Laporan Kecerdasan Buatan

Single Neuron, Multiple Neuron, Multiple Neuron Batch

Disusun Oleh:

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Program Studi D4 Manajemen Informatika

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1. Single Neuron

   Source code

```
C: > Users > FX506HE > OneDrive > Desktop > random > ai > 1a.py > ...
1   #Bariq Adyatma
2   #2109139019
3   #single neuron
4
5   #mengimport library numpy dan memberi inisial
6   import numpy as np
7
8   #layer input 10 features
9   inputs = [2.5, 3.5, 1.0, 3.0, 2.5, 3.0, 1.5, 2.0, 2.2, 3.0]
10
11  #neuron 1
12  weights = [[0.2, 0.5, 0.1, 0.2, 0.3, 0.4, 0.4, 0.5, 0.6, 0.7],]
13
14  #bias dari layer
15  biases = [2.0, 3.0, 1.0, 1.5, 2.5]
16
17  #menghitung output
18  layer_outputs = np.dot(weights, inputs) + biases
19
20  #memunculkan output
21  print(layer_outputs)
```

   Output

```
PS C:\Users\FX506HE> & C:/Users/FX506HE/AppData/Local/Microsoft/WindowsApps/python3.10.exe c:/Users/FX506HE/OneDrive/Desktop/random/ai/1a.py
[11.92 12.92 10.92 11.42 12.42]
```

   [11.92 12.92 10.92 11.42 12.42]

   Memasukkan numpy dan menginisialisasi np sebagai method perhitungan

   Input=10*1

   Weight=1*10

   Neuron=1

   Bias=1

   Layer output berfungsi menghitung variable yang di inputkan

   np.dot berfungsi menghitung vector weight dan vector input

2. Multi Neuron

   Source code

C: > Users > FX506HE > OneDrive > Desktop > random > ai > 1b.py > ...

```python
#Bariq Adyatma
#21091397019
#multiple neuron

#mengimport library numpy dan memberi inisialisasi
import numpy as np

#layer input 10 features
inputs = [1.6, 1.0, 3.3, 2.5, 1.5, 1.0, 4.0, 3.5, 1.3, 3.0]

#neuron 5
weights = [[0.2, 0.8, 0.5, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7],
           [0.5, 0.1, 0.26, 0.5, 0.11, 0.12, 0.13, 0.14, 0.15, 0.16],
           [0.23, 0.27, 0.17, 0.87, 0.22, 0.18, 0.22, 0.21, 0.31, 0.23],
           [0.13, 0.25, 0.26, 0.27, 0.28, 0.29, 0.30, 0.40, 0.41, 0.42],
           [0.31, 0.32, 0.33, 0.34, 0.35, 0.36, 0.37, 0.38, 0.34, 0.44]]

#bias dari layer
biases = [1.0, 2.0, 0.5, 2.5, 1.5]
#menghitung layer output
layer_outputs = np.dot(weights, inputs) + biases
#memunculkan outout
print(layer_outputs)
```

Output

```
PS C:\Users\FX506HE> & C:/Users/FX506HE/AppData/Local/Microsoft/WindowsApps/python3.10.exe c:/Users/FX506HE/OneDrive/Desktop/random/ai/1b.py
[10.85   6.978  7.092  9.594  9.712]
```

[10.85 6.978 7.092 9.594 9.712]

Memasukkan numpy dan menginisialisasi np sebagai method perhitungan

Input=10

Weight=5*10

Neuron=5

Bias=5

Layer output berfungsi menghitung variable yang di inputkan

np.dot berfungsi menghitung vector weight dan vector input

3. Multi Neuron Batch

   Source code

```
C: > Users > FX506HE > OneDrive > Desktop > random > ai > 1c.py > ...
```

```python
import numpy as np
inputs = [[2.2, 0.3, 0.4, 0.5, 0.6, 0.7],
                    [0.5, 0.91, 0.22, 0.5, 0.13, 0.15],
                    [0.26, 0.27, 0.13, 0.87, 0.77, 0.11],
                    [0.31, 0.33, 0.34, 0.35, 0.37, 0.38],
                    [0.21, 0.22, 0.13, 0.24, 0.25, 0.26],
                    [0.2, 0.8, 0.5, 0.1, 0.1, 0.4],
                    [0.5, 0.91, 0.26, 0.2, 0.13, 0.15],
                    [0.26, 0.27, 0.17, 0.87, 0.77, 0.11],
                    [0.31, 0.22, 0.34, 0.22, 0.37, 0.38],
                    [0.21, 0.22, 0.23, 0.24, 0.25, 0.26]]

weights = [[0.2, 0.8, 0.5, 0.2, 0.1, 0.4],
                    [0.5, 0.91, 0.26, 0.5, 0.13, 0.15],
                    [0.26, 0.27, 0.17, 0.87, 0.77, 0.11],
                    [0.31, 0.33, 0.34, 0.35, 0.37, 0.38],
                    [0.21, 0.22, 0.23, 0.24, 0.25, 0.26]]

biases = [2.0, 3.0, 0.5, 1.5, 2.0]
layer_outputs = np.dot(inputs, np.array(weights).T) + biases
print(layer_outputs)
```

Output

```
PS C:\Users\FX506HE> & C:/Users/FX506HE/AppData/Local/Microsoft/WindowsApps/python3.10.exe c:/Users/FX506HE/OneDrive/Desktop/random/ai/1c.py
[[3.32   4.91   2.195  3.08   3.072 ]
 [3.111  4.4247 1.4647 2.3102 2.5473]
 [2.628  3.9611 2.0245 2.3451 2.5738]
 [2.755  3.8238 1.3587 2.2244 2.4912]
 [2.46   3.5305 1.066  1.9572 2.3101]
 [3.12   4.081  1.061  2.22   2.486 ]
 [3.071  4.2851 1.2105 2.2188 2.4845]
 [2.648  3.9715 2.0313 2.3587 2.583 ]
 [2.641  3.6587 1.2159 2.1426 2.4358]
 [2.51   3.5565 1.083  1.9912 2.3331]]
```

[[3.32 4.91 2.195 3.08 3.072]
[3.111 4.4247 1.4647 2.3102 2.5473]
[2.628 3.9611 2.0245 2.3451 2.5738]
[2.755 3.8238 1.3587 2.2244 2.4912]
[2.46 3.5305 1.066 1.9572 2.3101]
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[3.071 4.2851 1.2105 2.2188 2.4845]
[2.648 3.9715 2.0313 2.3587 2.583]
[2.641 3.6587 1.2159 2.1426 2.4358]
[2.51 3.5565 1.083 1.9912 2.3331]]

Memasukkan numpy dan menginisialisasi np sebagai method perhitungan

Input=10

Batch=6
Weight=5*10
Neuron=5
Bias=5
Layer output berfungsi menghitung variable yang di inputkan
np.dot berfungsi menghitung vector weight dan vector input