

[and_gate_nn.py](#) 2 [california_regression.py](#) 2

Assignment 5 > california_regression.py > ...

```
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
```



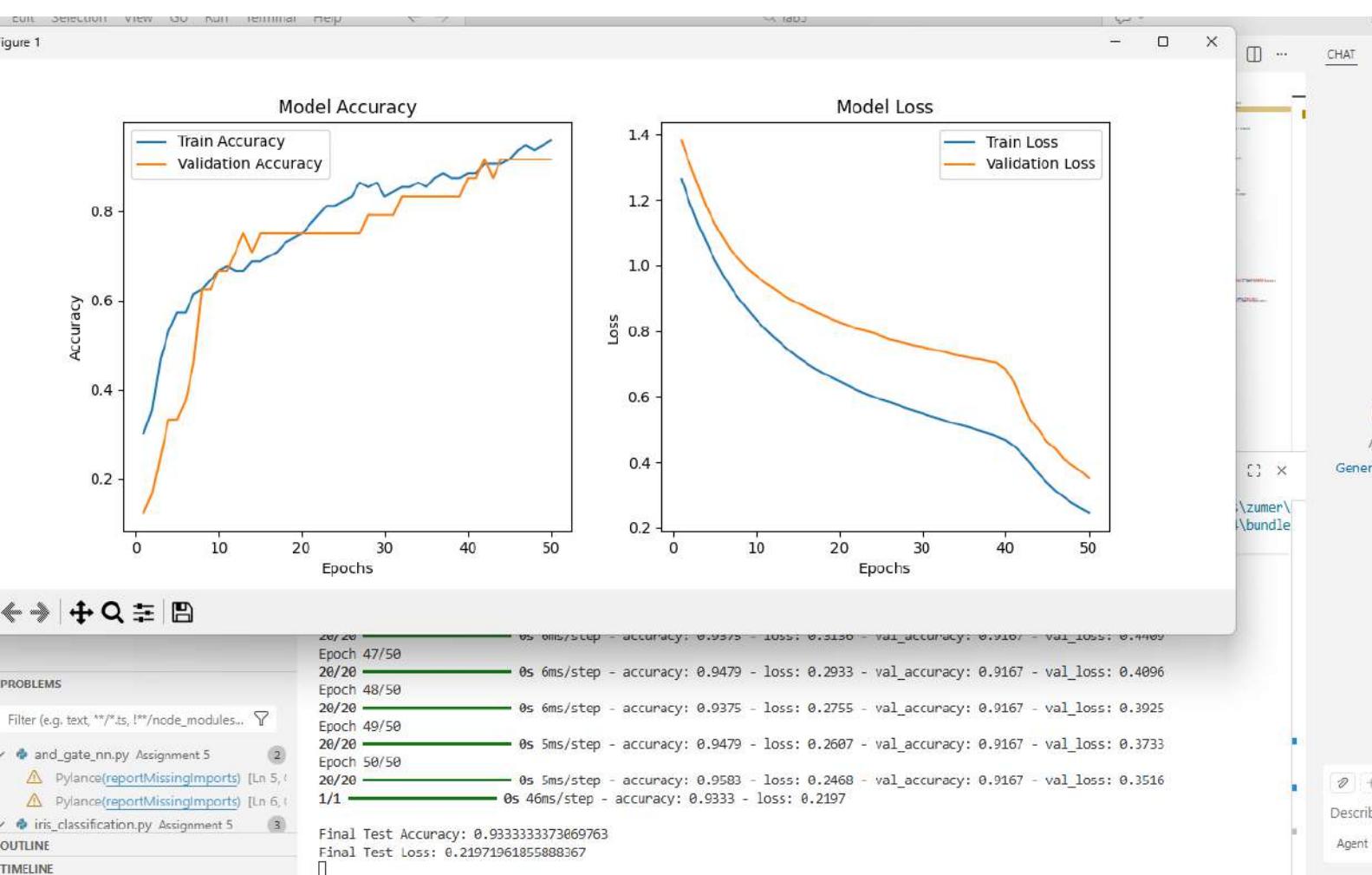
```
bug Console + × ⌂ ⌂ ... | ⌂ ×

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

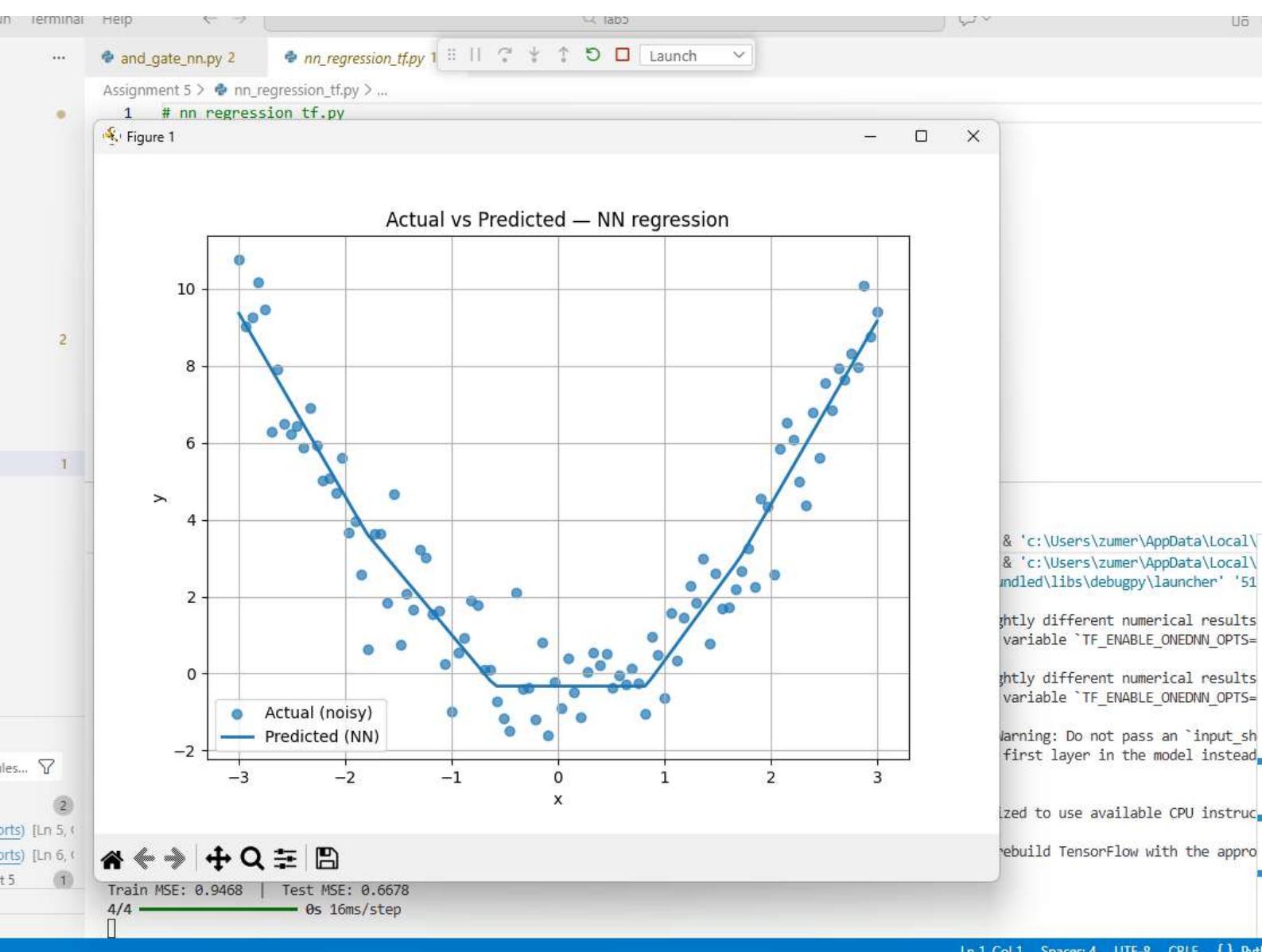
ae: 0.3789
ae: 0.3617
ae: 0.3669
ae: 0.3585
ae: 0.3724
ae: 0.3757
```

```
Epoch 50/50
413/413 - 1s 2ms/step - loss: 0.2483 - mae: 0.3418 - val_loss: 0.2934 - val_mae: 0.3695
129/129 - 0s 2ms/step - loss: 0.2843 - mae: 0.3661
Test Loss (MSE): 0.2843192517757416
Test MAE: 0.36610686770922217
```

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final Help ← → Q lab5

and_gate_nn.py 2 nn_regression_tf.py 1 Launch

Assignment 5 > nn_regression_tf.py > ...

```

1 # nn_regression_tf.py
2 import numpy as np
3 import matplotlib.pyplot as plt
4 from sklearn.model_selection import train_test_split
5 from tensorflow import keras
6 from tensorflow.keras import layers
7 import tensorflow as tf
8
9 # 1) R
10 np.ran
11 tf.ran
12
13 # 2) G
14 n_samp
15 x = np
16 noise
17 y = x*
18

```

Figure 1

Training Curve

Epoch	train loss	val loss
0	22.0	12.0
5	10.0	4.0
10	5.0	2.5
25	2.0	1.5
50	1.5	1.0
100	1.2	0.8
200	1.1	0.7

MSE

Epoch

OUTPUT DEBUG

PS C:\Users\zumeape`/input_d

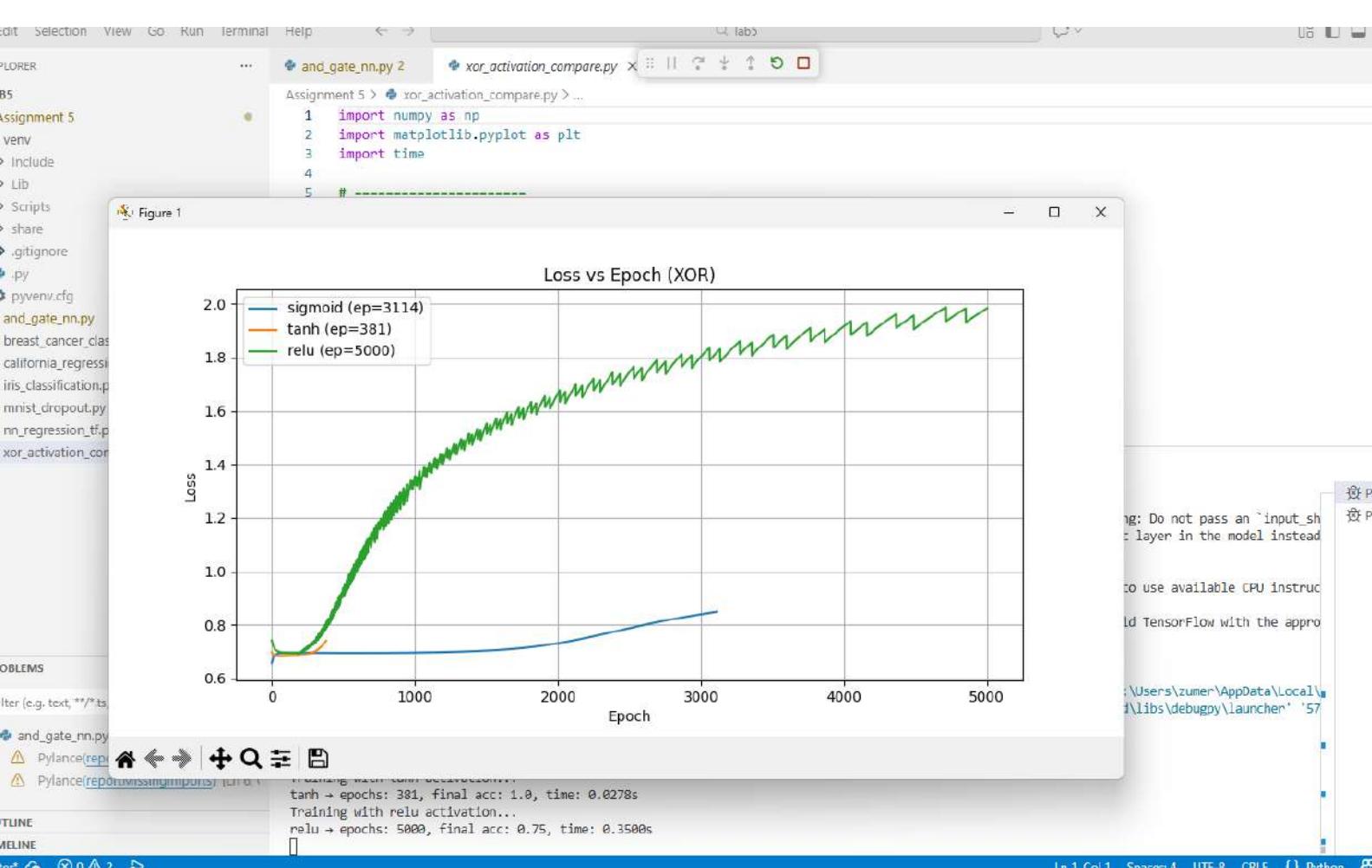
super().__init__(activity_regularizer=activity_regularizer, **kwargs)

2026-01-12 23:02:54.551131: I tensorflow/core/platform/cpu_feature_guard.cc:210] This TensorFlow binary is optimized for performance-critical operations.

To enable the following instructions: SSE3 SSE4.1 SSE4.2 AVX AVX2 AVX512F AVX512_VNNI FMA, in other operations, reappropriate compiler flags.

Train MSE: 0.9468 | Test MSE: 0.6678

4/4 0s 16ms/step



... and_gate_nn.py 2 xor_activation_compare.py X :: || ? ↴ ↑ ↵ □
Assignment 5 > xor_activation_compare.py > ...

Figure 1

