Laporan Ujian Tengah Semester

Kecerdasan Buatan

Disusun oleh:

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PROGRAM VOKASI

PROGRAM STUDI D IV MANAJEMEN INFORMATIKA

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Revisi UTS 1

1. Single Neuron
   a. Input layer feature 10
   b. Neuron 5
   c. Source Code

```python
#insialisasi numpy
import numpy as np

#inisialisasi variable
inputs = [3, 5, 4, 4.5, 2, 6, 3.5, 8, 9, 1]

#inisialisasi bobot variable
weights = [-3.4, 1.4, 0.8, 2.9, 2.4, -1.6, 0.6, 2.2, 5.6, 1.5]

#inisialisasi bias
bias = 7

#penghitungan output = (input*weight)+bias
output = np.dot(weights, inputs) + bias

#cetak ouput
print(output)
```

   d. Output

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

Windows PowerShell
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PS C:\Users\HP\Python>  & 'C:\Users\HP\AppData\Local\Programs\Python\Python310\python.exe'
0318' '--' 'c:\Users\HP\Python\053_Single Neuron.py'
86.85
PS C:\Users\HP\Python>
```

2. Multi Neuron
   a. Input layer feature 10
   b. Neuron 5
   c. Source code

```python
#inisialisasi numpy
import numpy as np

#inisialisasi variable
inputs = [3, 5, 4, 4.5, 2, 6, 3.5, 8, 9, 1]

#inisialisasi bobot variable
weights =   [[-3.4, 1.4, 0.8, 2.9, 2.4, -1.6, 0.6, 2.2, 5.6, 1.5],
            [1.5, 3.2, 4.5, 7.8, -2.3, 6.7, 8.3, 9.7, -1.2, 4.5],
            [7.1, -0.3, 6.5, 0.8, 1.3, 6.2, 6.7, 9.8, 4.6, -5.4],
            [1.5, -3.2, 4.2, 5.1, 6.4, -7.5, 0.2, 8.6, 9.4, 6.7],
            [3.5, 5.6, -0.7, 8.5, -1.2, 4.6, 8.9, 5.3, 2.9, 0.3]]

#inisialisasi bias
bias = [8, 4, 1.7, -2.4, 3.5]

#penghitungan output = (input*weight)+bias
output = np.dot(weights, inputs)+bias

#cetak output
print(output)
```

   d. Output

```
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Windows PowerShell
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PS C:\Users\HP\Python>  & 'C:\Users\HP\AppData\Local\Programs\Python\Python310\python.exe'
0335' '--' 'c:\Users\HP\Python\053_Multi Neuron.py'
[ 87.85 213.55 228.75 154.45 202.6 ]
PS C:\Users\HP\Python>
```

3. Multi Neuron Batch Input
   a. Input layer feature 10
   b. Per batch 6 input
   c. Neuron 5
   d. Source code

```python
#insialisasi numpy
import numpy as np

#inisialisasi variable
inputs  = [[1.53, 2.23, 7.25, 7.18, 9.94, 1.47, 2.23, 3.35, 1.17, 2.57],
           [1.17, 0.12, 0.35, 2.45, 6.54, 6.52, 2.25, 4.89, 9.18, 3.56],
           [2.12, 3.15, 1.13, 2.54, 7.52, 9.48, 4.56, 4.12, 7.57, 2.24],
           [2.43, 2.56, 4.15, 8.21, 9.71, 7.12, 3.12, 0.78, 0.49, 6.35],
           [2.34, 5.43, 6.64, 7.77, 8.23, 8.19, 7.98, 9.87, 6.54, 1.23],
           [1.23, 2.24, 3.57, 4.76, 2.28, 2.35, 3.36, 1.92, 6.51, 5.69]]

#inisialisasi bobot variable
weights = [[0.5, 0.7, 1.4, 2.7, 7.8, 9.4, 7.3, 8.9, 9.9, 7.1],
           [0.2, 3.1, 0.7, 0.4, 1.5, 2.1, 2.2, 3.2, 3.5, 1.9],
           [2.7, 1.3, 1.4, 6.1, 5.1, 6.4, 8.5, 4.3, 0.9, 9.7],
           [4.1, 2.3, 4.1, 3.5, 1.1, 9.3, 8.6, 4.9, 5.6, 1.2],
           [2.8, 3.7, 0.4, 1.6, 3.3, 1.9, 6.7, 2.4, 0.7, 0.3]]

#inisialisasi bias
bias = [2.3, 3.5, 0.1, 1.5, 2.0]

#panjang weights
weights =  [[0.65, 2.75, 3.71, 4.31, 5.65, 3.42, 3.93, 8.59, 8.51, 0.75],
            [2.45, 3.98, 6.69, 4.78, 5.51, 2.23, 4.34, 0.12, 2.12, 2.31],
            [8.58, 4.65, 2.23, 3.21, 4.32, 5.43, 6.54, 7.65, 8.76, 9.87],
            [0.89, 9.80, 8.79, 7.68, 6.57, 5.46, 4.35, 3.24, 3.24, 2.13],
            [1.13, 2.24, 3.24, 4.45, 5.57, 6.68, 7.79, 8.71, 9.12, 3.41]]

#jumlah bias
bias = [9.1, 2.3, 3.4, 4.5, 5.6]

#penghitungan ouput
layer_output = np.dot(inputs, np.array(weights).T)+bias

print(layer_output)
```

   e. Output

```
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Windows PowerShell
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PS C:\Users\HP\Python>  & 'C:\Users\HP\AppData\Local\Programs\Python\Python310\python.exe'
4619' '--' 'c:\Users\HP\Python\053_Multi Neuron Batch Input.py'
[[184.6833 174.2916 192.8619 249.737  198.9348]
 [212.9373 108.3086 253.9755 170.1339 255.1894]
 [228.6021 143.8151 280.6356 230.3467 283.313 ]
 [175.6072 184.171  245.7095 265.1642 222.928 ]
 [330.9085 227.3413 365.6261 367.1256 389.0188]
 [160.104  120.426  220.0705 177.3433 194.8256]]
PS C:\Users\HP\Python>
```

UTS 2

1. Multi Neuron Batch Input
   a. Input layer feature 10
   b. Per batch 6 input
   c. Hidden layer 1, 5 neuron
   d. Hidden layer 2, 3 neuron
   e. Source code

```python
#instalasi numpy
import numpy as np

#inisialisasi variable
inputs = [[1.2, 2.3, 3.4, 5.6, 7.8, 8.9, 1.4, 2.9, 3.7, 4.9],
        [0.5, 0.7, 1.3, 2.5, 3.6, 4.6, 1.5, 3.9, 6.9, 5.7],
        [0.3, 8.5, 7.6, 9.8, 4.5, 5.8, 4.7, 0.9, 8.8, 7.7],
        [1.1, 3.2, 4.1, 5.1, 6.2, 7.2, 5.9, 9.1, 4.3, 6.5],
        [3.3, 4.4, 5.3, 1.7, 0.3, 0.6, 7.3, 8.2, 6.2, 3.1],
        [4.8, 0.5, 0.4, 0.8, 0.1, 0.2, 6.3, 6.9, 7.9, 5.8]]

#panjang weights
weights1 = [[1.2, 2.3, 3.4, 4.5, 5.6, 6.7, 9.5, 7.6, 9.1, 8.2],
            [7.8, 8.9, 9.1, 2.4, 2.5, 3.5, 3.3, 1.7, 2.5, 6.5],
            [5.3, 5.2, 4.2, 1.9, 9.8, 8.7, 1.4, 2.1, 5.6, 7.7],
            [7.6, 7.5, 5.4, 4.3, 3.2, 2.1, 5.7, 6.1, 2.2, 1.1],
            [8.4, 6.4, 5.9, 7.1, 9.2, 8.3, 3.6, 6.3, 2.1, 0.3]]

#jumlah biases pada layer1
biases1 = [4.4, 1.3, 3.5, 4.6, 7.9]

#inisialisasi bobot variable 2
weights2 =  [[0.1, 3.2, 2.4, 5.4, 4.6],
            [4.2, 1.1, 2.5, 7.8, 6.5],
            [2.6, 3.4, 9.8, 8.7, 6.4]]

#jumlah biases pada layer2
biases2= [2.4, 5.1, 7.7]

#menghitung layer1 menggunakan inputs, weights1, dan biases1
layer1_outputs = np.dot(inputs, np.array(weights1).T) + biases1

#menghitung layer2 dari hasil perhitungan layer1
layer2_outputs = np.dot(layer1_outputs, np.array(weights2).T) + biases2

#print output layer2
print(layer2_outputs)
```

   f. Output

```
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PS C:\Users\HP\Python>  & 'C:\Users\HP\AppData\Local\Programs\Python\Python310\python.exe'
4732' '--' 'c:\Users\HP\Python\053_Multi Neuron Batch Input 2.py'
[[3324.319 4939.382 6995.488]
 [2169.392 3426.117 4795.661]
 [4456.122 6493.17  9062.614]
 [3994.587 6118.126 8254.802]
 [3127.788 4712.684 6104.299]
 [2333.357 3727.768 4867.329]]
PS C:\Users\HP\Python>
```