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from bs4 import BeautifulSoup
from urllib import request
import time
import csv
from matplotlib import pyplot as plt

def writecsv(file,details):
    f=open(file,'w',newline='')
    w_obj=csv.writer(f,delimiter=',')
    w_obj.writerow(details)
    f.close()
def appendcsv(file,details):
    f=open(file,'a',newline='')
    w_obj=csv.writer(f,delimiter=',')
    w_obj.writerow(details)
    f.close()
def readcsv(file):
    f=open(file,'r',newline='')
    r_obj=csv.reader(f,delimiter=',')

    for i in r_obj:
        for j in i:
            print('{:<30}'.format(j),end='')
        print('\n'+'='*107)
    f.close()

def webscrapper(search,tag):       #This function returns the stock price at
that instant of time

    URL ='https://www.bing.com/search?q='+search+'stock'

    headers = {'User Agent':'Mozilla/5.0 (Windows NT 10.0; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/97.0.4692.99 Safari/537.36'}


    content=request.urlopen(URL)

    htmlbin = content.read()
    htmltxt = htmlbin.decode()     # to decode to binary file to get the
contents of the html file

    soup = BeautifulSoup(htmltxt,'html.parser')

    price_txt = soup.find('span',{'class':tag}).text

    price_num = ''
    count=0
    for i in price_txt[::-1] :     #To remove the ',' (commas) and make it a
valid floating point literal
        if not i.isdigit():
            count += 1
            if count == 1:
                i = '.'
            else:
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                i=''
        price_num += i

    price_num = float(price_num[::-1])

    return price_num

def Info():
    print('Here you can look at the details of prominent trade centers in the
world:')
    print()
    readcsv('info.csv')

def Analyst():
    global Analysis_Start  #check variable to confirm that user has entered this
function
    global changes
    global avgs
    global stocks

    Analysis_Start=1

    stocks=[]
    avgs=[]
    changes=[]
    k=0
    while True:
        k+=1
        stock=input('Enter the stock You wish to invest in:')
        stocks+=[stock]
        details=[]
        avg=0
        print('Analysing',end='')
        for i in range(11):
            cur_price=webscrapper(stock,'b_focusTextMedium')
            avg+=cur_price
            details+=[cur_price]
            if i%2==0:
                print('.',end='')
                time.sleep(2)
        print()
        avg/=11
        avgs+=[avg]

        change=details[-1]-details[0]
        changes+=[change]

        plt.figure(k)
        plt.plot([0,10,20,30,40,50,60,70,80,90,100],details)# plots the line
graphs for all stocks entered in the time interval of 100 seconds
        plt.title('Market Analysis '+stock+' stock')
        plt.xlabel('Time')
        plt.ylabel('Price')
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        print(details)

        ch=input('Do you want enter more stocks for investment?(y/n)')
        if ch in 'nN':
            break

    print('Analysis completed.')
    print()
    print('Plotting graphs',end='')
    for i in range(3):
        print('.',end='')
        time.sleep(1)

    plt.show()

def Invest_Amount():
    global investment
    global Investment

    while True:
        choice=int(input('Manage your investment funds with the following
functions: \n1. Modify Amount \n2. Add Investment \n3. Show Investment \n4. Back
to Main Menu\n'))

        if choice==1:
            investment=int(input('Total amount you wish to invest (USD):'))
            print('Amount modified successfully.')
        elif choice==2:
            add=int(input('Total amount you wish to add (USD):'))
            investment+=add
            print('Amount added successfully.')
        elif choice==3:
            print('Current Invested Funds :',round(investment,3),'USD')
        elif choice==4:

print('----------------------------------------------------------------------
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            break
        else:
            print('Invalid choice, please try again.')
    Investment=investment

def Trader():
    global Trade_start   #check variable to confirm that user has entered this
function
    global invest_split
    global investment

    Trade_start=1

    invest_split=[]
    writecsv('stocks.csv',['Stock','Buy Price','Sell Price','Profit or Loss'])
    for i in stocks:
        percent=int(input('Enter the percentage to be invested in
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"{}"'.format(i)))
        invest_split += [percent/100*investment]

    for j in range(len(invest_split)):

        cur_price1=webscrapper(stocks[j],'b_focusTextMedium')

        if (avgs[j]-cur_price1 > (0.4/100*avgs[j])):
               print('Stock price seems to have dropped! Lets buy')
               print('Trading',end='')
               for i in range(5):
                   print('.',end='')
                   time.sleep(2)
               print()
               cur_price2=webscrapper(stocks[j],'b_focusTextMedium')

appendcsv('stocks.csv',[stocks[j],cur_price1,cur_price2,cur_price2-cur_price1])
               investment=investment-cur_price1+cur_price2

        elif changes[j]>0:
               print('Stock is growing! Lets buy before it reaches the peak')
               print('Trading',end='')
               for i in range(5):
                   print('.',end='')
                   time.sleep(2)
               print()
               cur_price2=webscrapper(stocks[j],'b_focusTextMedium')

appendcsv('stocks.csv',[stocks[j],cur_price1,cur_price2,cur_price2-cur_price1])
               investment=investment-cur_price1+cur_price2
        else:
               while True:
                   print('Trading',end='')
                   for i in range(5):
                       print('.',end='')
                       time.sleep(2)
                   print()
                   cur_price2=webscrapper(stocks[j],'b_focusTextMedium')
                   if cur_price2 >= cur_price1:

appendcsv('stocks.csv',[stocks[j],cur_price1,cur_price2,cur_price2-cur_price1])
                       investment=investment-cur_price1+cur_price2
                       break

    print('Trading completed.')

print('----------------------------------------------------------------------------
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def TodaysResult():

    readcsv('stocks.csv')

    if investment > Investment:
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        print('You made a net profit of:',round(investment - Investment,3),"from
today's investment of",round(Investment,3))
    elif investment < Investment:
        print('You made a net loss of',round(Investment - investment,3),"from
today's investment of",round(Investment,3))
    else:
        print("you have made no real profit or loss from today's investment
of",round(Investment,3))


# main Program

print('------------------------------------------------------------------------
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print('Hi there, I am StockEx a stock analyst app ')
print('I have been created to help amatuer traders by simulating how','their
investments would work out in a real market',sep='\n')
print('------------------------------------------------------------------------
-------')

investment=0
Analysis_Start=0
Trade_start=0
while True:

    print('Enter the function you wish to perform:','1. Stock Exchange
Details','2. Analysis','3. Investment Amount','4. Trading',"5. Today's Net
Result","6. Exit from the application',sep='\n')
    function=int(input())


print('------------------------------------------------------------------------
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    if function==1:
        Info()
    elif function==2:
        print('Welcome to Analysis!')
        Analyst()
    elif function==3:
        Invest_Amount()
    elif function==4:
        if investment==0 or Analysis_Start==0 :
            print('Trading can be started only once you have entered the
investment amount and analysed the stock you want to trade')
        else:
            print('Trading has Begun...')
            Trader()
    elif function==5:
        if Trade_start==0:
            print("Today's net gains or losses can only be viewed once you have
completed trading")
        else:
            Print("Today's Net Result")
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        TodaysResult()
elif function==6:
    print('Exiting the application...')
    exit()
else:
    print('Invalid choice, please try again.')

print()
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