```python
#Matematyka Konkretna
#Laboratorium 9
#Zboś Maciej https://github.com/Myriks123/MK
#Wariant 14

import tensorflow as tf
import numpy as np

def generate_data(num_samples=1000, num_bits=28):
    X = np.random.randint(0, 2, size=(num_samples, 28, 2))
    Y = np.sum(X, axis=1)
    return X, Y

model = tf.keras.Sequential([
    tf.keras.layers.SimpleRNN(16, input_shape=(28, 2),
activation='relu', return_sequences=True),
    tf.keras.layers.SimpleRNN(16, activation='relu'),
    tf.keras.layers.Dense(1, activation='linear')  # Zmieniona liczba
neuronów na 1 i funkcję aktywacji na 'linear'
])

model.compile(optimizer='adam', loss='mean_squared_error',
metrics=['mae'])

X_train, Y_train = generate_data()

model.fit(X_train, Y_train, epochs=10, batch_size=32)

X_test, Y_test = generate_data(10)
predictions = model.predict(X_test)

for i in range(10):
    input_data = X_test[i]
    true_output = Y_test[i]
    predicted_output = predictions[i].round()

    print(f"Wejscie: {input_data}")
    print(f"Prawdziwa suma: {true_output}")
    print(f"Przewidziana suma: {predicted_output}")
    print()
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Epoch 1/10
32/32 [==============================] - 2s 6ms/step - loss: 200.8474
- mae: 13.9215
Epoch 2/10
32/32 [==============================] - 0s 5ms/step - loss: 117.6108
- mae: 9.7008
Epoch 3/10
32/32 [==============================] - 0s 5ms/step - loss: 17.1387 -
mae: 3.2169
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Epoch 4/10
32/32 [==============================] - 0s 6ms/step - loss: 10.2921 -
mae: 2.3793
Epoch 5/10
32/32 [==============================] - 0s 5ms/step - loss: 8.2592 -
mae: 2.1454
Epoch 6/10
32/32 [==============================] - 0s 5ms/step - loss: 7.1992 -
mae: 2.0258
Epoch 7/10
32/32 [==============================] - 0s 6ms/step - loss: 6.3840 -
mae: 1.9336
Epoch 8/10
32/32 [==============================] - 0s 5ms/step - loss: 5.7944 -
mae: 1.8793
Epoch 9/10
32/32 [==============================] - 0s 5ms/step - loss: 5.3097 -
mae: 1.8219
Epoch 10/10
32/32 [==============================] - 0s 5ms/step - loss: 4.9585 -
mae: 1.7721
1/1 [==============================] - 0s 207ms/step
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Prawdziwa suma: [17 11]
Przewidziana suma: [16.]

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Prawdziwa suma: [18 10]
Przewidziana suma: [15.]

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Przewidziana suma: [15.]

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Przewidziana suma: [14.]

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Przewidziana suma: [15.]

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Przewidziana suma: [12.]
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