LAB Logbook

Lab 1

A screenshot of a chat

AI-generated content may be incorrect.

Lab 2

A screenshot of a computer

AI-generated content may be incorrect.

Lab 3

A screenshot of a computer program

AI-generated content may be incorrect.

A blue and orange dots

AI-generated content may be incorrect.

Lab 4

Code

# --- Import libraries ---

import pandas as pd

import numpy as np

import tensorflow as tf

from tensorflow import keras

from sklearn.metrics import mean\_absolute\_error

from sklearn.preprocessing import MinMaxScaler

data = pd.read\_csv(r"C:\Users\Teja9\Downloads\data\_stocks.csv")

data\_a = np.array(data)

n = data\_a.shape[0]

train\_end = int(0.8 \* n)

data\_train = data\_a[:train\_end, :]

data\_test = data\_a[train\_end:, :]

X\_train = data\_train[:, 1:]

y\_train = data\_train[:, 0]

X\_test = data\_test[:, 1:]

y\_test = data\_test[:, 0]

scaler\_X = MinMaxScaler()

X\_train = scaler\_X.fit\_transform(X\_train)

X\_test = scaler\_X.transform(X\_test)

y\_min = y\_train.min()

y\_max = y\_train.max()

y\_train\_norm = (y\_train - y\_min) / (y\_max - y\_min)

y\_test\_norm = (y\_test - y\_min) / (y\_max - y\_min)

first\_layer\_neurons = 654

second\_layer\_neurons = 327

model = keras.Sequential([

keras.Input(shape=(X\_train.shape[1],)),

keras.layers.Dense(first\_layer\_neurons, activation='relu', kernel\_initializer='normal'),

keras.layers.Dense(second\_layer\_neurons, activation='relu', kernel\_initializer='normal'),

keras.layers.Dense(1) # Output layer

])

model.compile(optimizer='adam', loss='mean\_squared\_error', metrics=['mae'])

print(model.summary())

history = model.fit(

X\_train, y\_train\_norm,

validation\_split=0.1,

epochs=10,

batch\_size=32,

verbose=1

)

pred\_norm = model.predict(X\_test)

pred = pred\_norm \* (y\_max - y\_min) + y\_min

mae = mean\_absolute\_error(y\_test, pred)

print("Mean Absolute Error (MAE) on test set:", mae)

Output

A screenshot of a computer

AI-generated content may be incorrect.

A white background with black and white text

AI-generated content may be incorrect.

Lab 5

Lab 6

Lab 7

Lab 8

Lab 9

Lab 10

Lab 11

Lab 12