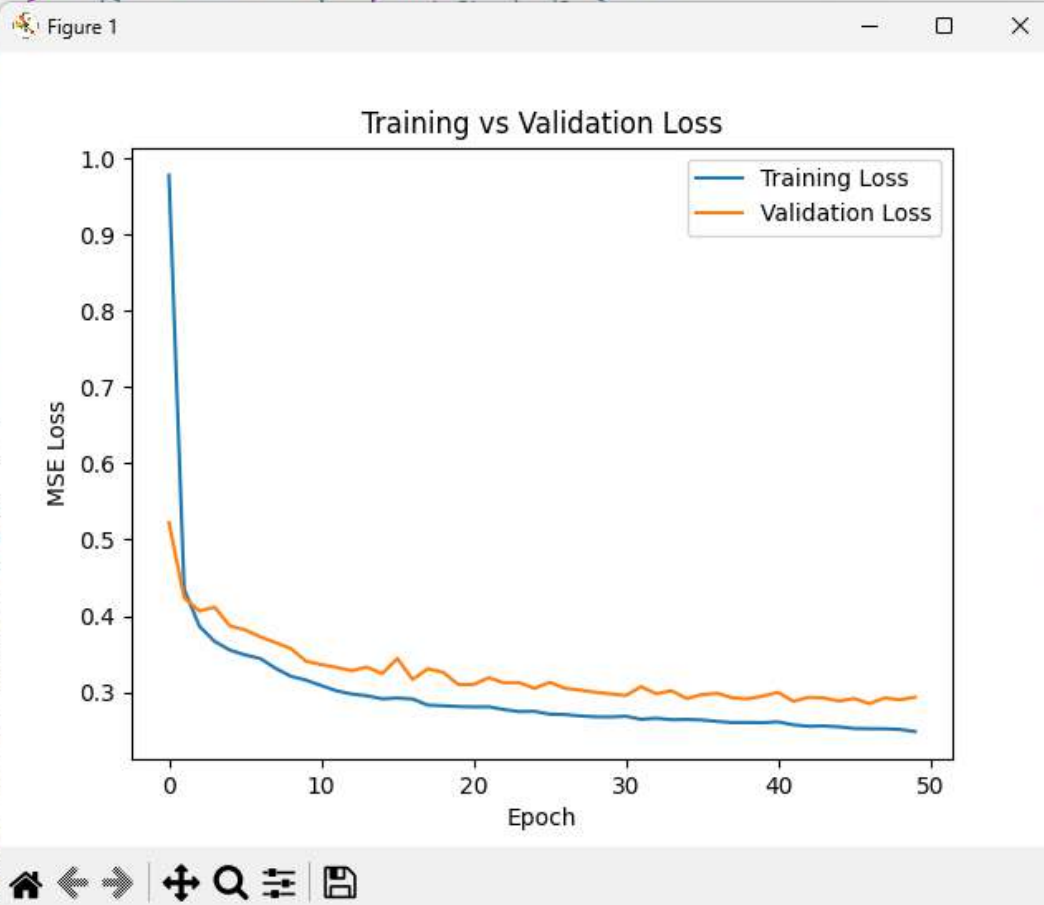


```
1 import numpy as np
2 import matplotlib.pyplot as plt
3 from sklearn.datasets import fetch_california_housing
4 from sklearn.model_selection import train_test_split
```



OUTPUT

PS C:

AppDa

d\lit

Epoch

413/4

Epoch

413/4

Epoch

413/4

Epoch

413/4

Epoch

413/4

Epoch

413/4

Epoch

413/4

129/1

Test

Test

bug Console + v [icon] [icon] ... | [icon] x

```
b working\lab5'; & 'c:\Users\zumer\
.debugpy-2025.18.0-win32-x64\bundle
nt 5\california_regression.py'
```

ae: 0.3789

ae: 0.3617

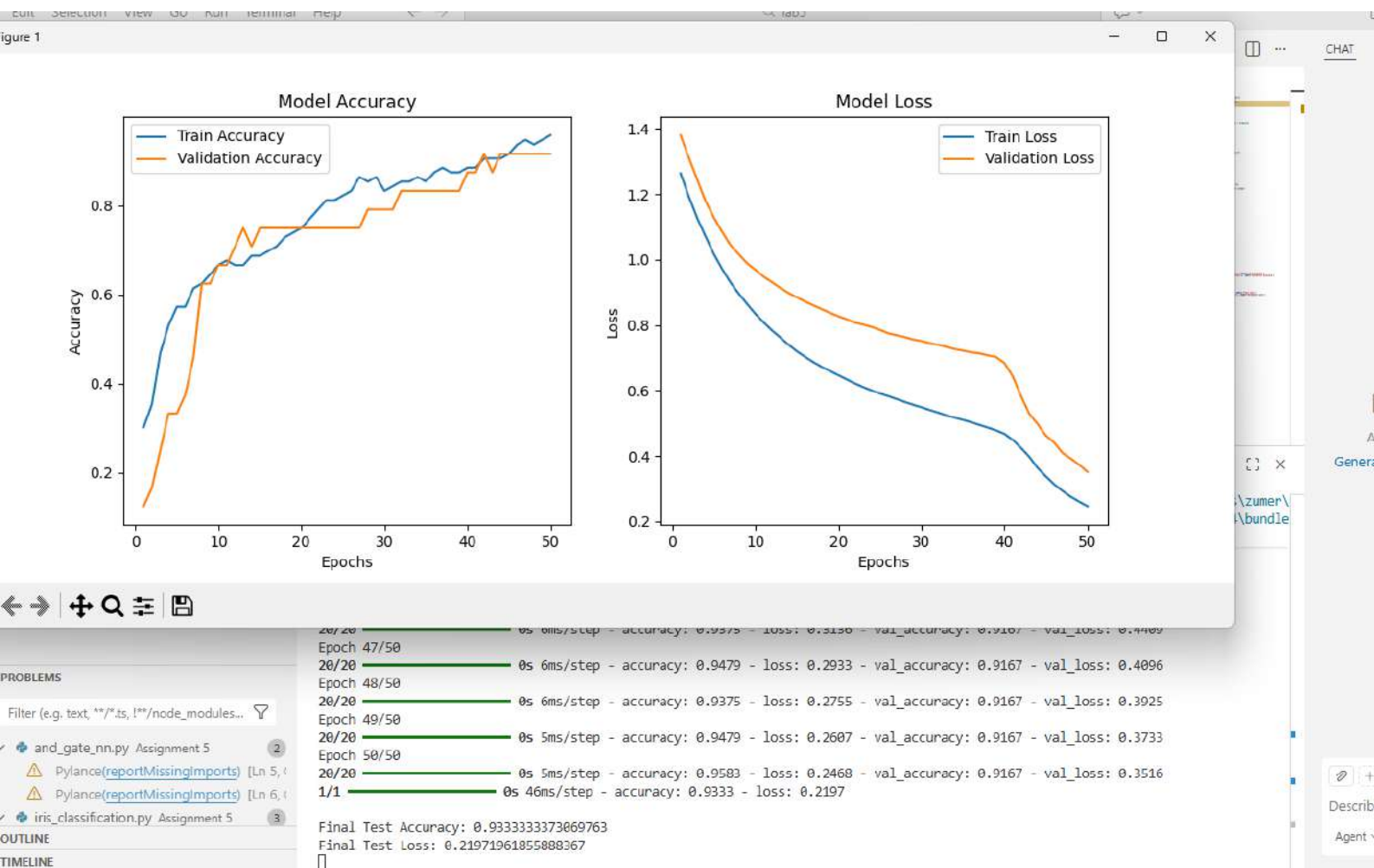
ae: 0.3669

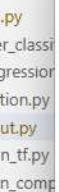
ae: 0.3585

ae: 0.3724

ae: 0.3757

Figure 1





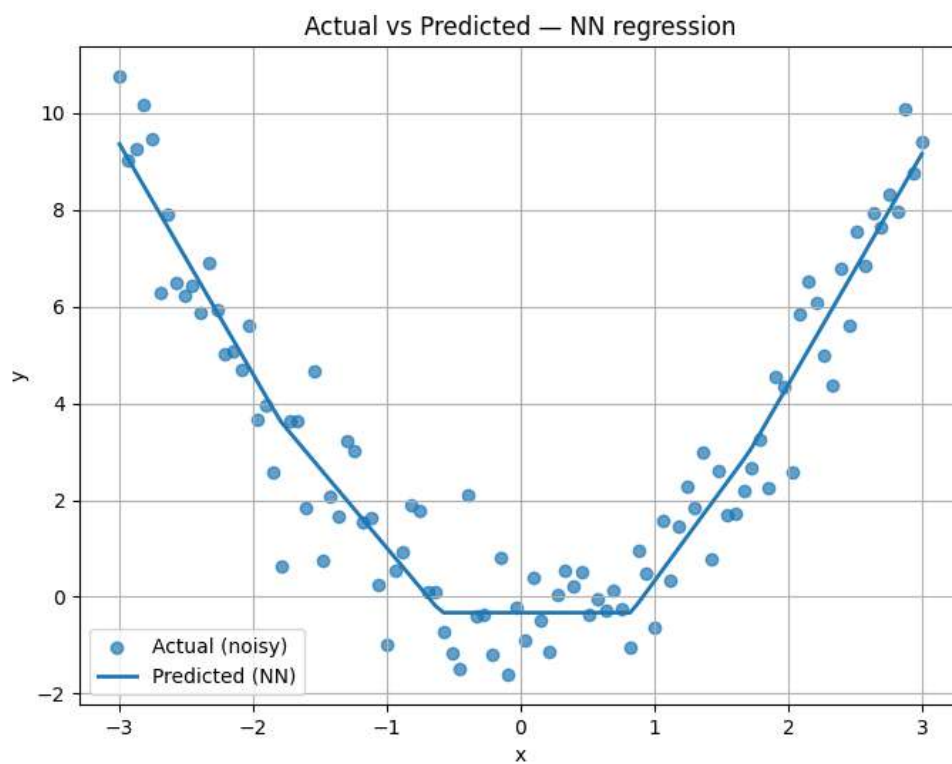
nn.py Assignment 5 2
e(reportMissingImports) [Ln 5, (]
e(reportMissingImports) [Ln 6, (]
pout.py Assignment 5 4

and_gate_nn.py 2 nn_regression_tf.py 1 Launch

Assignment 5 > nn_regression_tf.py > ...

1 # nn_regression_tf.py

Figure 1



Train MSE: 0.9468 | Test MSE: 0.6678
4/4 0s 16ms/step

```
& 'c:\Users\zumer\AppData\Local\
& 'c:\Users\zumer\AppData\Local\
ndled\libs\debugpy\launcher' '51

ghtly different numerical results
variable `TF_ENABLE_ONEDNN_OPTS=

ghtly different numerical results
variable `TF_ENABLE_ONEDNN_OPTS=

arning: Do not pass an `input_sh
first layer in the model instead

ized to use available CPU instruc

rebuild TensorFlow with the appro
```

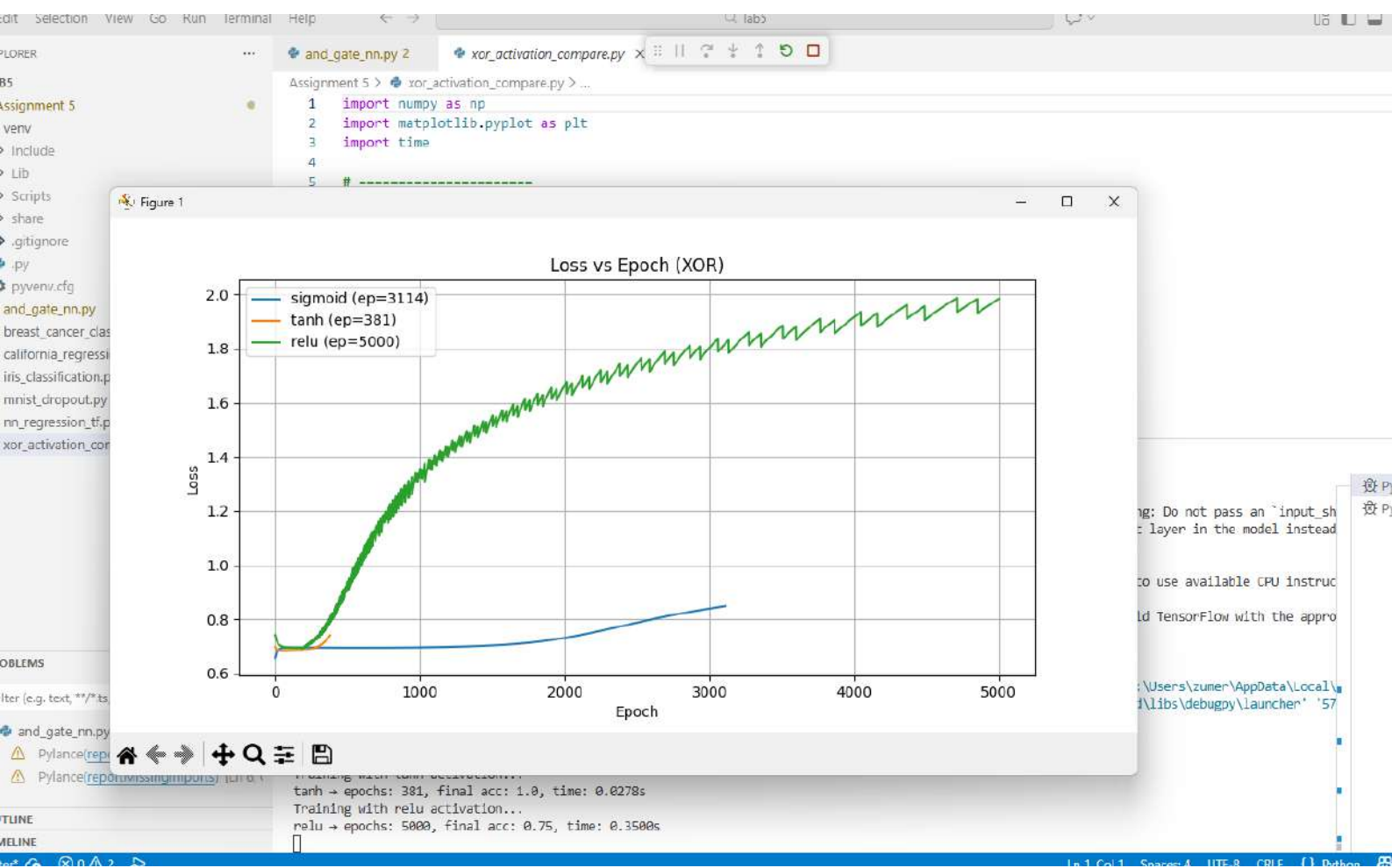
Launch

Figure 1

The plot shows the Mean Squared Error (MSE) on the y-axis (ranging from 0 to 20) against the Epoch number on the x-axis (ranging from 0 to 200). The 'train loss' (blue line) starts at approximately 22 and decreases to about 1.0. The 'val loss' (orange line) starts at approximately 12 and decreases to about 0.8. Both curves show a sharp initial drop followed by a gradual decline and eventual stabilization.

Epoch	train loss	val loss
0	22.0	12.0
25	3.0	2.0
50	1.5	1.0
75	1.2	0.9
100	1.1	0.8
125	1.0	0.8
150	1.0	0.8
175	1.0	0.8
200	1.0	0.8

4/4 0s 16ms/step



...

and_gate_nn.py 2

xor_activation_compare.py X

|| ↺ ⬇ ⬆ ↻

Assignment 5 > xor_activation_compare.py > ...

Figure 1

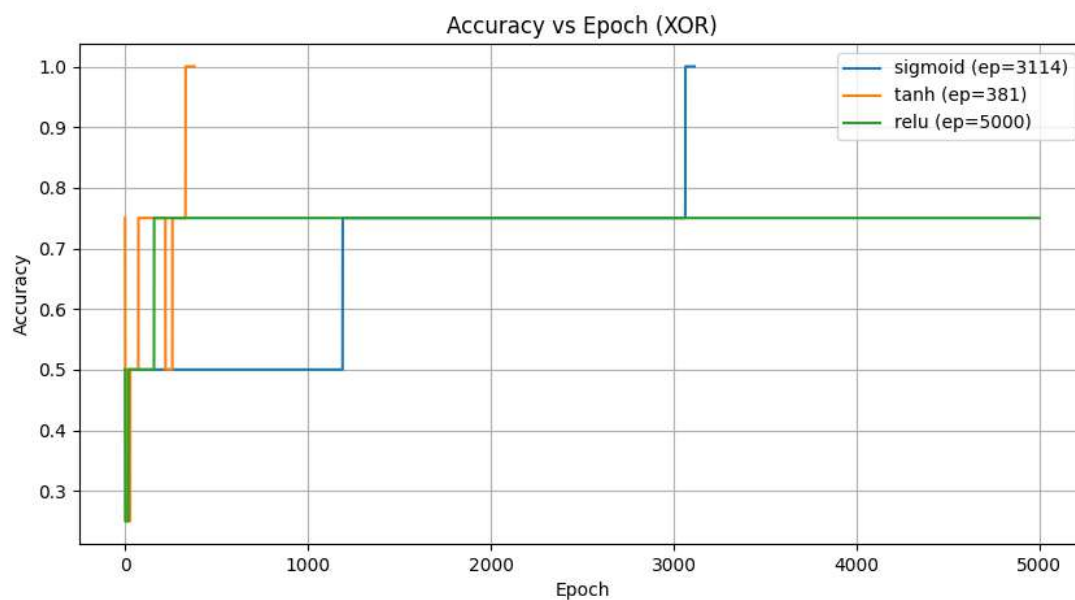


and_gate_nn.py 2

xor_activation_compare.py x

Assignment 5 > xor_activation_compare.py > ...

Figure 1



ts, !**/node_modules...
py Assignment 5
reportMissingImports [Ln 5, (]
reportMissingImports [Ln 6, (]

```
PS C:\Users\zumer\OneDrive\Desktop\lab working\lab5> C:\Users\zumer\OneDrive\Desktop\lab working\lab5\& C:\Users\zumer\AppData\Local\Programs\Python\Python313\python.exe 'c:\Users\zumer\.vscode\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '57740' '--' 'c:\Users\zumer\OneDrive\Desktop\lab working\lab5\Assignment 5\xor_activation_compare.py'  
Training with sigmoid activation...  
sigmoid -> epochs: 3114, final acc: 1.0, time: 0.2357s  
Training with tanh activation...  
tanh -> epochs: 381, final acc: 1.0, time: 0.0278s  
Training with relu activation...  
relu -> epochs: 5000, final acc: 0.75, time: 0.3500s  
[]
```

2

Ln 1, Col 1 Spaces: 4 UTF-8 CRLF {} Python