**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.

In [1]:

**import** numpy **as** np

**from** tensorflow **import** keras

**from** tensorflow.keras.models **import** Sequential

**from** tensorflow.keras.layers **import** Dense

In [2]:

*# Create a sequence of odd numbers*

data **=** np**.**array([1, 3, 5, 7, 9, 11, 13, 15])

In [3]:

*# Split the data into input (X) and output (y) variables*

X **=** data[:**-**1]

y **=** data[1:]

In [4]:

*# Define the model*

model **=** Sequential()

model**.**add(Dense(2, input\_dim**=**1))

model**.**add(Dense(1))

model**.**compile(loss**=**'mean\_squared\_error', optimizer**=**'adam')

In [5]:

*# Fit the model to the data*

model**.**fit(X, y, epochs**=**2000, verbose**=**0)

Out[5]:

<tensorflow.python.keras.callbacks.History at 0x1e438752490>

In [6]:

*# Make a prediction for the next digit in the sequence*

x\_input **=** np**.**array([17])

x\_input **=** x\_input**.**reshape((1, 1))

yhat **=** model**.**predict(x\_input)

print('Predicted:', yhat[0][0])

Predicted: 19.004353