deepzero

October 25, 2023

[2]:
```
#deep learning
#assignment 0
a=2
```

[3]:
```
a
```

[3]: 2

#1.Objective: - Predict Next Sequence To start with deep learning, the very basic project that you can build is to predict the next digit in a sequence.

Dataset: - Create a sequence like a list of odd numbers and then build a model and train it to predict the next digit in the sequence.

Task: - A simple neural network with 2 layers would be sufficient to build the model.

Assignment Submission: - Only submit the Google Colab/Github link.(Make the Link Public).

[8]:
```
#creating a list of the odd number
n=int(input("\n Enter the numbers = "))
#creating the odd sequence
sequence=[]
count=0
for i in range(1,n+1):
    if(i%2!=0):
        sequence.append(i)
print(sequence)
```

```
 Enter the numbers =  100
[1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41,
43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81,
83, 85, 87, 89, 91, 93, 95, 97, 99]
```

[9]:
```
# Prepare training data
X = sequence[:-1]  # Input sequence
y = sequence[1:]   # Output sequence (next number)
print("input sequence=",X)
```

```
print('_____________________________________________________________________________________
print("output sequence =",y)
```

```
input sequence= [1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33,
35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73,
75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97]
_____________________________________________________________________________
_____________________________
output sequence = [3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33,
35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73,
75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99]
```

[10]:
```
!pip install tensorflow
```

```
Requirement already satisfied: tensorflow in /opt/conda/lib/python3.10/site-
packages (2.14.0)
Requirement already satisfied: tensorflow-estimator<2.15,>=2.14.0 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (2.14.0)
Requirement already satisfied:
protobuf!=4.21.0,!=4.21.1,!=4.21.2,!=4.21.3,!=4.21.4,!=4.21.5,<5.0.0dev,>=3.20.3
in /opt/conda/lib/python3.10/site-packages (from tensorflow) (4.21.8)
Requirement already satisfied: flatbuffers>=23.5.26 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (23.5.26)
Requirement already satisfied: setuptools in /opt/conda/lib/python3.10/site-
packages (from tensorflow) (65.5.0)
Requirement already satisfied: ml-dtypes==0.2.0 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (0.2.0)
Requirement already satisfied: packaging in /opt/conda/lib/python3.10/site-
packages (from tensorflow) (21.3)
Requirement already satisfied: six>=1.12.0 in /opt/conda/lib/python3.10/site-
packages (from tensorflow) (1.16.0)
Requirement already satisfied: google-pasta>=0.1.1 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (0.2.0)
Requirement already satisfied: absl-py>=1.0.0 in /opt/conda/lib/python3.10/site-
packages (from tensorflow) (2.0.0)
Requirement already satisfied: grpcio<2.0,>=1.24.3 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (1.59.0)
Requirement already satisfied: keras<2.15,>=2.14.0 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (2.14.0)
Requirement already satisfied: astunparse>=1.6.0 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (1.6.3)
Requirement already satisfied: gast!=0.5.0,!=0.5.1,!=0.5.2,>=0.2.1 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (0.5.4)
Requirement already satisfied: tensorflow-io-gcs-filesystem>=0.23.1 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (0.34.0)
Requirement already satisfied: termcolor>=1.1.0 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (2.3.0)
Requirement already satisfied: numpy>=1.23.5 in /opt/conda/lib/python3.10/site-
```

```
packages (from tensorflow) (1.26.0)
Requirement already satisfied: tensorboard<2.15,>=2.14 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (2.14.1)
Requirement already satisfied: libclang>=13.0.0 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (16.0.6)
Requirement already satisfied: wrapt<1.15,>=1.11.0 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (1.14.1)
Requirement already satisfied: typing-extensions>=3.6.6 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (4.4.0)
Requirement already satisfied: opt-einsum>=2.3.2 in
/opt/conda/lib/python3.10/site-packages (from tensorflow) (3.3.0)
Requirement already satisfied: h5py>=2.9.0 in /opt/conda/lib/python3.10/site-
packages (from tensorflow) (3.7.0)
Requirement already satisfied: wheel<1.0,>=0.23.0 in
/opt/conda/lib/python3.10/site-packages (from astunparse>=1.6.0->tensorflow)
(0.37.1)
Requirement already satisfied: markdown>=2.6.8 in
/opt/conda/lib/python3.10/site-packages (from
tensorboard<2.15,>=2.14->tensorflow) (3.5)
Requirement already satisfied: werkzeug>=1.0.1 in
/opt/conda/lib/python3.10/site-packages (from
tensorboard<2.15,>=2.14->tensorflow) (3.0.0)
Requirement already satisfied: tensorboard-data-server<0.8.0,>=0.7.0 in
/opt/conda/lib/python3.10/site-packages (from
tensorboard<2.15,>=2.14->tensorflow) (0.7.1)
Requirement already satisfied: google-auth-oauthlib<1.1,>=0.5 in
/opt/conda/lib/python3.10/site-packages (from
tensorboard<2.15,>=2.14->tensorflow) (1.0.0)
Requirement already satisfied: google-auth<3,>=1.6.3 in
/opt/conda/lib/python3.10/site-packages (from
tensorboard<2.15,>=2.14->tensorflow) (2.23.3)
Requirement already satisfied: requests<3,>=2.21.0 in
/opt/conda/lib/python3.10/site-packages (from
tensorboard<2.15,>=2.14->tensorflow) (2.28.1)
Requirement already satisfied: pyparsing!=3.0.5,>=2.0.2 in
/opt/conda/lib/python3.10/site-packages (from packaging->tensorflow) (3.0.9)
Requirement already satisfied: pyasn1-modules>=0.2.1 in
/opt/conda/lib/python3.10/site-packages (from google-
auth<3,>=1.6.3->tensorboard<2.15,>=2.14->tensorflow) (0.3.0)
Requirement already satisfied: cachetools<6.0,>=2.0.0 in
/opt/conda/lib/python3.10/site-packages (from google-
auth<3,>=1.6.3->tensorboard<2.15,>=2.14->tensorflow) (5.3.1)
Requirement already satisfied: rsa<5,>=3.1.4 in /opt/conda/lib/python3.10/site-
packages (from google-auth<3,>=1.6.3->tensorboard<2.15,>=2.14->tensorflow) (4.9)
Requirement already satisfied: requests-oauthlib>=0.7.0 in
/opt/conda/lib/python3.10/site-packages (from google-auth-
oauthlib<1.1,>=0.5->tensorboard<2.15,>=2.14->tensorflow) (1.3.1)
Requirement already satisfied: idna<4,>=2.5 in /opt/conda/lib/python3.10/site-
```

```
packages (from requests<3,>=2.21.0->tensorboard<2.15,>=2.14->tensorflow) (3.4)
Requirement already satisfied: certifi>=2017.4.17 in
/opt/conda/lib/python3.10/site-packages (from
requests<3,>=2.21.0->tensorboard<2.15,>=2.14->tensorflow) (2022.9.24)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in
/opt/conda/lib/python3.10/site-packages (from
requests<3,>=2.21.0->tensorboard<2.15,>=2.14->tensorflow) (1.26.11)
Requirement already satisfied: charset-normalizer<3,>=2 in
/opt/conda/lib/python3.10/site-packages (from
requests<3,>=2.21.0->tensorboard<2.15,>=2.14->tensorflow) (2.1.1)
Requirement already satisfied: MarkupSafe>=2.1.1 in
/opt/conda/lib/python3.10/site-packages (from
werkzeug>=1.0.1->tensorboard<2.15,>=2.14->tensorflow) (2.1.1)
Requirement already satisfied: pyasn1<0.6.0,>=0.4.6 in
/opt/conda/lib/python3.10/site-packages (from pyasn1-modules>=0.2.1->google-
auth<3,>=1.6.3->tensorboard<2.15,>=2.14->tensorflow) (0.5.0)
Requirement already satisfied: oauthlib>=3.0.0 in
/opt/conda/lib/python3.10/site-packages (from requests-oauthlib>=0.7.0->google-
auth-oauthlib<1.1,>=0.5->tensorboard<2.15,>=2.14->tensorflow) (3.2.2)
```

[11]:
```
#Build the Neural Network
#it consist of input layers,hidden layers,output layers in ann
#by using pytorch or tensor flow library
import tensorflow as tf

model = tf.keras.Sequential([
    tf.keras.layers.Dense(100, input_shape=(1,), activation='relu'),

     tf.keras.layers.Dense(90),
     tf.keras.layers.Dense(80),
       tf.keras.layers.Dense(70),
       tf.keras.layers.Dense(60),
       tf.keras.layers.Dense(50),
       tf.keras.layers.Dense(40),
       tf.keras.layers.Dense(30),
       tf.keras.layers.Dense(20),
       tf.keras.layers.Dense(10),
       tf.keras.layers.Dense(1),
       tf.keras.layers.Dense(1)



])

model.compile(optimizer='adam', loss='mean_squared_error')
```

[12]:
```
#Train the Model
model.fit(X, y, epochs=155)
```

```
Epoch 1/155
2/2 [==============================] - 3s 45ms/step - loss: 1749.4083
Epoch 2/155
2/2 [==============================] - 0s 17ms/step - loss: 383.5211
Epoch 3/155
2/2 [==============================] - 0s 13ms/step - loss: 224.2030
Epoch 4/155
2/2 [==============================] - 0s 27ms/step - loss: 102.2644
Epoch 5/155
2/2 [==============================] - 0s 25ms/step - loss: 290.5793
Epoch 6/155
2/2 [==============================] - 0s 21ms/step - loss: 143.4491
Epoch 7/155
2/2 [==============================] - 0s 21ms/step - loss: 11.1549
Epoch 8/155
2/2 [==============================] - 0s 16ms/step - loss: 87.7808
Epoch 9/155
2/2 [==============================] - 0s 29ms/step - loss: 86.3624
Epoch 10/155
2/2 [==============================] - 0s 28ms/step - loss: 6.9087
Epoch 11/155
2/2 [==============================] - 0s 21ms/step - loss: 30.0768
Epoch 12/155
2/2 [==============================] - 0s 21ms/step - loss: 52.0893
Epoch 13/155
2/2 [==============================] - 0s 14ms/step - loss: 20.5857
Epoch 14/155
2/2 [==============================] - 0s 13ms/step - loss: 3.7037
Epoch 15/155
2/2 [==============================] - 0s 15ms/step - loss: 23.2713
Epoch 16/155
2/2 [==============================] - 0s 18ms/step - loss: 20.0741
Epoch 17/155
2/2 [==============================] - 0s 20ms/step - loss: 2.9082
Epoch 18/155
2/2 [==============================] - 0s 16ms/step - loss: 8.0296
Epoch 19/155
2/2 [==============================] - 0s 13ms/step - loss: 14.6063
Epoch 20/155
2/2 [==============================] - 0s 12ms/step - loss: 5.2544
Epoch 21/155
2/2 [==============================] - 0s 26ms/step - loss: 1.5403
Epoch 22/155
2/2 [==============================] - 0s 13ms/step - loss: 8.0971
```

```
Epoch 23/155
2/2 [==============================] - 0s 13ms/step - loss: 5.5209
Epoch 24/155
2/2 [==============================] - 0s 12ms/step - loss: 0.9879
Epoch 25/155
2/2 [==============================] - 0s 16ms/step - loss: 3.9101
Epoch 26/155
2/2 [==============================] - 0s 26ms/step - loss: 3.1128
Epoch 27/155
2/2 [==============================] - 0s 12ms/step - loss: 0.8144
Epoch 28/155
2/2 [==============================] - 0s 28ms/step - loss: 2.1316
Epoch 29/155
2/2 [==============================] - 0s 23ms/step - loss: 2.2931
Epoch 30/155
2/2 [==============================] - 0s 14ms/step - loss: 0.8448
Epoch 31/155
2/2 [==============================] - 0s 13ms/step - loss: 1.4948
Epoch 32/155
2/2 [==============================] - 0s 21ms/step - loss: 1.6213
Epoch 33/155
2/2 [==============================] - 0s 14ms/step - loss: 0.7040
Epoch 34/155
2/2 [==============================] - 0s 28ms/step - loss: 1.0290
Epoch 35/155
2/2 [==============================] - 0s 21ms/step - loss: 1.0251
Epoch 36/155
2/2 [==============================] - 0s 21ms/step - loss: 0.5512
Epoch 37/155
2/2 [==============================] - 0s 15ms/step - loss: 0.8454
Epoch 38/155
2/2 [==============================] - 0s 24ms/step - loss: 0.8053
Epoch 39/155
2/2 [==============================] - 0s 15ms/step - loss: 0.5544
Epoch 40/155
2/2 [==============================] - 0s 17ms/step - loss: 0.7227
Epoch 41/155
2/2 [==============================] - 0s 17ms/step - loss: 0.6878
Epoch 42/155
2/2 [==============================] - 0s 16ms/step - loss: 0.5450
Epoch 43/155
2/2 [==============================] - 0s 24ms/step - loss: 0.6016
Epoch 44/155
2/2 [==============================] - 0s 11ms/step - loss: 0.5500
Epoch 45/155
2/2 [==============================] - 0s 17ms/step - loss: 0.5483
Epoch 46/155
2/2 [==============================] - 0s 15ms/step - loss: 0.5434
```

```
Epoch 47/155
2/2 [==============================] - 0s 11ms/step - loss: 0.4996
Epoch 48/155
2/2 [==============================] - 0s 12ms/step - loss: 0.5414
Epoch 49/155
2/2 [==============================] - 0s 24ms/step - loss: 0.5163
Epoch 50/155
2/2 [==============================] - 0s 15ms/step - loss: 0.4740
Epoch 51/155
2/2 [==============================] - 0s 13ms/step - loss: 0.5119
Epoch 52/155
2/2 [==============================] - 0s 13ms/step - loss: 0.4898
Epoch 53/155
2/2 [==============================] - 0s 17ms/step - loss: 0.4734
Epoch 54/155
2/2 [==============================] - 0s 29ms/step - loss: 0.4890
Epoch 55/155
2/2 [==============================] - 0s 17ms/step - loss: 0.4582
Epoch 56/155
2/2 [==============================] - 0s 13ms/step - loss: 0.4495
Epoch 57/155
2/2 [==============================] - 0s 21ms/step - loss: 0.4547
Epoch 58/155
2/2 [==============================] - 0s 17ms/step - loss: 0.4316
Epoch 59/155
2/2 [==============================] - 0s 19ms/step - loss: 0.4388
Epoch 60/155
2/2 [==============================] - 0s 19ms/step - loss: 0.4315
Epoch 61/155
2/2 [==============================] - 0s 21ms/step - loss: 0.4140
Epoch 62/155
2/2 [==============================] - 0s 21ms/step - loss: 0.4165
Epoch 63/155
2/2 [==============================] - 0s 15ms/step - loss: 0.4034
Epoch 64/155
2/2 [==============================] - 0s 17ms/step - loss: 0.3972
Epoch 65/155
2/2 [==============================] - 0s 13ms/step - loss: 0.3982
Epoch 66/155
2/2 [==============================] - 0s 16ms/step - loss: 0.3868
Epoch 67/155
2/2 [==============================] - 0s 15ms/step - loss: 0.3805
Epoch 68/155
2/2 [==============================] - 0s 14ms/step - loss: 0.3775
Epoch 69/155
2/2 [==============================] - 0s 14ms/step - loss: 0.3700
Epoch 70/155
2/2 [==============================] - 0s 17ms/step - loss: 0.3632
```

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Epoch 71/155
2/2 [==============================] - 0s 12ms/step - loss: 0.3606
Epoch 72/155
2/2 [==============================] - 0s 15ms/step - loss: 0.3503
Epoch 73/155
2/2 [==============================] - 0s 17ms/step - loss: 0.3507
Epoch 74/155
2/2 [==============================] - 0s 21ms/step - loss: 0.3445
Epoch 75/155
2/2 [==============================] - 0s 20ms/step - loss: 0.3358
Epoch 76/155
2/2 [==============================] - 0s 18ms/step - loss: 0.3299
Epoch 77/155
2/2 [==============================] - 0s 16ms/step - loss: 0.3236
Epoch 78/155
2/2 [==============================] - 0s 13ms/step - loss: 0.3201
Epoch 79/155
2/2 [==============================] - 0s 21ms/step - loss: 0.3184
Epoch 80/155
2/2 [==============================] - 0s 20ms/step - loss: 0.3118
Epoch 81/155
2/2 [==============================] - 0s 24ms/step - loss: 0.3059
Epoch 82/155
2/2 [==============================] - 0s 21ms/step - loss: 0.3020
Epoch 83/155
2/2 [==============================] - 0s 22ms/step - loss: 0.2943
Epoch 84/155
2/2 [==============================] - 0s 21ms/step - loss: 0.2875
Epoch 85/155
2/2 [==============================] - 0s 17ms/step - loss: 0.2839
Epoch 86/155
2/2 [==============================] - 0s 15ms/step - loss: 0.2788
Epoch 87/155
2/2 [==============================] - 0s 13ms/step - loss: 0.2733
Epoch 88/155
2/2 [==============================] - 0s 17ms/step - loss: 0.2684
Epoch 89/155
2/2 [==============================] - 0s 15ms/step - loss: 0.2671
Epoch 90/155
2/2 [==============================] - 0s 17ms/step - loss: 0.2586
Epoch 91/155
2/2 [==============================] - 0s 23ms/step - loss: 0.2618
Epoch 92/155
2/2 [==============================] - 0s 17ms/step - loss: 0.2524
Epoch 93/155
2/2 [==============================] - 0s 12ms/step - loss: 0.2495
Epoch 94/155
2/2 [==============================] - 0s 20ms/step - loss: 0.2425
```

```
Epoch 95/155
2/2 [==============================] - 0s 21ms/step - loss: 0.2412
Epoch 96/155
2/2 [==============================] - 0s 25ms/step - loss: 0.2377
Epoch 97/155
2/2 [==============================] - 0s 29ms/step - loss: 0.2295
Epoch 98/155
2/2 [==============================] - 0s 16ms/step - loss: 0.2237
Epoch 99/155
2/2 [==============================] - 0s 25ms/step - loss: 0.2214
Epoch 100/155
2/2 [==============================] - 0s 21ms/step - loss: 0.2163
Epoch 101/155
2/2 [==============================] - 0s 12ms/step - loss: 0.2142
Epoch 102/155
2/2 [==============================] - 0s 16ms/step - loss: 0.2117
Epoch 103/155
2/2 [==============================] - 0s 20ms/step - loss: 0.2050
Epoch 104/155
2/2 [==============================] - 0s 17ms/step - loss: 0.2005
Epoch 105/155
2/2 [==============================] - 0s 20ms/step - loss: 0.1963
Epoch 106/155
2/2 [==============================] - 0s 17ms/step - loss: 0.1939
Epoch 107/155
2/2 [==============================] - 0s 13ms/step - loss: 0.1905
Epoch 108/155
2/2 [==============================] - 0s 13ms/step - loss: 0.1872
Epoch 109/155
2/2 [==============================] - 0s 13ms/step - loss: 0.1830
Epoch 110/155
2/2 [==============================] - 0s 17ms/step - loss: 0.1801
Epoch 111/155
2/2 [==============================] - 0s 21ms/step - loss: 0.1822
Epoch 112/155
2/2 [==============================] - 0s 44ms/step - loss: 0.1746
Epoch 113/155
2/2 [==============================] - 0s 13ms/step - loss: 0.1674
Epoch 114/155
2/2 [==============================] - 0s 25ms/step - loss: 0.1718
Epoch 115/155
2/2 [==============================] - 0s 14ms/step - loss: 0.1622
Epoch 116/155
2/2 [==============================] - 0s 16ms/step - loss: 0.1668
Epoch 117/155
2/2 [==============================] - 0s 12ms/step - loss: 0.1546
Epoch 118/155
2/2 [==============================] - 0s 16ms/step - loss: 0.1562
```

```
Epoch 119/155
2/2 [==============================] - 0s 16ms/step - loss: 0.1498
Epoch 120/155
2/2 [==============================] - 0s 15ms/step - loss: 0.1444
Epoch 121/155
2/2 [==============================] - 0s 15ms/step - loss: 0.1430
Epoch 122/155
2/2 [==============================] - 0s 25ms/step - loss: 0.1397
Epoch 123/155
2/2 [==============================] - 0s 11ms/step - loss: 0.1368
Epoch 124/155
2/2 [==============================] - 0s 12ms/step - loss: 0.1339
Epoch 125/155
2/2 [==============================] - 0s 18ms/step - loss: 0.1301
Epoch 126/155
2/2 [==============================] - 0s 13ms/step - loss: 0.1274
Epoch 127/155
2/2 [==============================] - 0s 26ms/step - loss: 0.1245
Epoch 128/155
2/2 [==============================] - 0s 13ms/step - loss: 0.1241
Epoch 129/155
2/2 [==============================] - 0s 12ms/step - loss: 0.1198
Epoch 130/155
2/2 [==============================] - 0s 20ms/step - loss: 0.1214
Epoch 131/155
2/2 [==============================] - 0s 13ms/step - loss: 0.1135
Epoch 132/155
2/2 [==============================] - 0s 14ms/step - loss: 0.1134
Epoch 133/155
2/2 [==============================] - 0s 13ms/step - loss: 0.1112
Epoch 134/155
2/2 [==============================] - 0s 15ms/step - loss: 0.1124
Epoch 135/155
2/2 [==============================] - 0s 14ms/step - loss: 0.1091
Epoch 136/155
2/2 [==============================] - 0s 13ms/step - loss: 0.1026
Epoch 137/155
2/2 [==============================] - 0s 13ms/step - loss: 0.1005
Epoch 138/155
2/2 [==============================] - 0s 17ms/step - loss: 0.0971
Epoch 139/155
2/2 [==============================] - 0s 20ms/step - loss: 0.0994
Epoch 140/155
2/2 [==============================] - 0s 16ms/step - loss: 0.0954
Epoch 141/155
2/2 [==============================] - 0s 22ms/step - loss: 0.0942
Epoch 142/155
2/2 [==============================] - 0s 20ms/step - loss: 0.0893
```

```
Epoch 143/155
2/2 [==============================] - 0s 12ms/step - loss: 0.0935
Epoch 144/155
2/2 [==============================] - 0s 12ms/step - loss: 0.0840
Epoch 145/155
2/2 [==============================] - 0s 11ms/step - loss: 0.0901
Epoch 146/155
2/2 [==============================] - 0s 25ms/step - loss: 0.0832
Epoch 147/155
2/2 [==============================] - 0s 16ms/step - loss: 0.0832
Epoch 148/155
2/2 [==============================] - 0s 16ms/step - loss: 0.0786
Epoch 149/155
2/2 [==============================] - 0s 12ms/step - loss: 0.0763
Epoch 150/155
2/2 [==============================] - 0s 15ms/step - loss: 0.0745
Epoch 151/155
2/2 [==============================] - 0s 16ms/step - loss: 0.0721
Epoch 152/155
2/2 [==============================] - 0s 14ms/step - loss: 0.0704
Epoch 153/155
2/2 [==============================] - 0s 11ms/step - loss: 0.0694
Epoch 154/155
2/2 [==============================] - 0s 11ms/step - loss: 0.0668
Epoch 155/155
2/2 [==============================] - 0s 16ms/step - loss: 0.0666
```

[12]:
```
<keras.src.callbacks.History at 0x7f46a01b4af0>
```

[31]:
```
print(model.compile(optimizer='adam', loss='mean_squared_error'))
```

```
None
```

[58]:
```
X[-1]
```

[58]:
```
97
```

[ ]:

[13]:
```
# Predict the next number in the sequence
next_number = model.predict([X[-1]])[0][0]
print("Predicted Next Number:", round(next_number))
```

```
1/1 [==============================] - 0s 439ms/step
Predicted Next Number: 99
```

[ ]:

[ ]: