STOCKMARKET PROGRAM WHITEPAPER

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Introduction:

Python is a very versatile language. The scope of python is very large. We can use python to make web based applications, task automating scripts, machine learning, data science, etc.

We can also make utility applications using python. We are going to learn and understand working of stock market, listed companies, share, buy value, share price, profit and loss. After understanding about this we will implement all the functionalities require to run a stock market in our application. So we will make use of python to create a simple stock market application.

Problem Statement:

A user needs to see stock market leaderboard where all stock prices are listed. User can buy a stock based on stock price and investment amount.

Objective:

Write a program which gets user details like name, income, investment amount and display stock market leaderboard containing stock name, start value and current value. Let user buy stocks and calculate profit or loss percentage based on value difference.

Description:

Get user details as input such as name, income and maximum investment amount. Display Stock price leaderboard. Ask a user which stock he/she wants to buy. Based on stock prompt a user how many stocks of that company user can buy.

Ask a user how many stock they wants to buy. Calculate the overall stock investment amount based on current stock value and number of stocks. Provide stock details to the user as well as remaining amount from total investment amount.

Code:

```
from random import randint

name = input("Enter name : ")
income = int(input("Enter your total income or savings : "))
amount = int(input("Enter maximum amount you can invest : "))

while income < amount:
  print("Your investment amount can't be more than your savings.")
  amount = int(input("Enter maximum amount you can invest : "))

print(f"\nHi! {name} welcome to VedStocks \nCheckout leaderboard for stock's information\n")

stocks_range = {"RIL":[1000,4000], "L&T":[2000,3000], "TATA":[1000,2000], "Wipro":[3000,6000], "IBM":[2500,3500],
        "Google":[4000,5000], "Apple":[1000,3000], "TCS":[4000,7000], "Tinder":[1000,3000], "Infosys":[5000,7000]}

stocks_range_copy = {"RIL":[1000,4000], "L&T":[2000,3000], "TATA":[1000,2000], "Wipro":[3000,6000], "IBM":[2500,3500],
        "Google":[4000,5000], "Apple":[1000,3000], "TCS":[4000,7000], "Tinder":[1000,3000], "Infosys":[5000,7000]}

#to decide base values of stock
base_stocks = stocks_range
for i in base_stocks:
  base_stocks[i] = randint(stocks_range[i][0],stocks_range[i][1])

#to store variable values of stocks
stocks = stocks_range_copy
for i in stocks:
  stocks[i] = randint(stocks_range_copy[i][0],stocks_range_copy[i][1])

print('*'*50+'\n**\t\tStock Market Leaderboard\t**\n'+'*'*50+'\nStock\t\tStart Price\tCurrent Price')

for i in stocks:
  if randint(1,10) < 5:
    stocks[i] = stocks[i] - float(stocks[i]*0.30)
  elif randint(1,10) > 5:
    stocks[i] = stocks[i] + float(stocks[i]*0.30)

for i in stocks:
  print(f"{i}\t\t{base_stocks[i]}\t\t{stocks[i]}")

print('*'*50)

stock_option = input("Enter stock which you want to buy : ")
maximum_no_of_stocks = amount // int(stocks[stock_option])
print(f"You can by maximum '{maximum_no_of_stocks}' stocks from '{stock_option}'")

no_of_stocks_brought = int(input("How many stocks you want to buy ? "))
while no_of_stocks_brought > maximum_no_of_stocks:
        print("You can not exceed your buy limit")
        no_of_stocks_brought = int(input("How many stocks you want to buy ? "))

invested_amount = int(stocks[stock_option]) * no_of_stocks_brought
remaining_amount = amount - invested_amount
```

```
print(f"\nYou have only Rs. {remaining_amount} remaining as your investment amount")
print(f"\nYour stock details:")

base_value = int(base_stocks[stock_option])
current_value = int(stocks[stock_option])

if base_value < current_value:
        profit = (current_value - base_value) * 100 / current_value
        loss = 0
else:
        profit = 0
        loss = (base_value - current_value) * 100 / current_value

my_stocks = {"name":stock_option, "quantity":no_of_stocks_brought, "buy_value":base_value, "current_value":current_value,
"profit":profit, "loss":loss}

print("\nName\tQuantity\tBuy Value\tCurrent Value\tProfit\tLoss")

for i in my_stocks:
        print(my_stocks[i],end="\t")
```

Output:

```
Enter name : Dipesh Parab
Enter your total income or savings : 1000000
Enter maximum amount you can invest : 100000

Hi! Dipesh Parab welcome to VedStocks
Checkout leaderboard for stock's information

**************************************************
**              Stock Market Leaderboard        **
**************************************************
Stock           Start Price     Current Price
RIL             1762            1480.5
L&T             2830            2043.3000000000002
TATA            1911            1033.2
Wipro           5742            5159.7
IBM             2808            3669.9
Google          4603            3154.2
Apple           1728            3420.3
TCS             4431            4112
Tinder          1043            2455
Infosys         6524            4353.3
**************************************************
Enter stock which you want to buy : RIL
You can by maximum '67' stocks from 'RIL'
How many stocks you want to buy ? 20

You have only Rs. 70400 remaining as your investment amount

Your stock details:

Name    Quantity        Buy Value       Current Value   Profit  Loss
RIL     20              1762            1480            0       19.05
```

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Explanation:

Step 1: Import randint from random modules for generating a random number.

Step 2: Get name, total income/saving, amount to invest from user. If amount to invest is more than your income/savings then prompt a message - "Your investment amount can't be more than your savings."

Step 3: Create a dictionary which stock_range containing stock names and price values range**.**

Step 4: Generate two lists based on stock_range dictionary to store bases value and current values of stock named base_stocks and stocks respectively.

Step 5: Generate a random integer number from 1 to 10. If number is between 1 to 5 then current stock value will be 30% lower and if number is between 6 to 10 then current stock value will be 30% higher.

Step 7: Display a leaderboard containing Stock names, base value and current value.

Step 8: Ask user which stock he/she wants to buy. Based on current price tell user how many stocks of that company a user can buy.

Step 9: Ask user how many stocks a user wants to buy.

Step 10: Calculate total stock investment amount based on current price and number of stocks user have brought.

Step 11: Display remaining investment amount to the user.

Step 12: Display stock information table to the user containing stock name, quantity, buy value, current value, profit percentage or loss percentage.

Reference:

Books:

Learn Python the Hard Way
Python Crash Course by Eric Matthes

Websites:

https://www.geeksforgeeks.org
https://docs.python.org

Feedback:

If you have query regarding python then feel free to mail me on my email id mentioned below. Let's see if I can solve your issue. Until then keep learning, keep coding and keep exploring new stuff.

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