigmoid)

Cuaca = Cerah: -0.647
Cuaca = Mendung: 1.038
Cuaca = Hujan: -0.086
Berangin = TIDAK: 0.550
Berangin = YA: -0.495
Suhu: -0.290
Kelembapan_Udara: -0.564
Bias: -0.236

Output

====

Class 'TIDAK' (Sigmoid)

Node 1: -0.780
Node 2: -0.384
Node 3: -0.957
Node 4: -1.363
Node 5: -0.816
Node 6: -0.804
Threshold: 1.505

Class 'YA' (Sigmoid)

Node 1: 0.770
Node 2: 0.326
Node 3: 0.976
Node 4: 1.345
Node 5: 0.855

TUGAS

1. File excel sebagai data training dan data testing

Table_Tugas - Excel

File Home Insert Page Layout Formulas Data Review View Help Tell me what you want to do

Clipboard Font Alignment Number Conditional Formatting Styles Cell Styles Insert Delete Format AutoSum Fill Sort & Find & Filter Select

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
|----|-------------|--------|--------------|------------|---------|------------|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Jurusan_SMA | Gender | Asal_Sekolah | Rerata_SKS | Asisten | Lama_Studi | | | | | | | | | | | |
| 2 | IPS | WANITA | SURAKARTA | 18 | TIDAK | TERLAMBAT | | | | | | | | | | | |
| 3 | IPA | PRIA | SURAKARTA | 19 | YA | TEPAT | | | | | | | | | | | |
| 4 | LAIN | PRIA | SURAKARTA | 19 | TIDAK | TERLAMBAT | | | | | | | | | | | |
| 5 | IPA | PRIA | LUAR | 17 | TIDAK | TERLAMBAT | | | | | | | | | | | |
| 6 | IPA | WANITA | SURAKARTA | 17 | TIDAK | TEPAT | | | | | | | | | | | |
| 7 | IPA | WANITA | LUAR | 18 | YA | TEPAT | | | | | | | | | | | |
| 8 | IPA | PRIA | SURAKARTA | 18 | TIDAK | TERLAMBAT | | | | | | | | | | | |
| 9 | IPA | PRIA | SURAKARTA | 19 | TIDAK | TEPAT | | | | | | | | | | | |
| 10 | IPS | PRIA | LUAR | 18 | TIDAK | TERLAMBAT | | | | | | | | | | | |
| 11 | LAIN | WANITA | SURAKARTA | 18 | TIDAK | TEPAT | | | | | | | | | | | |
| 12 | IPA | WANITA | SURAKARTA | 19 | TIDAK | TEPAT | | | | | | | | | | | |
| 13 | IPS | PRIA | SURAKARTA | 20 | TIDAK | TEPAT | | | | | | | | | | | |
| 14 | IPS | PRIA | SURAKARTA | 19 | TIDAK | TEPAT | | | | | | | | | | | |
| 15 | IPA | PRIA | SURAKARTA | 19 | TIDAK | TEPAT | | | | | | | | | | | |
| 16 | IPA | PRIA | LUAR | 22 | YA | TEPAT | | | | | | | | | | | |
| 17 | LAIN | PRIA | SURAKARTA | 16 | TIDAK | TERLAMBAT | | | | | | | | | | | |
| 18 | IPS | PRIA | LUAR | 20 | TIDAK | TEPAT | | | | | | | | | | | |
| 19 | LAIN | PRIA | LUAR | 23 | YA | TEPAT | | | | | | | | | | | |
| 20 | IPA | PRIA | SURAKARTA | 21 | YA | TEPAT | | | | | | | | | | | |
| 21 | IPS | PRIA | SURAKARTA | 19 | TIDAK | TERLAMBAT | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | |

Sheet1 Sheet2 Sheet3 Sheet4

11:06 27/11/2019

Excel spreadsheet titled "Tabel_Tugas - Excel" showing data for "Jurusan_SMA". The data is organized in columns A through R and rows 1 through 23.

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R |
|----|-------------|--------|--------------|------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Jurusan_SMA | Gender | Asal_Sekolah | Rerata_SKS | Asisten | | | | | | | | | | | | | |
| 2 | LAIN | WANITA | SURAKARTA | 18 | TIDAK | | | | | | | | | | | | | |
| 3 | IPA | PRIA | SURAKARTA | 19 | YA | | | | | | | | | | | | | |
| 4 | LAIN | PRIA | SURAKARTA | 19 | TIDAK | | | | | | | | | | | | | |
| 5 | IPS | PRIA | LUAR | 17 | TIDAK | | | | | | | | | | | | | |
| 6 | LAIN | WANITA | SURAKARTA | 17 | TIDAK | | | | | | | | | | | | | |
| 7 | IPA | WANITA | LUAR | 18 | YA | | | | | | | | | | | | | |
| 8 | IPA | PRIA | SURAKARTA | 18 | TIDAK | | | | | | | | | | | | | |
| 9 | IPA | PRIA | SURAKARTA | 19 | TIDAK | | | | | | | | | | | | | |
| 10 | IPS | PRIA | LUAR | 18 | TIDAK | | | | | | | | | | | | | |
| 11 | LAIN | WANITA | SURAKARTA | 18 | TIDAK | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | |

- Hasil prediksi terhadap data testing lama studi mahasiswa dengan menggunakan model Perception

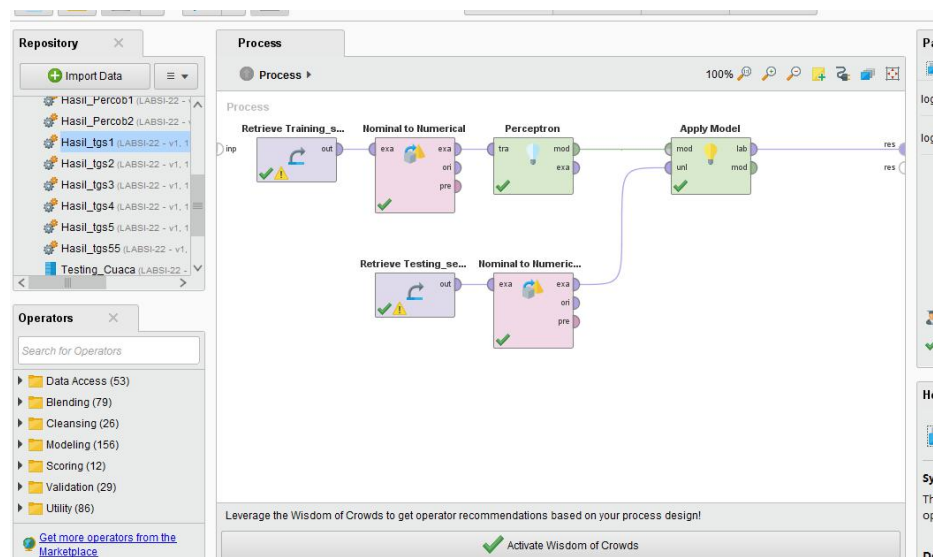


Table View

Plot View

accuracy: 40.00% +/- 31.62% (micro average: 40.00%)

| | true TERLAMBAT | true TEPAT | class precision |
|-----------------|----------------|------------|-----------------|
| pred. TERLAMBAT | 4 | 9 | 30.77% |
| pred. TEPAT | 3 | 4 | 57.14% |
| class recall | 57.14% | 30.77% | |

Result History

PerformanceVector (Performance)

Hyperplane (Perceptron)

Performance

Description

Annotations

PerformanceVector

PerformanceVector:
accuracy: 40.00% +/- 31.62% (micro average: 40.00%)
ConfusionMatrix:
True: TERLAMBAT TEPAT
TERLAMBAT: 4 9
TEPAT: 3 4

Hyperplane

Hyperplane separating TEPAT and TERLAMBAT.
Intercept: -0.011019882381776685
Coefficients:
w(Jurusan_SMA = IPS) = -0.189
w(Jurusan_SMA = IPA) = 0.251
w(Jurusan_SMA = LAIN) = -0.073
w(Gender = WANITA) = 0.150
w(Gender = PRIA) = -0.161
w(Asal_Sekolah = SURAKARTA) = 0.012
w(Asal_Sekolah = LUAR) = -0.023
w(Asisten = TIDAK) = -0.150
w(Asisten = YA) = 0.139
w(Rerata_SRS) = 0.013

Result History

PerformanceVector (Performance)

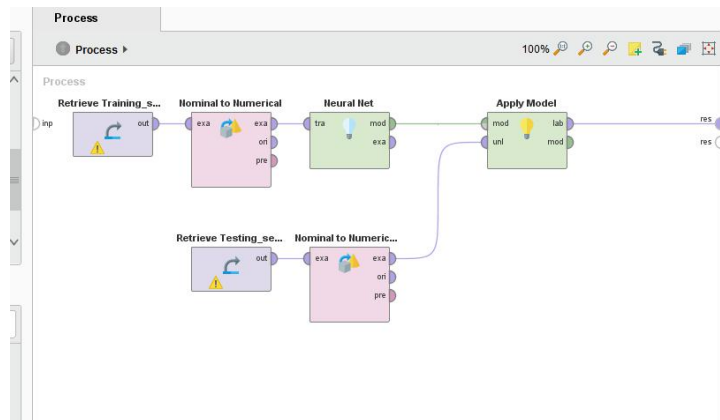
Description

Data

Annotations

| Attribute | Weight |
|-------------|--------|
| Jurusan... | -0.189 |
| Jurusan... | 0.251 |
| Jurusan... | -0.073 |
| Gender ... | 0.150 |
| Gender ... | -0.161 |
| Asal_Se... | 0.012 |
| Asal_Se... | -0.023 |
| Asisten ... | -0.150 |
| Asisten ... | 0.139 |
| Rerata_... | 0.013 |

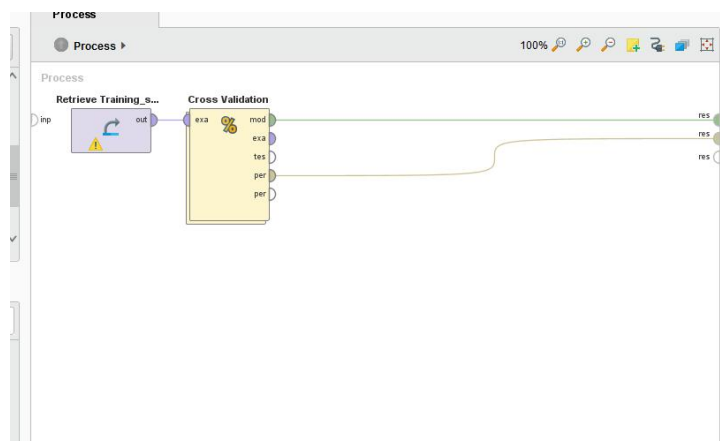
4. Ganti operator Perception menjadi Natural Net

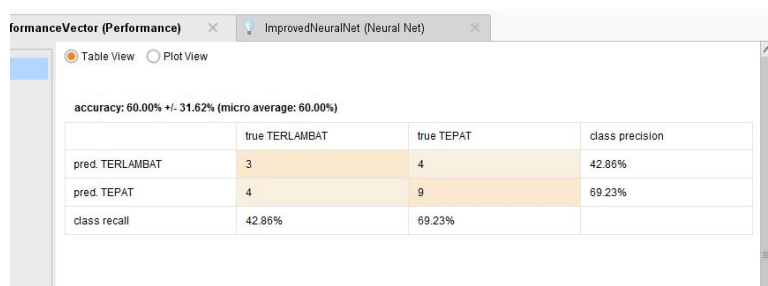


Open in [Turbo Prep](#) [Auto Model](#) Filter (10 / 10 examples): [all](#)



| prediction(L... | confidence(... | confidence(... | Jurusan_S... | Jurusan_S... | Jurusan_S... | Gender = W... | Gender = PR... | Asal_Sekola... | Asal_... |
|-----------------|----------------|----------------|--------------|--------------|--------------|---------------|----------------|----------------|----------|
| TEPAT | 0.331 | 0.669 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| TEPAT | 0.027 | 0.973 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| TERLAMBAT | 0.588 | 0.412 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| TERLAMBAT | 0.679 | 0.321 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| TEPAT | 0.399 | 0.601 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| TEPAT | 0.032 | 0.968 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| TEPAT | 0.399 | 0.601 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| TEPAT | 0.325 | 0.675 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| TERLAMBAT | 0.655 | 0.345 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| TEPAT | 0.331 | 0.669 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |

5. Nilai tingkat akurasi, presisi, dan reeal

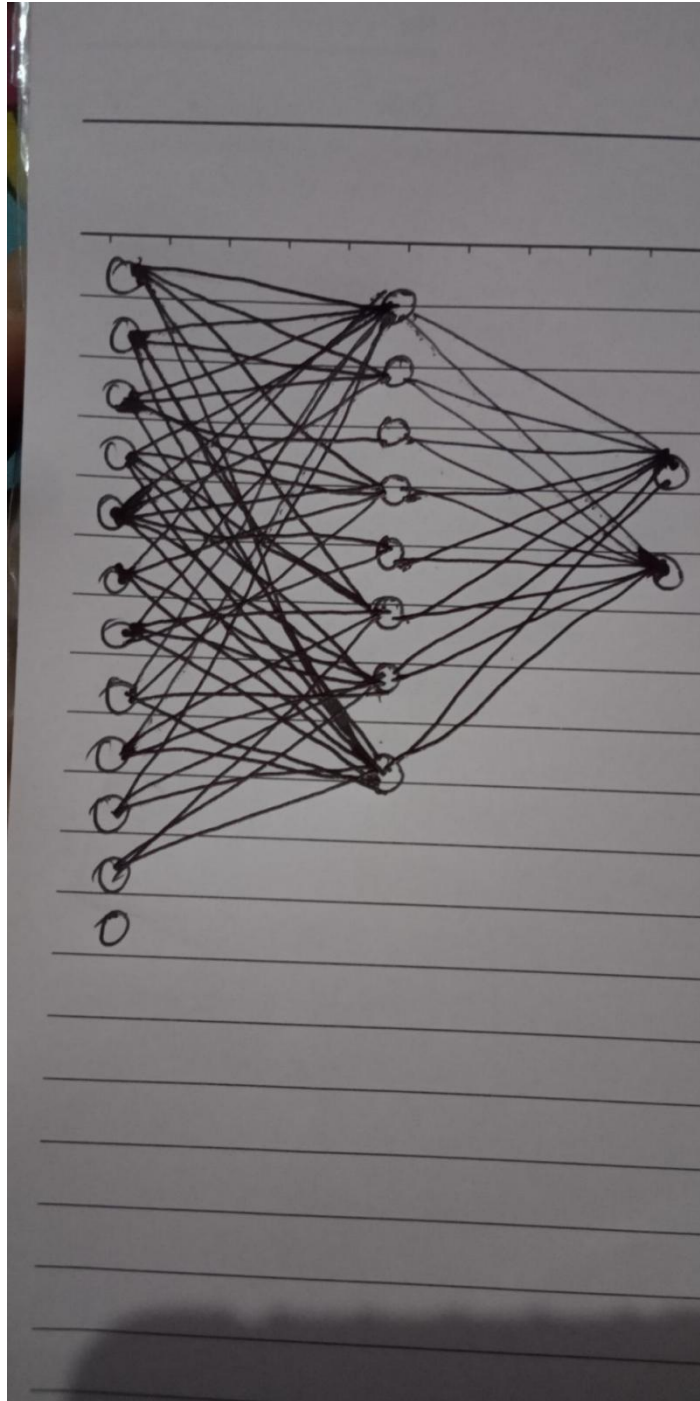


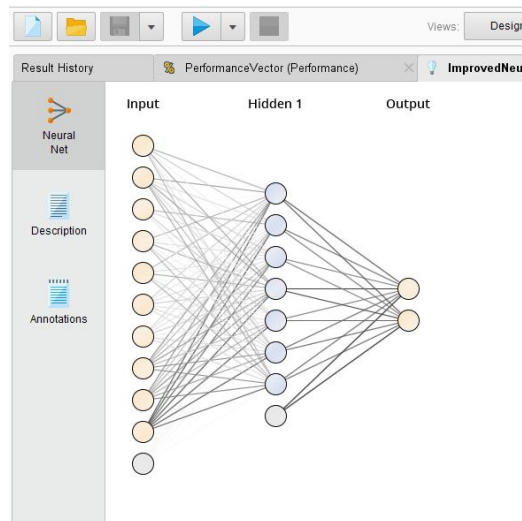


| | true TERLAMBAT | true TEPAT | class precision |
|-----------------|----------------|------------|-----------------|
| pred. TERLAMBAT | 3 | 4 | 42.86% |
| pred. TEPAT | 4 | 9 | 69.23% |
| class recall | 42.86% | 69.23% | |

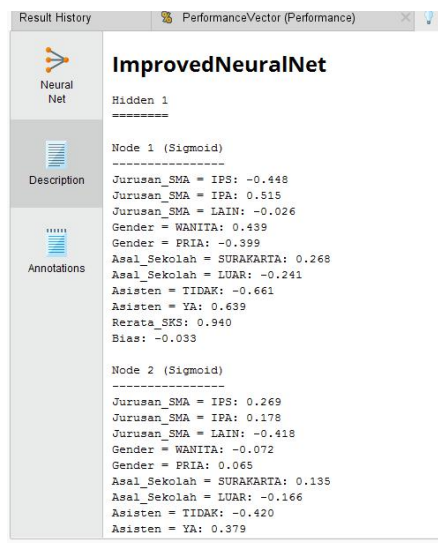
| | |
|--|---|
|  Performance | <h2>PerformanceVector</h2> |
|  Description | <p>PerformanceVector: accuracy: 60.00% +/- 31.62% (micro average: 60.00%) ConfusionMatrix: True: TERLAMBAT TEPAT TERLAMBAT: 3 4 TEPAT: 4 9</p> |

6. Gambar Arsitektur jaringan syaraf yg terbentuk





7. Jumlah node (simpul) masing-masing layer (lapisan) berdasarkan arsitektur JST
 - ➔ Input layer : 10 node
 - ➔ Hidden Layer : 8 node
 - ➔ Output layer : 2 node (TEPAT, TERLAMBAT)
8. Nilai-nilai bobot masing-masing node(simpul) pada hidden layer atau output layer



| ory | PerformanceVector (Performance) | Improved |
|-----|--|----------|
| | Asisten = TIDAK: -0.420 Asisten = YA: 0.379 Rerata_SKS: 1.007 Bias: 0.025 | |
| on | Node 3 (Sigmoid) ----- Jurusan_SMA = IPS: -0.085 Jurusan_SMA = IPA: 0.282 Jurusan_SMA = LAIN: -0.208 Gender = WANITA: 0.195 Gender = PRIA: -0.157 Asal_Sekolah = SURAKARTA: 0.188 Asal_Sekolah = LUAR: -0.158 Asisten = TIDAK: -0.492 Asisten = YA: 0.477 Rerata_SKS: 0.863 Bias: -0.060 | |
| ns | Node 4 (Sigmoid) ----- Jurusan_SMA = IPS: -0.486 Jurusan_SMA = IPA: 0.540 Jurusan_SMA = LAIN: -0.004 Gender = WANITA: 0.451 Gender = PRIA: -0.434 Asal_Sekolah = SURAKARTA: 0.251 Asal_Sekolah = LUAR: -0.282 Asisten = TIDAK: -0.599 Asisten = YA: 0.644 Rerata_SKS: 1.009 Bias: -0.055 | |

| Result History | PerformanceVector (Performance) | Improved |
|----------------|---|----------|
| Neural Net | Node 5 (Sigmoid) ----- Jurusan_SMA = IPS: 0.079 Jurusan_SMA = IPA: 0.202 Jurusan_SMA = LAIN: -0.284 Gender = WANITA: 0.085 Gender = PRIA: -0.068 Asal_Sekolah = SURAKARTA: 0.150 Asal_Sekolah = LUAR: -0.122 Asisten = TIDAK: -0.410 Asisten = YA: 0.448 Rerata_SKS: 0.951 Bias: 0.041 | |
| Description | Node 6 (Sigmoid) ----- Jurusan_SMA = IPS: -0.173 Jurusan_SMA = IPA: 0.382 Jurusan_SMA = LAIN: -0.133 Gender = WANITA: 0.248 Gender = PRIA: -0.236 Asal_Sekolah = SURAKARTA: 0.201 Asal_Sekolah = LUAR: -0.222 Asisten = TIDAK: -0.587 Asisten = YA: 0.549 Rerata_SKS: 0.962 Bias: 0.023 | |
| Annotations | Node 7 (Sigmoid) ----- Jurusan_SMA = IPS: -0.397 | |

File Edit Process View Connections Settings Extensions Help

Views:

Result History PerformanceVector (Performance)

Neural Net

Description

Annotations

Node 7 (Sigmoid)

Jurusan_SMA = IPS: -0.397
Jurusan_SMA = IPA: 0.486
Jurusan_SMA = LAIN: 0.023
Gender = WANITA: 0.411
Gender = PRIA: -0.430
Asal_Sekolah = SURAKARTA: 0.187
Asal_Sekolah = LUAR: -0.217
Asisten = TIDAK: -0.577
Asisten = YA: 0.646
Rerata_SKS: 0.878
Bias: -0.036

Output

=====

Class 'TERLAMBAT' (Sigmoid)

Node 1: -0.961
Node 2: -0.814
Node 3: -0.681
Node 4: -0.983
Node 5: -0.718
Node 6: -0.864
Node 7: -0.862
Threshold: 1.265

Class 'TEPAT' (Sigmoid)

File Edit Process View Connections Settings Extensions Help

Views:

Result History PerformanceVector (Performance)

Neural Net

Description

Annotations

Asal_Sekolah = LUAR: -0.217
Asisten = TIDAK: -0.577
Asisten = YA: 0.646
Rerata_SKS: 0.878
Bias: -0.036

Output

=====

Class 'TERLAMBAT' (Sigmoid)

Node 1: -0.961
Node 2: -0.814
Node 3: -0.681
Node 4: -0.983
Node 5: -0.718
Node 6: -0.864
Node 7: -0.862
Threshold: 1.265

Class 'TEPAT' (Sigmoid)

Node 1: 0.956
Node 2: 0.762
Node 3: 0.705
Node 4: 0.995
Node 5: 0.742
Node 6: 0.844
Node 7: 0.861
Threshold: -1.257