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**APPENDIX A: SAMPLE SCREENS**

**APPENDIX B: SAMPLE CODE**

**app1.py – Website Backend Code**

from flask import Flask, render\_template,request, redirect, session, jsonify

import os, csv

from newsapi import NewsApiClient

import talib

import yfinance as yf

from patterns import candlestick\_patterns

import firebase\_admin

from firebase\_admin import credentials, auth

import pyrebase

import json

import pandas as pd

# Firebase Admin Init

cred = credentials.Certificate('fbAdminConfig.json')

firebase\_admin = firebase\_admin.initialize\_app(cred)

# Firebase Init

firebase = pyrebase.initialize\_app(json.load(open('fbConfig.json')))

# Init

newsapi = NewsApiClient(api\_key='0144a0f2461949b7b8896463a90399f3')

key="483bd89d87mshce534f1bd4ba6b0p182fcdjsnf08d8fc19c04"

# App Begins

app = Flask(\_\_name\_\_)

app.secret\_key = 'the random string'

# @app.before\_request

# def checkAuth():

# auth\_not\_required = ['home', 'homepage', 'login', 'signup', 'aboutpage']

# print("Request Endpoint ")

# print(request.path.strip('/'))

# print("Session User")

# print(session['user\_id'])

# if (request.path.strip('/') not in auth\_not\_required) and (session['user\_id'] == None):

# return render\_template('404.html')

@app.route('/')

def home():

return render\_template('index.html')

@app.route('/news')

def news():

newsapi = NewsApiClient(api\_key="0144a0f2461949b7b8896463a90399f3")

topheadlines = newsapi.get\_top\_headlines(sources="bbc-news")

articles = topheadlines['articles']

desc = []

news = []

img = []

for i in range(len(articles)):

myarticles = articles[i]

news.append(myarticles['title'])

desc.append(myarticles['description'])

img.append(myarticles['urlToImage'])

mylist = zip(news, desc, img)

return render\_template('bbc.html', context=mylist)

@app.route('/dashboard')

def dashboard():

return render\_template('madhu\_dashboard.html')

@app.route('/login', methods=['GET', 'POST'])

def login():

if request.method == "POST":

email = request.form.get('email')

password = request.form.get('password')

# try:

user = firebase.auth().sign\_in\_with\_email\_and\_password(email, password)

jwt = user['idToken']

session['user\_id'] = jwt

return redirect('/dashboard')

# except:

# return {'message': 'There was an error logging in'},400

else:

return render\_template('login.html')

@app.route('/logout')

def logout():

# firebase.auth().signOut()

session['user\_id'] = None

return redirect('/home')

@app.route('/signup', methods=['GET', 'POST'])

def signup():

if request.method == "POST":

name = request.form.get("name")

email = request.form.get("email")

password = request.form.get("password")

confirm\_password = request.form.get("cnf-password")

if password == confirm\_password:

# try:

user = auth.create\_user(

email=email,

password=password

)

# session['user\_id'] = user.idToken

# return redirect('/dashboard')

return jsonify(user)

# except:

# return {'message': 'Error creating user'},400

else:

return {'message': 'Error creating user. Password and Confirm Password don\'t match'},400

else:

return render\_template('create-acc.html')

# Candlestick routes

@app.route('/snapshot')

def snapshot():

with open('datasets/companies.csv') as f:

for line in f:

if "," not in line:

continue

symbol = line.split(",")[0] + '.NS'

print("Symbol")

print(symbol)

data = yf.download(symbol, start="2020-01-01", end="2021-03-01")

data.to\_csv('datasets/daily/{}.csv'.format(symbol))

return {

"code": "success"

}

@app.route('/screener')

def screener():

pattern = request.args.get('pattern', False)

stocks = {}

with open('datasets/companies.csv') as f:

for row in csv.reader(f):

stocks[row[0]] = {'company': row[1]}

if pattern:

for filename in os.listdir('datasets/daily'):

df = pd.read\_csv('datasets/daily/{}'.format(filename))

pattern\_function = getattr(talib, pattern)

symbol = filename.split('.')[0]

try:

results = pattern\_function(df['Open'], df['High'], df['Low'], df['Close'])

last = results.tail(1).values[0]

if last > 0:

stocks[symbol][pattern] = 'bullish'

elif last < 0:

stocks[symbol][pattern] = 'bearish'

else:

stocks[symbol][pattern] = None

except Exception as e:

print('failed on filename: ', filename)

return render\_template('screener.html', candlestick\_patterns=candlestick\_patterns, stocks=stocks, pattern=pattern)

return render\_template('create-acc.html')

# End of candlestick routes

@app.route('/aboutpage')

def aboutpage():

return render\_template('aboutpage.html')

@app.route('/home')

def homepage():

return render\_template('homepage.html')

if \_\_name\_\_ == '\_\_main\_\_':

app.run(debug=True)

**app.py – Stock Price Prediction Code**

from flask import Flask, render\_template, request

# from flask\_cors import CORS

import pandas\_datareader as pdr

from sklearn.preprocessing import MinMaxScaler

from newsapi import NewsApiClient

app = Flask(\_\_name\_\_)

@app.route('/')

def index():

import numpy as np

df = pdr.get\_data\_yahoo(request.args.get('stockname'))

df1 = df.reset\_index()['Close']

scaler = MinMaxScaler(feature\_range=(0, 1))

df1 = scaler.fit\_transform(np.array(df1).reshape(-1, 1))

training\_size = int(len(df1) \* 0.65)

test\_size = len(df1) - training\_size

train\_data, test\_data = df1[0:training\_size, :], df1[training\_size:len(df1), :1]

# import numpy

# convert an array of values into a dataset matrix

def create\_dataset(dataset, time\_step=1):

dataX, dataY = [], []

for i in range(len(dataset) - time\_step - 1):

a = dataset[i:(i + time\_step), 0] ###i=0, 0,1,2,3-----99 100

dataX.append(a)

dataY.append(dataset[i + time\_step, 0])

return np.array(dataX), np.array(dataY)

time\_step = 100

X\_train, y\_train = create\_dataset(train\_data, time\_step)

X\_test, ytest = create\_dataset(test\_data, time\_step)

# reshape input to be [samples, time steps, features] which is required for LSTM

X\_train = X\_train.reshape(X\_train.shape[0], X\_train.shape[1], 1)

X\_test = X\_test.reshape(X\_test.shape[0], X\_test.shape[1], 1)

### Create the Stacked LSTM model

import tensorflow as tf

import numpy as np

from tensorflow import keras

from tensorflow.keras.models import Sequential

from tensorflow.keras.layers import Dense

from tensorflow.keras.layers import LSTM

model = tf.keras.Sequential([keras.layers.Dense(units=1, input\_shape=[1])])

model = Sequential()

if (request.args.get('stockname') =='IDEA.NS') or (request.args.get('stockname') =='AAPL') or (request.args.get('stockname') =='TSLA'):

model.add(LSTM(50, return\_sequences=True, input\_shape=(100, 1)))

model.add(LSTM(50, return\_sequences=True))

else:

model.add(LSTM(50, return\_sequences=True, input\_shape=(100, 1)))

model.add(LSTM(50, return\_sequences=True))

model.add(LSTM(50, return\_sequences=True))

model.add(LSTM(50, return\_sequences=True))

model.add(LSTM(50))

model.add(Dense(1))

if (request.args.get('stockname') =='IDEA.NS') or (request.args.get('stockname') =='AAPL') or (request.args.get('stockname') =='TSLA'):

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

else:

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

if (request.args.get('stockname') =='IDEA.NS') or (request.args.get('stockname') =='AAPL') or (request.args.get('stockname') =='TSLA'):

model.fit(X\_train, y\_train, validation\_data=(X\_test, ytest), epochs=10, batch\_size=64, verbose=1)

else:

model.fit(X\_train, y\_train, validation\_data=(X\_test, ytest), epochs=10, batch\_size=10, verbose=2) # Actual Epoch 50. Changing to 10 for current demo

train\_predict = model.predict(X\_train)

test\_predict = model.predict(X\_test)

##Transformback to original form --- rescaling

train\_predict = scaler.inverse\_transform(train\_predict)

test\_predict = scaler.inverse\_transform(test\_predict)

### Plotting

# shift train predictions for plotting

look\_back = 100

trainPredictPlot = np.empty\_like(df1)

trainPredictPlot[:, :] = np.nan

trainPredictPlot[look\_back:len(train\_predict) + look\_back, :] = train\_predict

# shift test predictions for plotting

testPredictPlot = np.empty\_like(df1)

testPredictPlot[:, :] = np.nan

testPredictPlot[len(train\_predict) + (look\_back \* 2) + 1:len(df1) - 1, :] = test\_predict

if request.args.get('stockname') =='AAPL' or request.args.get('stockname') == 'TSLA':

x\_input = test\_data[341:].reshape(1,-1)

# elif request.args.get('stockname') == 'TSLA':

# x\_input = test\_data[341:].reshape(1,-1)

else:

x\_input = test\_data[331:].reshape(1, -1)

temp\_input = list(x\_input)

temp\_input = temp\_input[0].tolist()

# demonstrate prediction for next 10 days

from numpy import array

lst\_output = []

n\_steps = 100

i = 0

if (request.args.get('stockname') =='IDEA.NS') or (request.args.get('stockname') =='AAPL') or (request.args.get('stockname') =='TSLA'):

while (i < 3):

if (len(temp\_input) > 100):

x\_input = np.array(temp\_input[1:])

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

x\_input = x\_input.reshape((1, n\_steps, 1))

yhat = model.predict(x\_input, verbose=0)

temp\_input.extend(yhat[0].tolist())

temp\_input = temp\_input[1:]

lst\_output.extend(yhat.tolist())

i = i + 1

else:

x\_input = x\_input.reshape((1, n\_steps, 1))

yhat = model.predict(x\_input, verbose=0)

temp\_input.extend(yhat[0].tolist())

lst\_output.extend(yhat.tolist())

i = i + 1

else:

while (i < 10):

if (len(temp\_input) > 100):

# print(temp\_input)

x\_input = np.array(temp\_input[1:])

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

x\_input = x\_input.reshape((1, n\_steps, 1))

# print(x\_input)

yhat = model.predict(x\_input, verbose=0)

temp\_input.extend(yhat[0].tolist())

temp\_input = temp\_input[1:]

# print(temp\_input)

lst\_output.extend(yhat.tolist())

i = i + 1

else:

x\_input = x\_input.reshape((1, n\_steps, 1))

yhat = model.predict(x\_input, verbose=0)

temp\_input.extend(yhat[0].tolist())

lst\_output.extend(yhat.tolist())

i = i + 1

if (request.args.get('stockname') =='IDEA.NS') or (request.args.get('stockname') =='AAPL') or (request.args.get('stockname') =='TSLA'):

day\_new = np.arange(1, 101) # testdata 100indexes

day\_pred = np.arange(101, 104) # 101-131-predicted

# FOR RELIANCE

else:

day\_new = np.arange(1, 101) # testdata 100indexes

day\_pred = np.arange(101, 111) # 101-131-predicted

if (request.args.get('stockname') =='AAPL') or (request.args.get('stockname') =='TSLA'):

numpyData3 = scaler.inverse\_transform(df1[1158:])

# FOR TSLA

# elif (request.args.get('stockname') =='TSLA'):

# numpyData3 = scaler.inverse\_transform(df1[1158:])

# FOR RELIANCE

else:

numpyData3 = scaler.inverse\_transform(df1[1131:])

numpyData4 = scaler.inverse\_transform(lst\_output)

daynew = {"x": day\_new.tolist(), "y": day\_pred.tolist()}

daypred = {"x": numpyData3.tolist(), "y": numpyData4.tolist()}

data = []

data.append(daynew)

data.append(daypred)

final\_data = {"data": data}

print(final\_data)

return final\_data

if \_\_name\_\_ == '\_\_main\_\_':

app.run(port=5001, debug=False)

**app.py – Algo-trading Code**

from flask import Flask, request

import pandas as pd

import numpy as np

import pandas\_datareader as pdr

import math

from datetime import datetime

app = Flask(\_\_name\_\_)

@app.route('/')

def index():

stock = pdr.get\_data\_yahoo(request.args.get('stockname'))

# print("DF")

# print(stock)

stock.reset\_index(inplace=True, drop=False)

# stock = df.reset\_index()['Close']

# print(stock)

Sma30 = pd.DataFrame()

Sma30['Prev Close Price'] = stock['Close'].rolling(window=10).mean()

# Creating Simple Moving Average with 100-day Window

Sma100 = pd.DataFrame()

Sma100['Prev Close Price'] = stock['Close'].rolling(window=60).mean()

data = pd.DataFrame()

data['stock'] = stock['Close']

data['Sma30'] = Sma30['Prev Close Price']

data['Sma100'] = Sma100['Prev Close Price']

# print(Sma30['Prev Close Price'].fillna("NONE"))

def buy\_sell(data):

sigPriceBuy = []

sigPriceSell = []

flag = -1

for i in range(len(data)):

if data['Sma30'][i] > data['Sma100'][i]:

if flag != 1:

sigPriceBuy.append(data['stock'][i])

sigPriceSell.append(np.nan)

flag = 1

else:

sigPriceBuy.append(np.nan)

sigPriceSell.append(np.nan)

elif data['Sma30'][i] < data['Sma100'][i]:

if flag != 0:

sigPriceBuy.append(np.nan)

sigPriceSell.append(data['stock'][i])

flag = 0

else:

sigPriceBuy.append(np.nan)

sigPriceSell.append(np.nan)

else:

sigPriceBuy.append(np.nan)

sigPriceSell.append(np.nan)

return (sigPriceBuy, sigPriceSell)

buy\_sell = buy\_sell(data)

data['Buy\_Signal\_Price'] = buy\_sell[0]

data['Sell\_Signal\_Price'] = buy\_sell[1]

# print("Stock")

# print(stock['Date'])

# End Result in JSON

result = {"dates": stock['Date'].fillna("NONE").dt.date.values.tolist(), "price": stock['Close'].values.tolist(), "SMA30": Sma30['Prev Close Price'].fillna("NONE").values.tolist(), "SMA100": Sma100['Prev Close Price'].fillna("NONE").values.tolist(), "buy\_point": data['Buy\_Signal\_Price'].fillna("NONE").values.tolist(), "sell\_point": data['Sell\_Signal\_Price'].fillna("NONE").values.tolist()}

# print("Result\n")

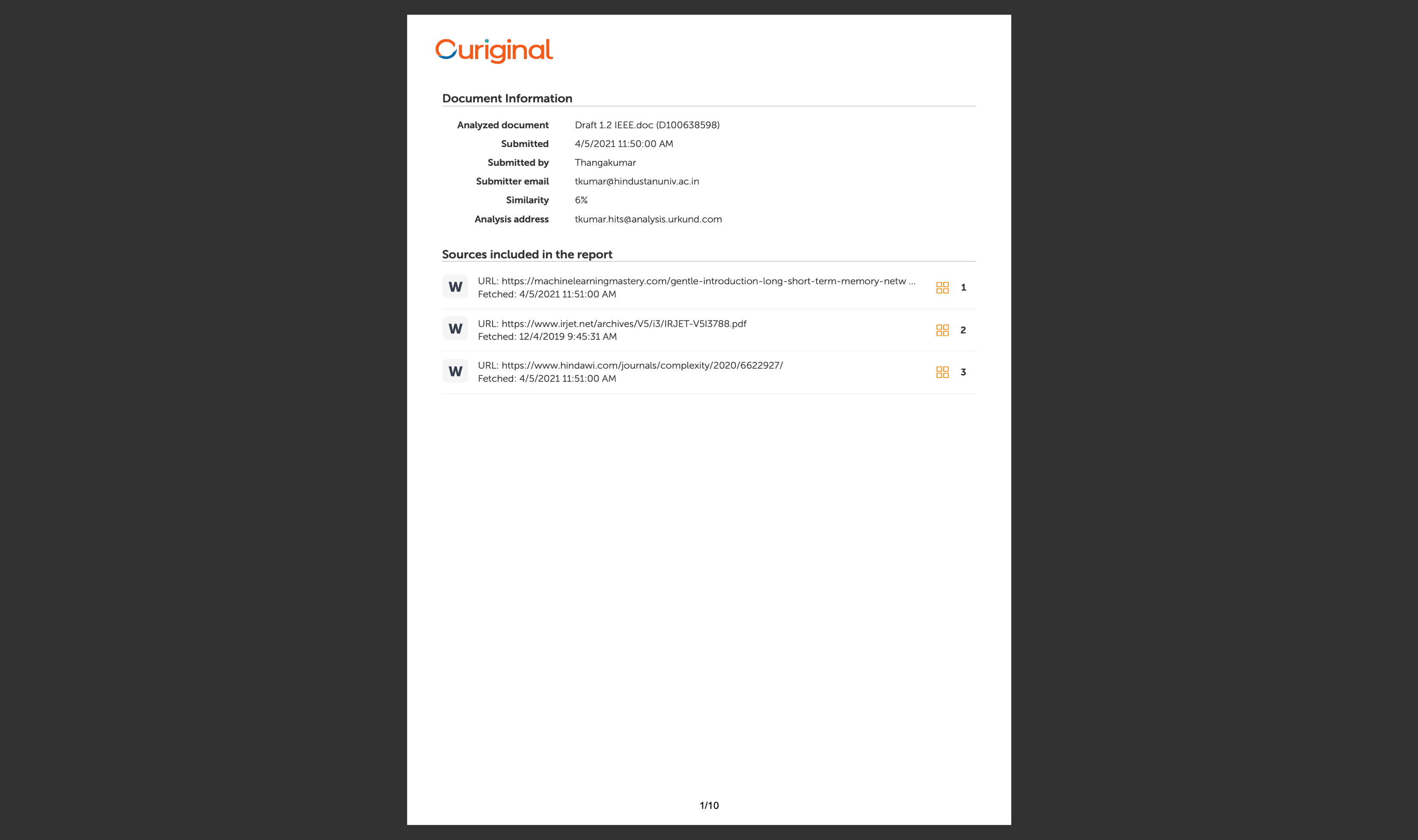
# print(result)

return result

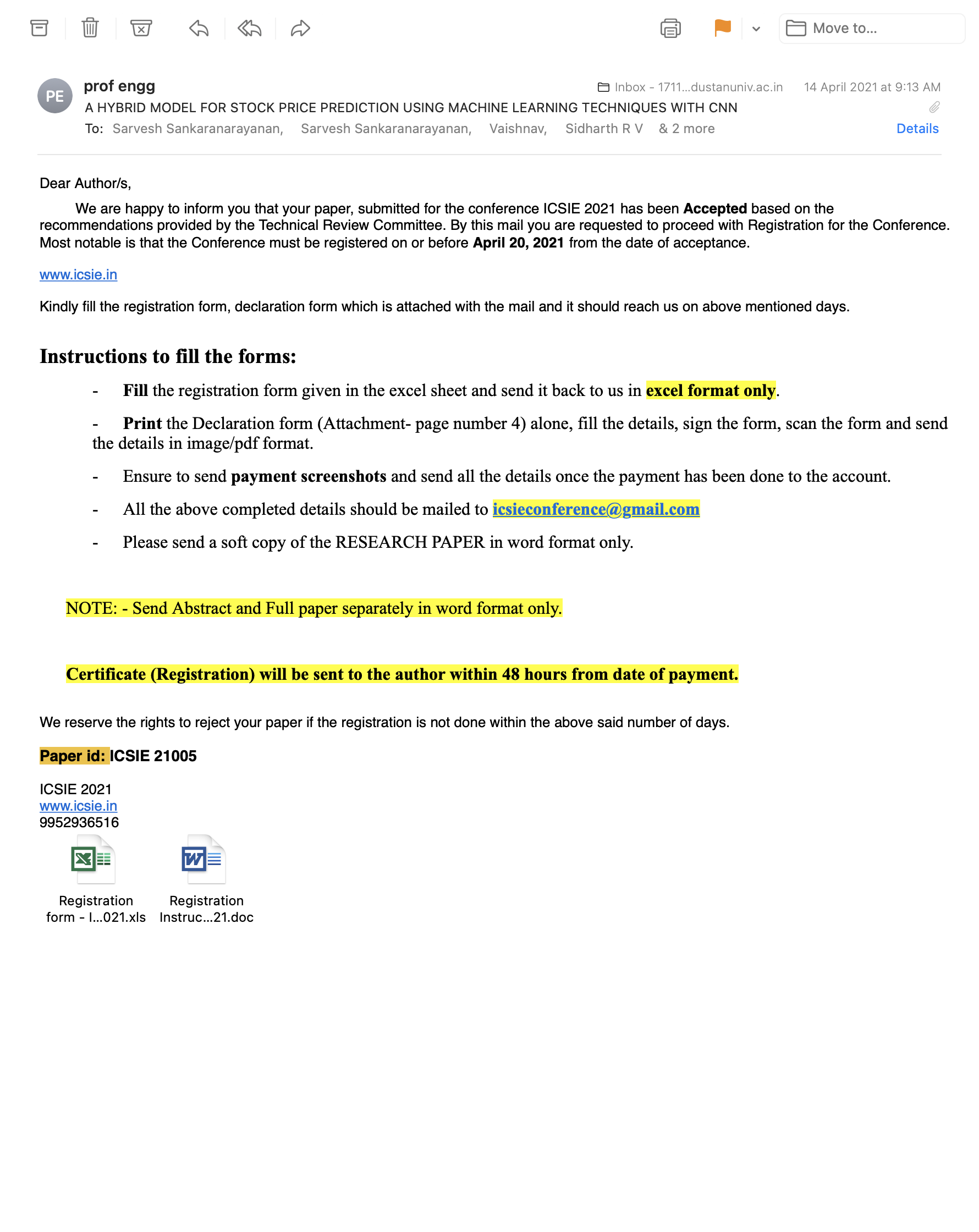
if \_\_name\_\_ == '\_\_main\_\_':

app.run(host='127.0.0.1',port=5002 , debug=True)

**APPENDIX C: PLAGIARISM REPORT**

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**APPENDIX D: PUBLICATION DETAILS**

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**APPENDIX E: TEAM DETAILS**

**TEAM NUMBER:** T\_12

1. **NAME:** SARVESH S.

**CLASS:** CSE – 8A

**ROLL NUMBER:** 17113061

1. **NAME:** V. VAISHNAV

**CLASS:** CSE – 8A

**ROLL NUMBER:** 17113061

1. **NAME:** SIDHARTH R.V.

**CLASS:** CSE-8A

**ROLL NUMBER:** 17113035

1. **MENTOR NAME:** DR. THANGAKUMAR J

**DESIGNATION:** ASSOCIATE PROFESSOR