import tensorflow as tf

import numpy as np

# Create a random 4x4 matrix as input

input\_matrix = np.random.randint(0, 10, (1, 4, 4, 1)).astype(np.float32) # Ensure it's float32

# Define max pooling layer

max\_pooling = tf.keras.layers.MaxPooling2D(pool\_size=(2, 2), strides=2, padding='valid')

max\_pooled\_output = max\_pooling(input\_matrix).numpy()

# Define average pooling layer

avg\_pooling = tf.keras.layers.AveragePooling2D(pool\_size=(2, 2), strides=2, padding='valid')

avg\_pooled\_output = avg\_pooling(input\_matrix).numpy()

# Print results

print("Original Matrix:\n", input\_matrix[0, :, :, 0])

print("\nMax Pooled Matrix:\n", max\_pooled\_output[0, :, :, 0])

print("\nAverage Pooled Matrix:\n", avg\_pooled\_output[0, :, :, 0])