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Subject – DNN

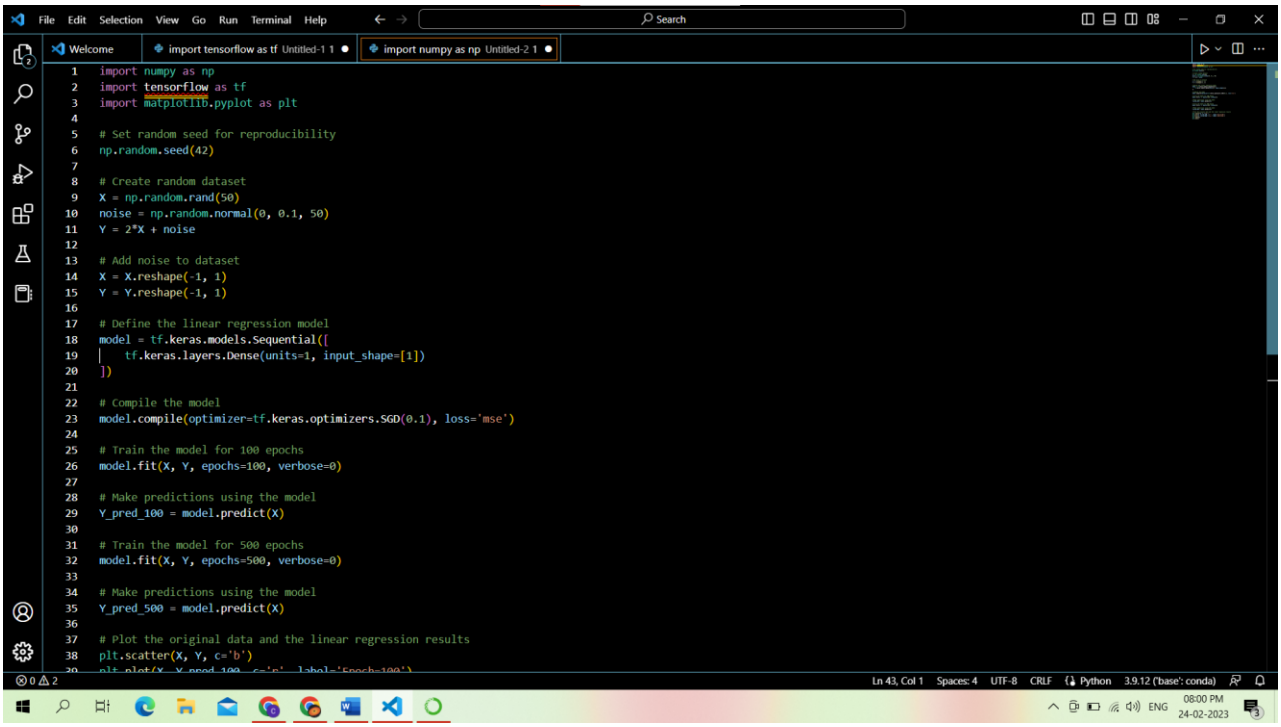
ASSIGNMENT

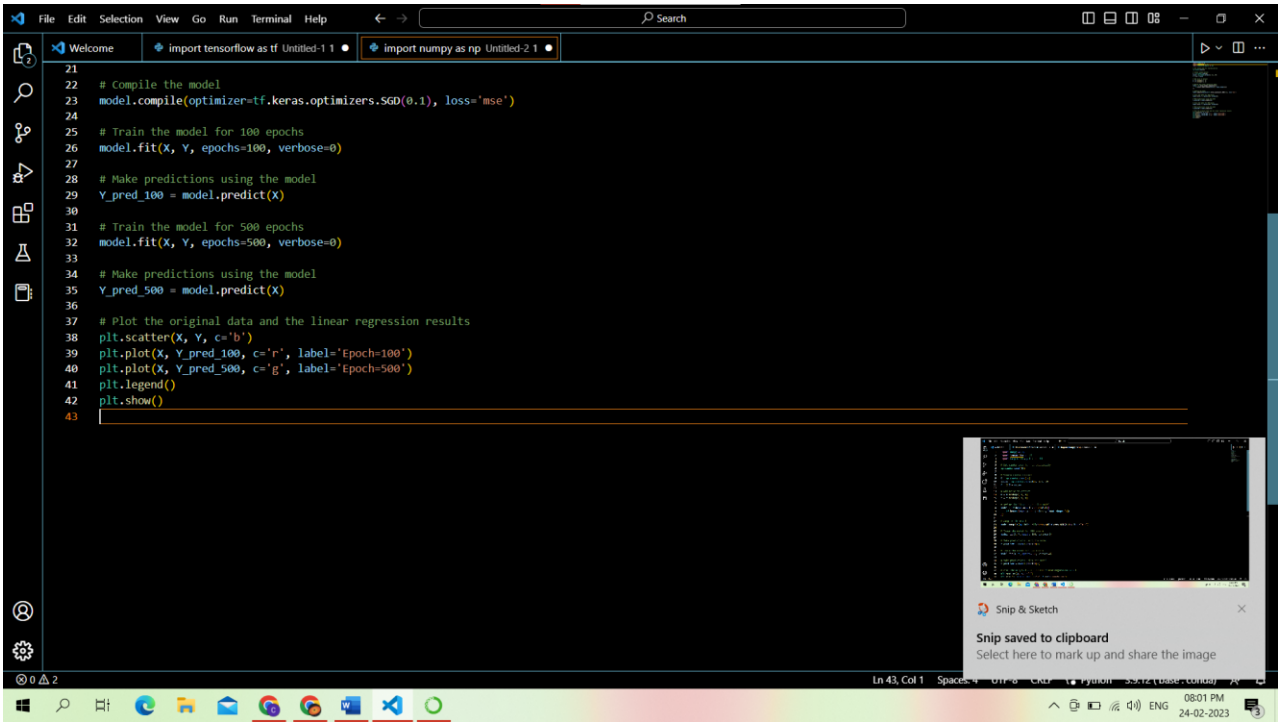
Creating a Linear Regression Model as an ANN with TensorFlow

Assignment 1

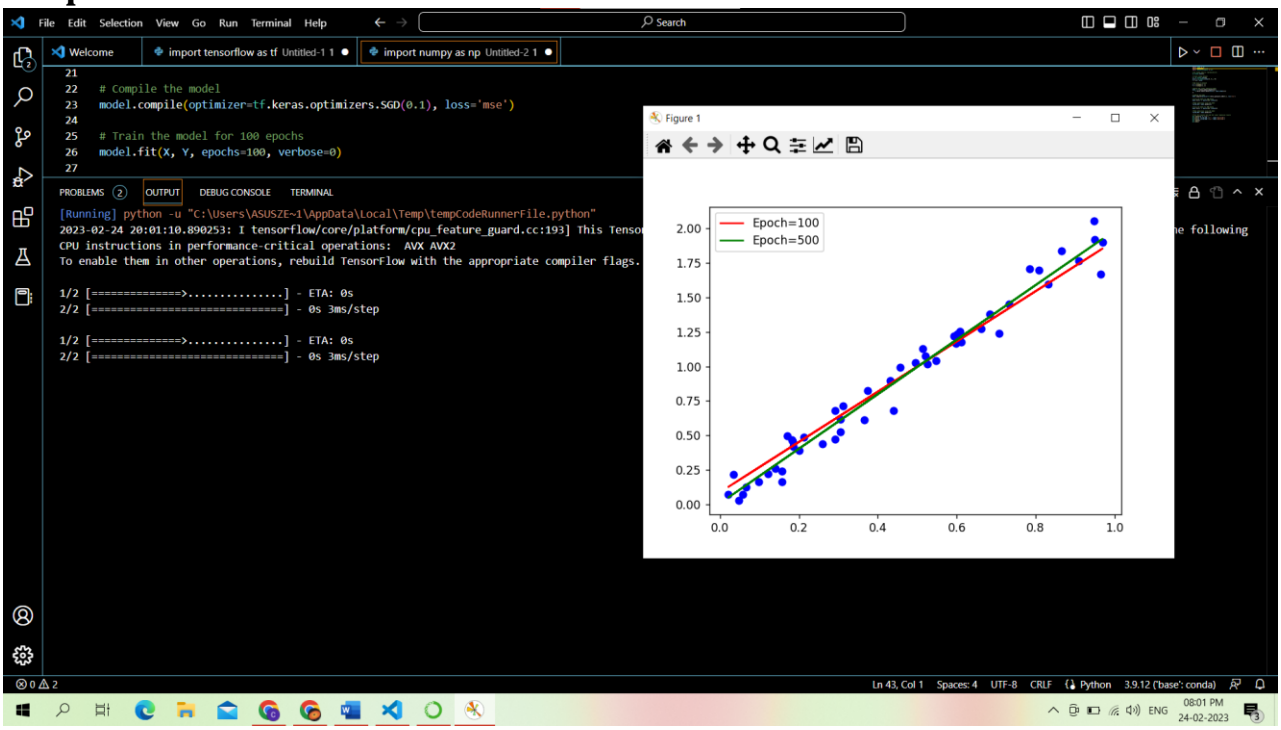
- Write a program to create a random 50 data points (X,Y) plot data points and add some noise in data set and apply linear regression use epoch=100 and check the result ,epoch=500 check result and plot graph.

Code





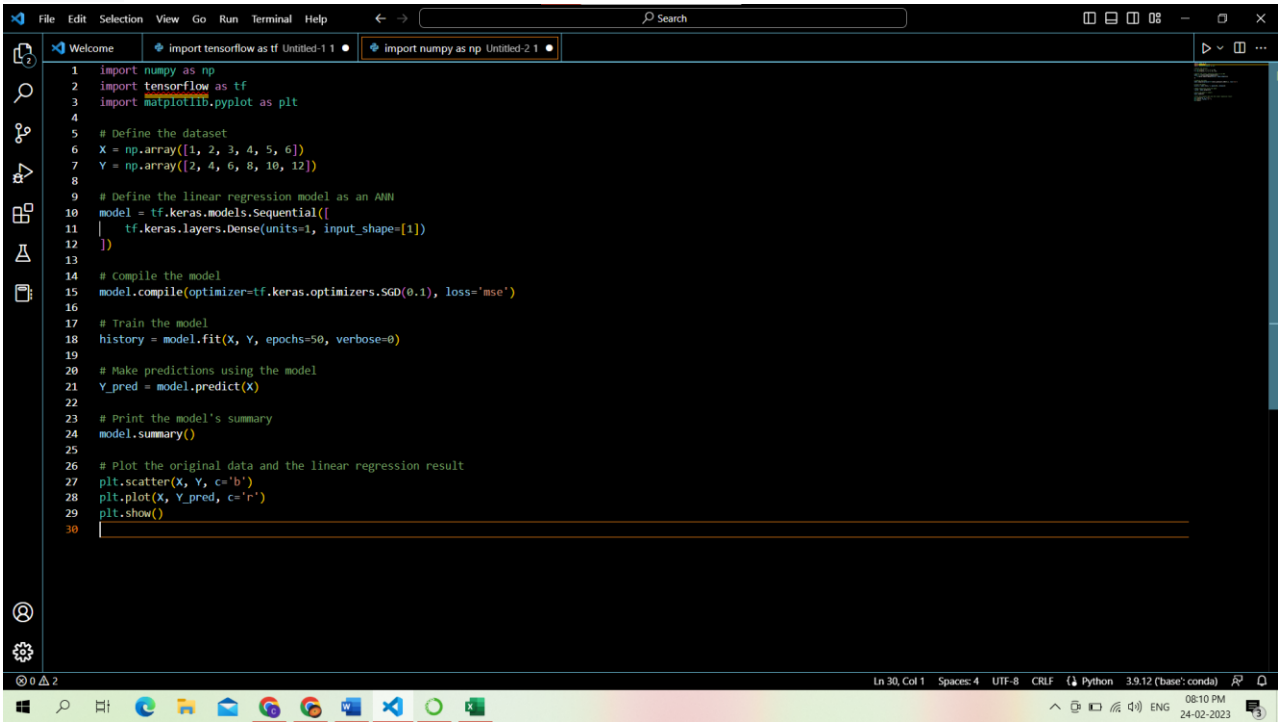
Output –



Assignment 2 –

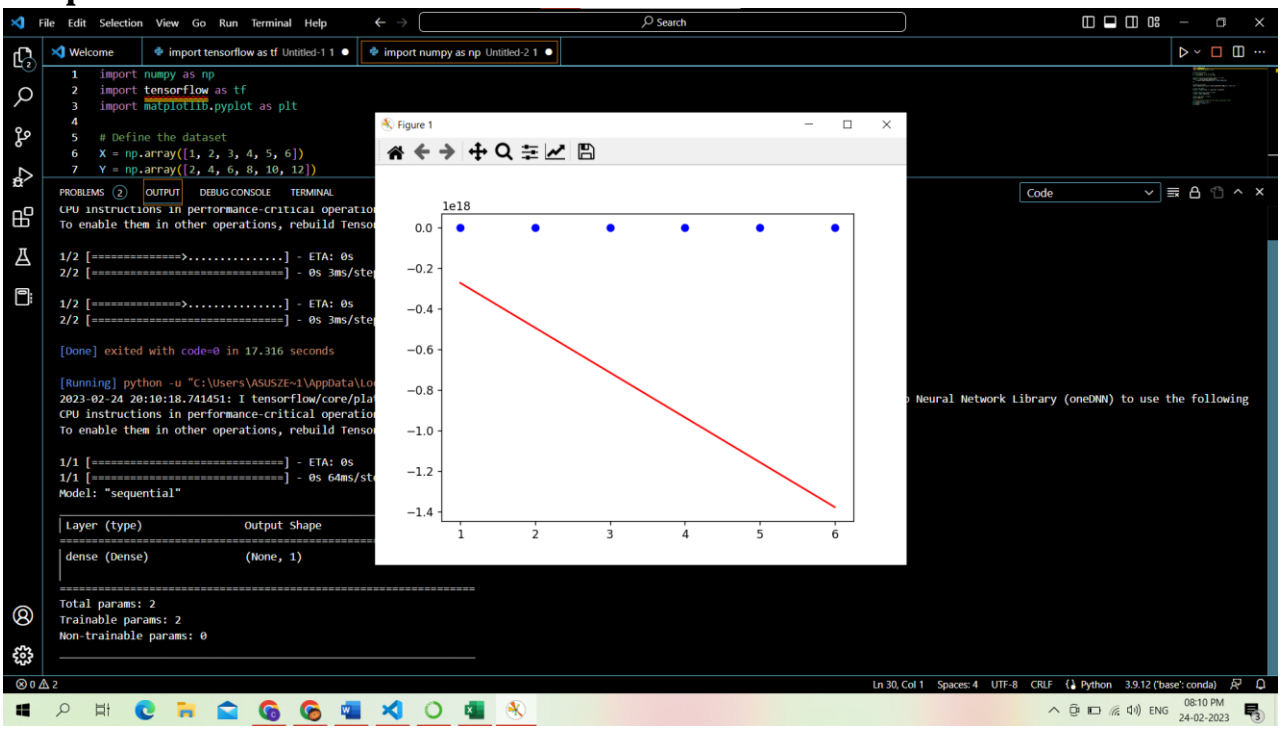
Write a program to creating a Linear Regression Model as an ANN with TensorFlow by using following data set.”

Code –



```python
import numpy as np
import tensorflow as tf
import matplotlib.pyplot as plt

# Define the dataset
X = np.array([1, 2, 3, 4, 5, 6])
Y = np.array([2, 4, 6, 8, 10, 12])

# Define the linear regression model as an ANN
model = tf.keras.models.Sequential([
    tf.keras.layers.Dense(units=1, input_shape=[1])
])

# Compile the model
model.compile(optimizer=tf.keras.optimizers.SGD(0.1), loss='mse')

# Train the model
history = model.fit(X, Y, epochs=50, verbose=0)

# Make predictions using the model
Y_pred = model.predict(X)

# Print the model's summary
model.summary()

# Plot the original data and the linear regression result
plt.scatter(X, Y, c='b')
plt.plot(X, Y_pred, c='r')
plt.show()
```

Output –




```
CPU instructions in performance-critical operatio
To enable them in other operations, rebuild Tenso

1/2 [==============>..............] - ETA: 0s
2/2 [==============================] - 0s 3ms/ste

1/2 [==============>..............] - ETA: 0s
2/2 [==============================] - 0s 3ms/ste

[Done] exited with code=0 in 17.316 seconds

[Running] python -u "C:\Users\ASUSZE~1\AppData\Lo
2023-02-24 20:10:18.741451: I tensorflow/core/pla
CPU instructions in performance-critical operatio
To enable them in other operations, rebuild Tenso

1/1 [==============================] - ETA: 0s
1/1 [==============================] - 0s 64ms/st
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape
=================================================================
 dense (Dense)               (None, 1)

=================================================================
Total params: 2
Trainable params: 2
Non-trainable params: 0
_________________________________________________________________
```