FINANCIAL ASSISTANCE

Project submitted to the

SRM University – AP, Andhra Pradesh

for the partial fulfillment of the requirements to award the degree of

Bachelor of Technology

In

Computer Science and Engineering

School of Engineering and Sciences

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Andhra Pradesh – 522 24

DECEMBER, 2022

CERTIFICATE

Date:6-Dec-22

This is to certify that the work present in this Project entitled "**FINANCIAL ASSISTANCE**" has been carried out by **Shubham Pandey, Anu Likitha , Nandini Gogineni , Arshad Shaik** under my supervision. The work is genuine, original, and suitable for submission to the SRM University – AP for the award of **"Bachelor of Technology"** in **School of Engineering and Sciences.**

Signature of the Supervisor

DR. MOHAMMAD MISKEEN ALI

Signature of Head of the Dept.

JATINDRA KUMAR DASH

ACKNOWLEDGEMENTS

The success and final outcome of this project required a lot of guidance and assistance from many people and we are extremely fortunate to have gotten this all along the completion of my project work. Whatever we have done is only due to such guidance and assistance and we should not forget to thank them.

We respect and thank our professor MOHAMMED MISKEEN ALI for giving us an opportunity to do the project work in Financial Assistance and providing us all support and guidance which made us to complete the project on time . We are extremely grateful to him for providing such a nice support and guidance during this project work.

We are thankful to our parents for their motivation and support. We are fortunate enough to get constant encouragement, support and guidance from all Teaching staff of Department of SRM University-AP which helped us in successfully completing our project work. Also, we would like to extend our sincere regards to all the non-teaching staff of department of Computer Science for their timely support

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ABSTRACT

It is one of the leading platforms for all phases of people as they provide comprehensive knowledge about the portfolio , adding shares, selling shares, portfolio worth & gains, charts of the portfolio, etc. Financial Assistance is not a demanding task since we are developing more modules for execution.

In this project we attempt to implement some of the modules like Matplotlib, Mplfinance, Pandas, Pickle, Datatime. This platform tells us how we can predict stock prices of its holding companies. The objective is to predict the stock prices in order to make more informed and accurate investment decisions.

Coming to the features of this Financial Assistance using Python. First, the user has to login by using ID and PASSWORD with the option of changing ID and Password. Then the user will check shares in the portfolio and succeeding functions in the portfolio.

Financial Assistance is a desktop application software system where the supervision of the entire portfolio is automated.

This platform is user-friendly and extremely helpful to numerous individuals . We have created this project based on the understanding from Python Programming until now.

STATEMENT OF CONTRIBUTIONS

The undersigned members of this project team affirm that the source of all data is as represented below to this project "Financial Assistance".

Each member of the team indicated his/her contribution to the project and each participant has competency interaction with every team member.

Team member 1 : Contribution to the project - IDEA

Name : Nandini Gogineni

Team member 2 : Contribution to the project - DATA SIMULATION

Name : Arshad Shaik

Team member 3 : Contribution to the project - ANALYSIS

Name : Anu Likitha

Team member 4 : Contribution to the project - EXPERIMENTAL WORK

Name : Shubham Pandey

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INTRODUCTION

INTRODUCTION OF FINANCIAL ASSISTANCE

In today's competitive world everybody is looking for ways to invest in the various stock markets. When they want to make investments in the stocks the first thing that comes upon individual's mind is if they can secure shares in the particular stocks or sell the stocks and checking their worth or gains.

FINANCIAL ASSISTANCE refers share purchase, assistance given by a company for the purchase of its shares or those of its holding companies. The purpose of this project is to predict stock price of its holding companies using some of the header files Matplotlib, Mplfinance, Pandas, Pickle, Datatime and the numerous types of functions. For this purpose, we have proposed a method that will analyze the portfolio , adding shares, selling shares, portfolio worth & gains, charts of the portfolio, etc.

PORTFOLIO can be defined as a collection of financial assets and investment tools that are held by an individual, a financial institution or an investment firm. To develop a profitable portfolio, it is essential to become familiar with its fundamentals and the factors that influence it. The said collection of financial assets may also be valuables ranging from gold, stocks, funds, derivatives, property, cash equivalents, bonds, etc. Individuals put their money in such assets to generate revenue while ensuring that the original equity of the asset or capital does not erode.

Depending on one's knowledge of the investment market, individuals may either manage their portfolio or seek the assistance of professional financial advisors for the same.

Components of a Portfolio:

(a) STOCKS : It refers to company shares and the investor's ownership of the same. It is considered to be the reward generating component of an investment portfolio.

(b) BONDS: It comes with a maturity date and are considered less risky compared to stocks. Bonds inaugurate the risk-cushioning aspect of an investment portfolio.

Based on investment approach, there are following some usual types of portfolios like **Income portfolio, Growth portfolio** and **Value portfolio.**

In Python, you use the "IMPORT" keyword to make code in one module available in another.

1)**Matplotlib.pyplot –** Collection of command style functions that make matplotlib work like MATLAB. Each pyplot function makes some changes to a figure Example : Creates a figure, creates a plotting area in figure, decorates the plot with labels, etc.,

Matplotlib – Python library that helps to plot graphs. It is used in data visualization and graphical plotting [Whole Package]

Pyplot – API (Application Programming Interface) for Python's MATPLOTLIB that effectively makes matplotlib a viable open-source alternative to MATLAB (submodule) [Module in Matplotlib]

2)**Mplfinance –** Contains a new matplotlib finance API that is easier to create financial plots. It interfaces nicely with Panda Data Frames

3)**Pandas –** (Data reader) It is python package that allows us to create a pandas Data Frame Object by using various data sources from internet. It is popularly used for working with real time stock price data sets.

4)**Pickle –** Pickle in python is primarily used in serializing and deserializing a python object structure

5)**Sys –** sys module functions and variables which are used to manipulate different parts of the python Run Time Environment. It lets us access system specific parameters and functions.

6)**Data Time –** Imports all the content from the data time module but requires you to precede names that are imported from that module with the datetime.
DT – Can be used to access the values of the series as datetime like and return several properties.

PORTFOLIO STOCKS:

The following stocks we have mentioned in the existing portfolio

(a) AAPL – Apple Inc.

(b) TSLA – Tesla Inc.

(c) GS - Goldman Sachs Stock

AIM OF THE PROJECT

The aim of this project is to design a portfolio using some of the libraries like Matplotlotlib, Pandas and so on. The main objective of this system is to provide details of the stocks and prices of its holding companies to the user/depositor.

This software offers a wide range of standard modules providing a highly efficient stock market for all types of investors. It also offers the users to check their worth, gains , adding shares or selling shares. At last, but not least it also shows the users graph of the portfolio by comparing dates, respectively.

METHODOLOGY

Approach of functions are owned in the leading platform. Below are the functions created as follows to work on the portfolio.

1)save_credentials () – Function for the user to save the credentials which are entered by using Id and password.

2)change_credentials () – Function for the user to change the credentials if the password did not match to the user's Id.

3)change_id () – Function for the user to change ID if the user entered did not match and PASSWORD if the user entered did not match.

4)process_portfolio () – Function to display the leading platform main screen i.e., the portfolio of the project which we can select the demanded option to execute.

5)log_in () – Function for the user to login the account by entering his/her Id and Password.

6)save_portfolio () – Function for the user to save the shares in the portfolio.

7)add_portfolio () – Function for the user to add the shares in the existing portfolio.

8)remove_portfolio () – Function for the user to remove the shares by checking in the existing portfolio.

9)show_portfolio () – Function for the user to show the shares has in the existing portfolio.

10)portfolio_worth () – Function for the user to show the worth like how much shares have equivalent in value.

11)portfolio_gains () – Function for the user to show how much stocks have gained checking the portfolio data like starting date and today date.

12)plot_char () – Function for the user to plot the chart by using the co-ordinates in the existing portfolio by using matplotlib.pyplot header file or library.

SYSTEM REQUIREMENT SPECIFICATIONS

SYSTEM REQUIREMENTS:

Language: Python

IDLE: Python IDLE (Integrated Development and Learning Environment)

HARDWARE REQUIREMENTS:

Operating System: Mac OS 12.2

Windows 11

Linux

It will run in any operating system

Processors: In Mac IOS – M1 chip.

In Windows – Intel i5 processor

Disk space: In Mac IOS – 8GB & 8GB+

In Windows – 8GB & 8GB+

Python Version: Python 3.10.6

FEATURES

Financial Assistance inserts the subsequent features as follows:

a)Add shares in the portfolio

b)To save shares in the portfolio

c)To sell shares in the portfolio

d)To show the portfolio

e)To show portfolio worth

f)To show portfolio gains

g)End

SOURCE CODE

```
import matplotlib.pyplot as plt
import mplfinance as mpf
import pandas_datareader as web
import pickle
import sys
import datetime as dt
'''portfolio={'AAPL':20,'TSLA':5,'GS':10}'''

'''with open('portfolio.pkl','wb') as f:
    pickle.dump(portfolio,f)'''

with open('portfolio.pkl', 'rb') as f:
    portfolio = pickle.load(f)

with open("credential.pkl", 'rb') as l:
    credential = pickle.load(l)


# credential={"shubham_pandey@srmap.edu.in":"pipInstall"}


# with open("credential.pkl","wb") as l:
    # pickle.dump(credential,l)

def save_credentials():
    print()
    with open('credential.pkl', 'wb') as l:
        pickle.dump(credential, l)

        print("Your credentials has been changed successfully!!! ")
        print()


def change_credentials():
    print()
    id = input("Enter your id: ")
    password = input("Enter your password: ")
    if (id in credential):
        if (credential[id] == password):
            newPassword = input("Enter your newPassword: ")
            newPassword1 = input("Enter your password again: ")

            if (newPassword == newPassword1):

                credential[id] = newPassword
```

```
                save_credentials()
                print()
                log_in()
            else:
                print("new Password didn't match: ")
                print()

                choice = (input("Still wanna change then press 1."))
                if (choice == '1'):
                    change_credentials()
                else:
                    log_in()

        else:
            print("Invalid Password!!!")
            print()
            choice = (input("Still wanna login press 1."))
            if (choice == '1'):
                change_credentials()
            else:
                log_in()

    else:
        print("Invalid Id!!")

        print()
        choice = (input("Still wanna login then press 1."))
        if (choice == '1'):
            change_credentials()
        else:
            log_in()

def change_id():
    print()
    id=input("Enter your id: ")
    password=input("Enter your password: ")
    if(id in credential):
        if(credential[id]==password):
            newId=input("Enter your new ID: ")

            credential[newId]=password
            del credential[id]
            save_credentials()
            print()
            log_in()
        else:
            print("Invalid Password!!!")
            print()
```

```
            choice = (input("Still wanna change then press 1."))
            if (choice == '1'):
                change_id()
            else:
                log_in()
    else:
        print("Invalid Id")
        print()
        choice =(input("Still wanna change then press 1."))
        if (choice == '1'):
            change_id()
        else:
            log_in()


def process_portfolio():
    while (True):
        choice = (input("Enter \n 1. to add shares in the portfolio: \n 2. to
save shares in the portfolio: \n 3. to sell share from the portfolio: \n 4. to
show the portfolio: \n 5. to show portfolio worth \n 6. to show portfolio
gains \n 7. to plot charts \n 8. Bye \n-->"))

        if (choice == '1'):
            add_portfolio()
        elif (choice == '2'):
            save_portfolio()
        elif (choice == '3'):
            remove_portfolio()
        elif (choice == '4'):
            show_portfolio()
        elif (choice == '5'):
            portfolio_worth()
        elif (choice == '6'):
            portfolio_gains()
        elif (choice == '7'):
            plot_chart()
        elif (choice == '8'):
            bye()
        else:
            sys.exit(0)


def log_in():
    print()
    id = input("Enter your Id: ")
    password = input("Enter your Password: ")
    print()
    if (id in credential):
        if (credential[id] == password):
```

```
            print("successFully logged in !!")
            print()
            choice = (input(
                "Enter \n 1 to work on your portfolio \n 2 to change your
password: \n 3 to change your ID \n--->"))
            if (choice == '1'):
                process_portfolio()
            elif (choice == '2'):
                change_credentials()
            elif(choice=='3'):
                change_id()
            else:
                print("Invalid choice!!")
                print()
                log_in()
        else:
            print("Invalid Password !!")
            print()
            log_in()

    else:
        print("Invalid Id !!!")
        print()
        log_in()


# print(portfolio)


def save_portfolio():
    print()
    with open('portfolio.pkl', 'wb') as f:
        pickle.dump(portfolio, f)
    print("Your portfolio has been saved")
    print()


def add_portfolio():
    print()
    ticker = input("Which stock do you want to add: ")
    amount = input("How many shares you want to add: ")
    if (ticker in portfolio.keys()):
        portfolio[ticker] += int(amount)
    else:
        portfolio[ticker] = int(amount)

    save_portfolio()
    print()
```

```
def remove_portfolio():
    print()

    ticker = input("Enter which share you want to sell: ")
    amount = int(input("Enter how many shares you want to sell: "))

    if (ticker in portfolio.keys()):
        if (amount <= portfolio[ticker]):
            portfolio[ticker] -= int(amount)
            save_portfolio()
        else:
            print("You don't have enough shares: ")
    else:
        print(f"You don't own any share of {ticker} ")
    print()


def show_portfolio():
    print()
    print("-----Your portfolio:----- ")

    for ticker in portfolio.keys():
        print(f"You own {portfolio[ticker]} share of {ticker} ")

    print()


def portfolio_worth():
    print()
    sum = 0
    for ticker in portfolio.keys():
        data = web.DataReader(ticker, 'yahoo')

        price = (data['Close'].iloc[-1])*portfolio[ticker]
        sum += price
    print(f"Your portfolio worth is {sum} $ ")
    print()


def portfolio_gains():
    print()
    starting_date = input("Enter a date for comparison (YYYY-MM-DD): ")
    sum_now = 0
    sum_then = 0
    try:
        for ticker in portfolio.keys():
            data = web.DataReader(ticker, 'yahoo', starting_date, str(
                dt.datetime.today()).split()[0])
```

```
            price_now = (data['Close'].iloc[-1])*portfolio[ticker]
            #price_then=data.loc[data.index ==
starting_date]['Close'].values[0]
            price_then = data['Close'].iloc[0]*portfolio[ticker]

            sum_now += price_now
            sum_then += price_then
        print(f"Relative Gains: {((sum_now-sum_then)/sum_then)*100}% ")
        print(f"Absolute Gains: {(sum_now-sum_then )} $")
        print()
    except IndexError:
        print("There was no trading on this day ")
        print()


def plot_chart():
    print()
    ticker = input("Choose a ticker symbol: ")
    starting_string = input("Choose a starting date (DD/MM/YYYY): ")
    plt.style.use('dark_background')

    start = dt.datetime.strptime(starting_string, "%d/%m/%Y")
    end = dt.datetime.now()

    data = web.DataReader(ticker, 'yahoo', start, end)

    colors = mpf.make_marketcolors(
        up='#00ff00', down='#ff0000', wick='inherit', edge='inherit',
volume='inherit') #'#00ff00'===> green ,down='#ff0000===>red
    mpf_style = mpf.make_mpf_style(
        base_mpf_style='nightclouds', marketcolors=colors)
    mpf.plot(data, type='candle', style=mpf_style, volume=True)
    print()


def bye():
    print()
    print("Good bye")
    print()
    sys.exit(0)


log_in()
```

OUTPUT OF THE PROJECT

Finally, we conclude our work and present the output of the Project.

1) To work on the portfolio
2) To change your password
3) To change your Id

1 - (a) To add shares in the portfolio

(b) To save shares in the portfolio

(c) To sell share from the portfolio

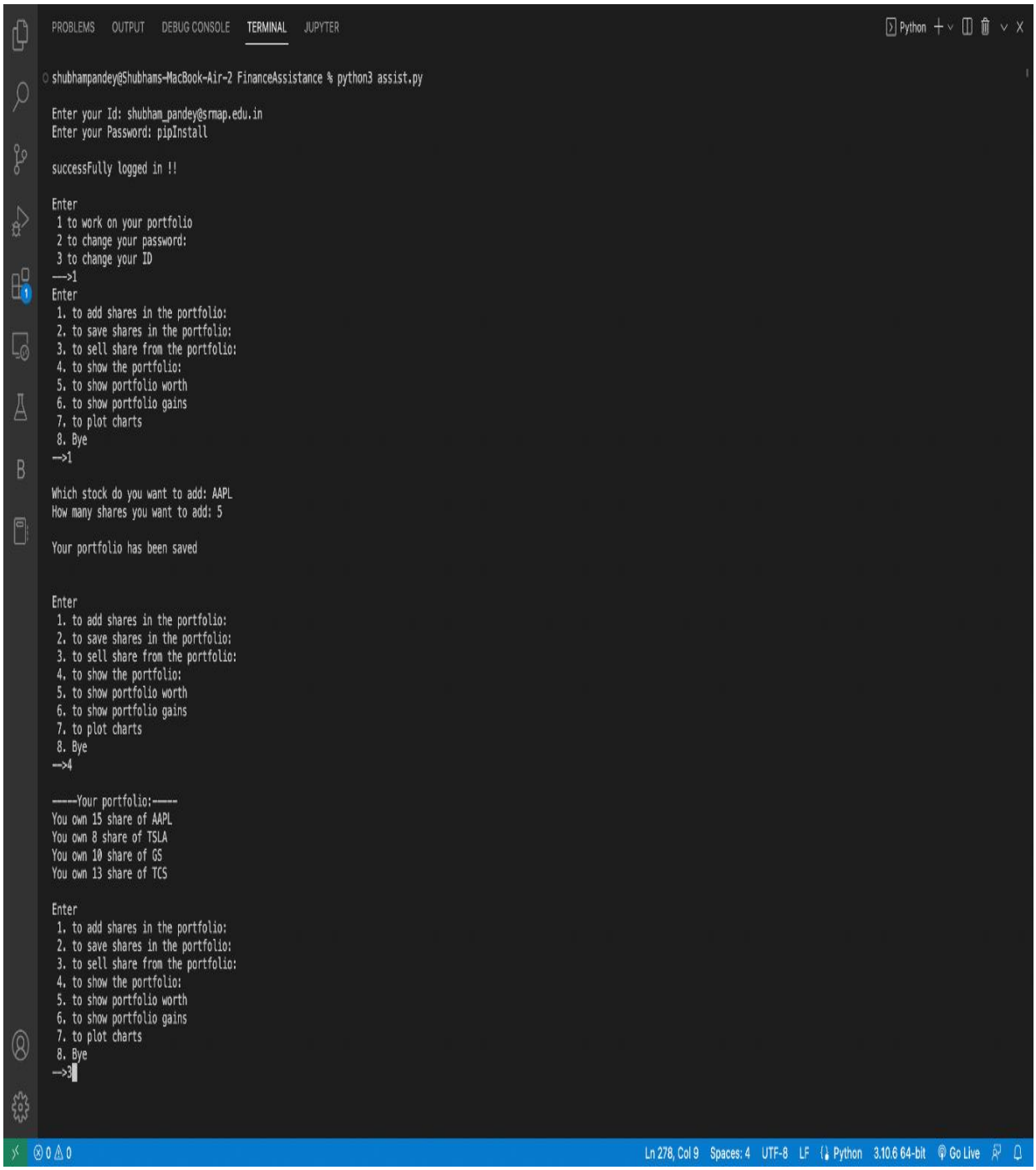
(d)To show the portfolio

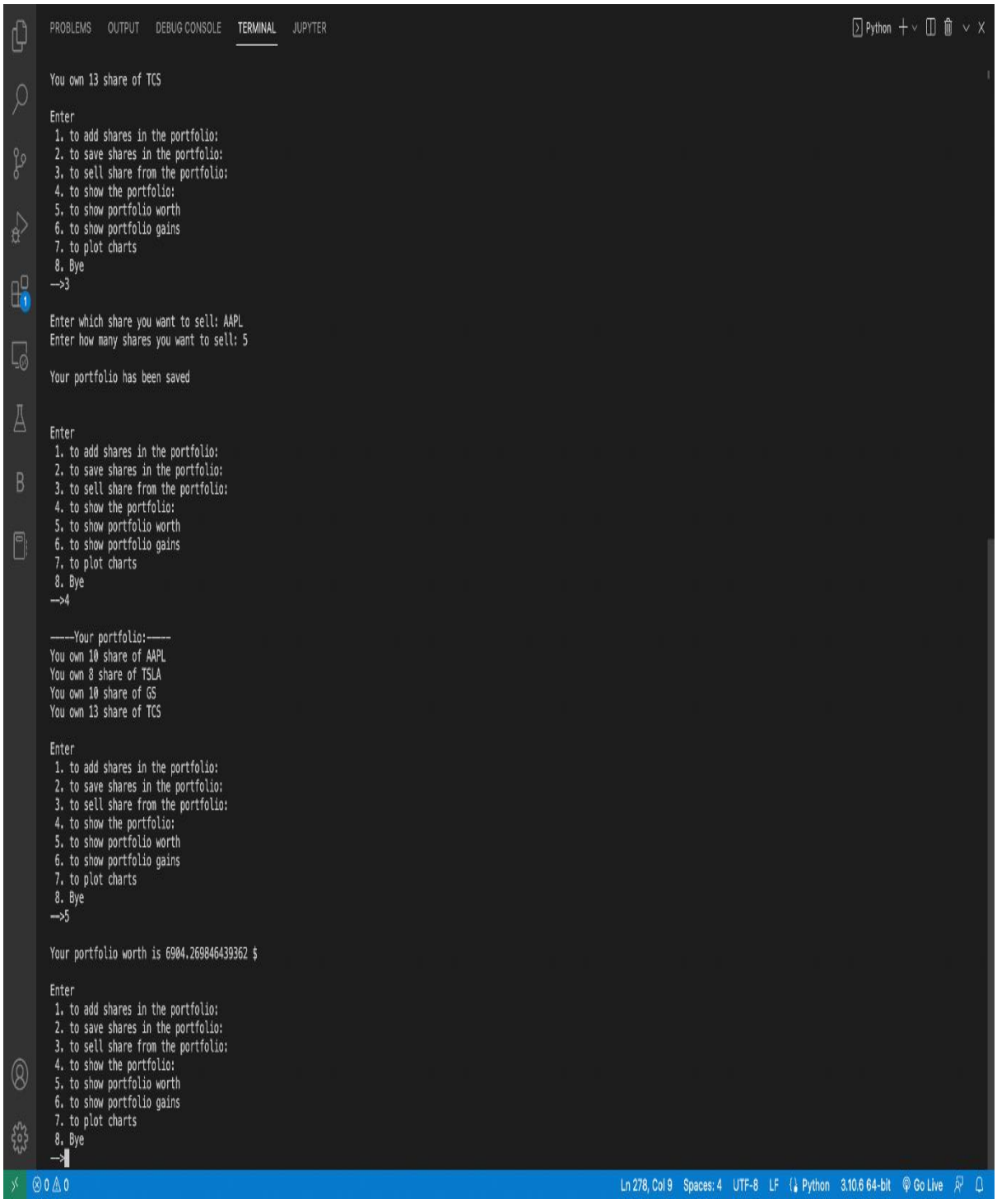
(e)To show portfolio worth

(f)To show portfolio gains

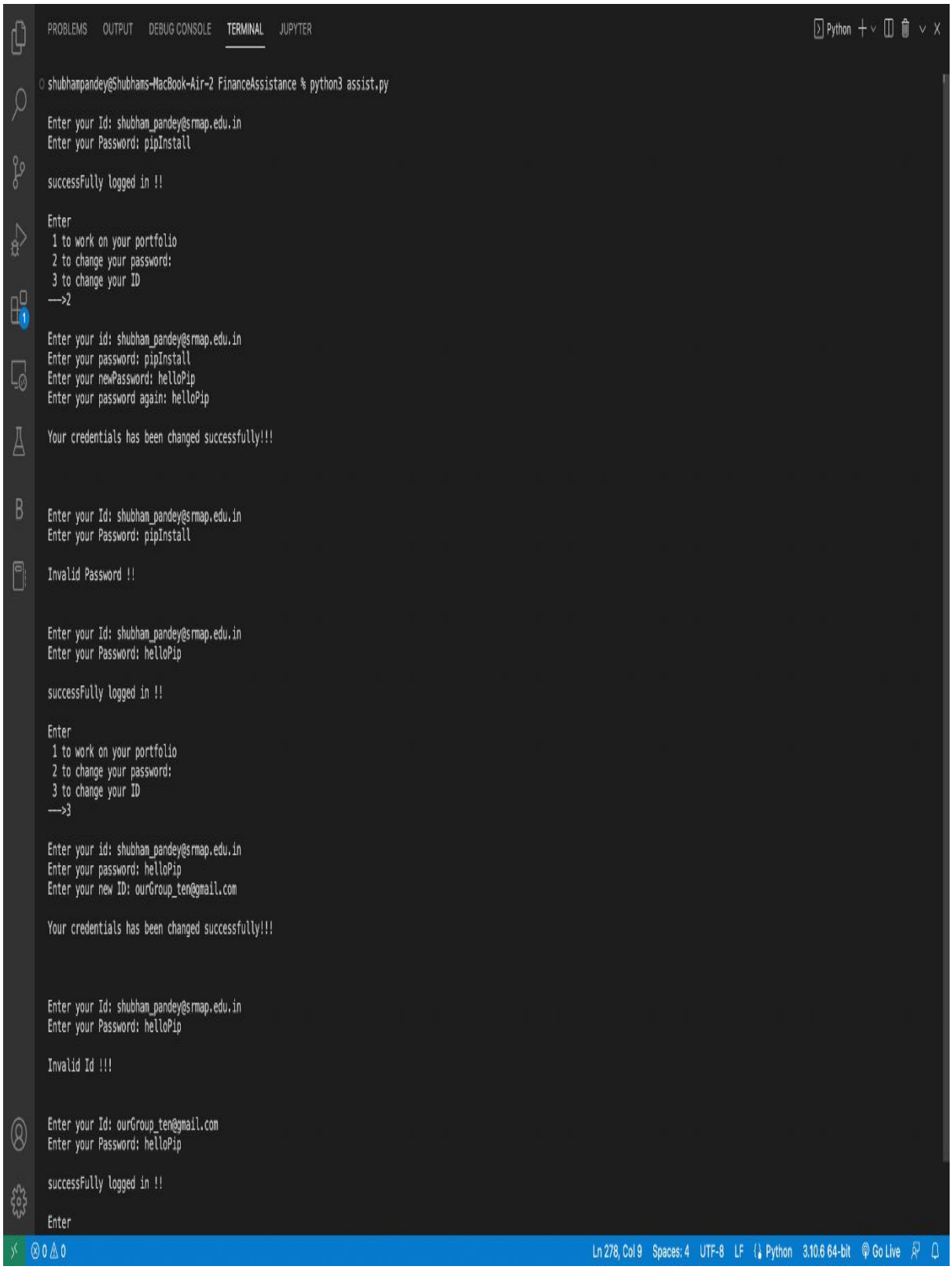
(g)To plot charts

(h)Bye


PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER
Python
shubhampandey@Shubhams-MacBook-Air-2 FinanceAssistance % python3 assist.py
Enter your Id: shubham_pandey@srmap.edu.in
Enter your Password: pipInstall
successFully logged in !!
Enter
1 to work on your portfolio
2 to change your password:
3 to change your ID
-->1
Enter
1. to add shares in the portfolio:
2. to save shares in the portfolio:
3. to sell share from the portfolio:
4. to show the portfolio:
5. to show portfolio worth
6. to show portfolio gains
7. to plot charts
8. Bye
-->1
Which stock do you want to add: AAPL
How many shares you want to add: 5
Your portfolio has been saved
Enter
1. to add shares in the portfolio:
2. to save shares in the portfolio:
3. to sell share from the portfolio:
4. to show the portfolio:
5. to show portfolio worth
6. to show portfolio gains
7. to plot charts
8. Bye
-->4
----Your portfolio:----
You own 15 share of AAPL
You own 8 share of TSLA
You own 10 share of GS
You own 13 share of TCS
Enter
1. to add shares in the portfolio:
2. to save shares in the portfolio:
3. to sell share from the portfolio:
4. to show the portfolio:
5. to show portfolio worth
6. to show portfolio gains
7. to plot charts
8. Bye
-->3
0 0
Ln 278, Col 9 Spaces: 4 UTF-8 LF Python 3.10.6 64-bit Go Live


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
JUPYTER
Python
You own 13 share of TCS
Enter
1. to add shares in the portfolio:
2. to save shares in the portfolio:
3. to sell share from the portfolio:
4. to show the portfolio:
5. to show portfolio worth
6. to show portfolio gains
7. to plot charts
8. Bye
-->3
Enter which share you want to sell: AAPL
Enter how many shares you want to sell: 5
Your portfolio has been saved
Enter
1. to add shares in the portfolio:
2. to save shares in the portfolio:
3. to sell share from the portfolio:
4. to show the portfolio:
5. to show portfolio worth
6. to show portfolio gains
7. to plot charts
8. Bye
-->4
---Your portfolio:---
You own 10 share of AAPL
You own 8 share of TSLA
You own 10 share of GS
You own 13 share of TCS
Enter
1. to add shares in the portfolio:
2. to save shares in the portfolio:
3. to sell share from the portfolio:
4. to show the portfolio:
5. to show portfolio worth
6. to show portfolio gains
7. to plot charts
8. Bye
-->5
Your portfolio worth is 6904.269846439362 $
Enter
1. to add shares in the portfolio:
2. to save shares in the portfolio:
3. to sell share from the portfolio:
4. to show the portfolio:
5. to show portfolio worth
6. to show portfolio gains
7. to plot charts
8. Bye
-->


PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER
zsh
You own 10 share of GS
You own 13 share of TCS
Enter
1. to add shares in the portfolio:
2. to save shares in the portfolio:
3. to sell share from the portfolio:
4. to show the portfolio:
5. to show portfolio worth
6. to show portfolio gains
7. to plot charts
8. Bye
-->5
Your portfolio worth is 6904.269846439362 $
Enter
1. to add shares in the portfolio:
2. to save shares in the portfolio:
3. to sell share from the portfolio:
4. to show the portfolio:
5. to show portfolio worth
6. to show portfolio gains
7. to plot charts
8. Bye
-->6
Enter a date for comparison (YYYY-MM-DD): 2022-10-02
Relative Gains: 7.498439068906698%
Absolute Gains: 481.599986076355 $
Enter
1. to add shares in the portfolio:
2. to save shares in the portfolio:
3. to sell share from the portfolio:
4. to show the portfolio:
5. to show portfolio worth
6. to show portfolio gains
7. to plot charts
8. Bye
-->7
Choose a ticker symbol: AAPL
Choose a starting date (DD/MM/YYYY): 02/10/2022
Enter
1. to add shares in the portfolio:
2. to save shares in the portfolio:
3. to sell share from the portfolio:
4. to show the portfolio:
5. to show portfolio worth
6. to show portfolio gains
7. to plot charts
8. Bye
-->8
Good bye
shubhampandey@Shubhams-MacBook-Air-2 FinanceAssistance %
0 0
Ln 278, Col 9 Spaces: 4 UTF-8 LF Python 3.10.6 64-bit Go Live


PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER
Python
shubhampandey@Shubhams-MacBook-Air-2 FinanceAssistance % python3 assist.py
Enter your Id: shubham_pandey@srmap.edu.in
Enter your Password: pipInstall
successFully logged in !!
Enter
1 to work on your portfolio
2 to change your password:
3 to change your ID
—>2
Enter your id: shubham_pandey@srmap.edu.in
Enter your password: pipInstall
Enter your newPassword: helloPip
Enter your password again: helloPip
Your credentials has been changed successfully!!!
Enter your Id: shubham_pandey@srmap.edu.in
Enter your Password: pipInstall
Invalid Password !!
Enter your Id: shubham_pandey@srmap.edu.in
Enter your Password: helloPip
successFully logged in !!
Enter
1 to work on your portfolio
2 to change your password:
3 to change your ID
—>3
Enter your id: shubham_pandey@srmap.edu.in
Enter your password: helloPip
Enter your new ID: ourGroup_ten@gmail.com
Your credentials has been changed successfully!!!
Enter your Id: shubham_pandey@srmap.edu.in
Enter your Password: helloPip
Invalid Id !!!
Enter your Id: ourGroup_ten@gmail.com
Enter your Password: helloPip
successFully logged in !!
Enter
Ln 278, Col 9 Spaces: 4 UTF-8 LF Python 3.10.6 64-bit Go Live


155
150
145
140
135
Price
150
100
50
Volume 10⁶
Oct 03
Oct 17
Oct 31
Nov 14
Nov 29

CONCLUDING REMARKS

By making this project we got to learn about modules like matplotlib, pandas, pickle, sys, datatime etc.,

This project will assist the people who are into stock market.

It will help them to know about their portfolio and study candlestick chart.

Studying candlestick charts will help them to predict whether the market is bullish or bearish.

Hence, this project also helps in analysis of stock.

We can compare then and now prices of stock also we can plot the chart on prices of stock with volume of shares that have been traded in a particular day.

FUTURE WORK

We can add many features to our project not only about stocks but also about all other investments that an individual has made.

By adding extra features, we can track our investment area and work on it wisely.

We can create our own datebase also we can add security protocol to our project.

We can add GUI (Graphical User Interface) to our project which gathers input from users, and then displays the prediction results.

There are many features that we will add to our project in future.

REFERENCES

Financial Assistance project can be referred from the below URL

URL : https://www.youtube.com/@NeuralNine