COP Assignment-1 Subtask-2 Report

Overview

The websites consist of the following pages/features:

- Login Page
- Home Page
- Filter Page
- Buy/Sell Page
- Graph Analysis Page

Login Page

The login page is kept as given with only front-end design modifications and beautifications.

Home Page

The home page (also the welcome page) shows the list of all companies of nifty-50 with links to their respective websites. It also displays the top 5 companies with the maximum profit percentage in the last 4 days and the top 5 losing companies.

Filter Page

The filter page gives options to apply filters based on the P/E ratio and average price (of the last one month). It provides a list of all companies that surpass the filter with their respective P/E ratio and average price.

Buy/Sell Page

The buy/sell page shows the current balance of the user and also the current stocks owned by the user. It allows the user to buy and sell stocks based on live prices. Each user's data is stored in the database.

Graph Analysis Page

The graph analysis page gives the user options to plot and compare the stocks of different companies. The user can select the time frame, start-date, end-date, and also the stock prices type.

Design Decisions

Front-End

The design of the front-end is kept simple and user-friendly. There is a nav-bar at the top of each page to aid in fast navigation. The entire width of the page is utilized, with all selection options placed on the right-hand side, and data displayed on the left-hand side.

Back-End

The database stores user information in two classes: User and Transaction. User stores details and an additional column for balance, while Transaction stores all user transactions. Transactions of a particular user are identified by hashing the user.

To get the Top 5 gaining and losing companies, data of the closing price of the companies from the last 4 days is sorted in ascending or descending order.

Stocks are filtered based on the P/E ratio of the stocks over the last month and average closing price of the stocks over the last month.

In graph analysis, the Python library `plotly` is used for better graph analysis. It allows zooming into a particular duration and increases the readability of the graph.

Trade-Offs

The major trade-off is an increased program execution time due to loading stocks repeatedly. This could have been avoided by storing data of the companies beforehand in places where live data is not needed.

Screenshots of webpages

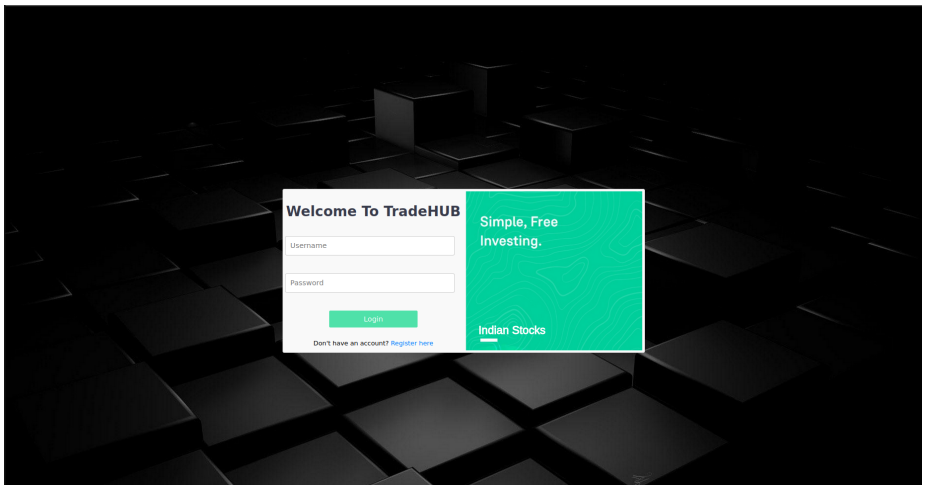


Figure 1: Login Page

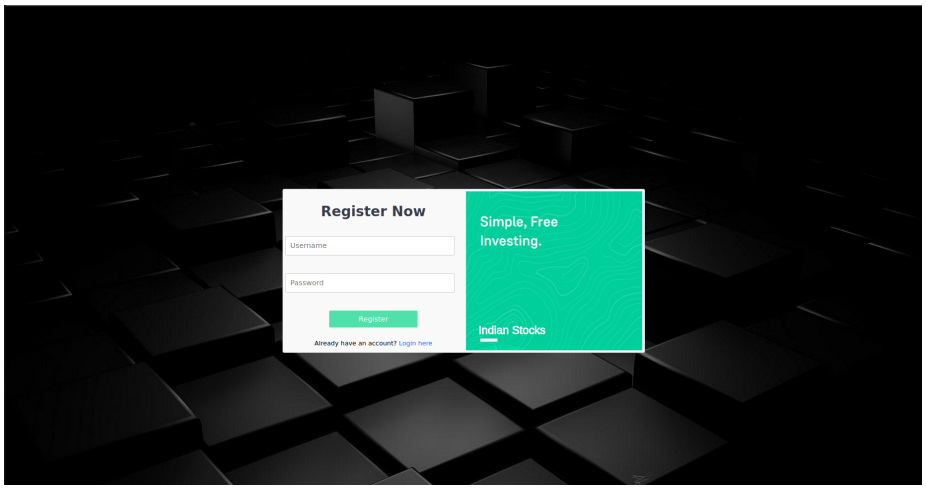


Figure 2: Register Page

Figure 3: Home Page

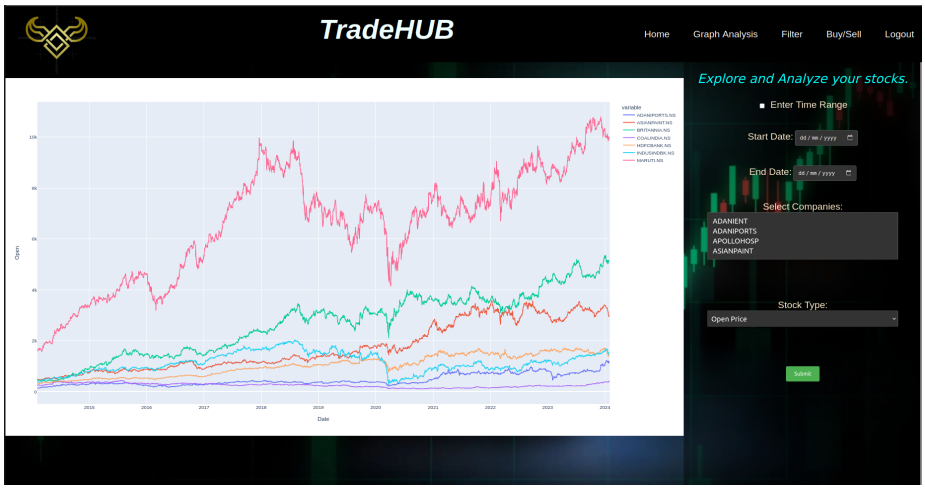
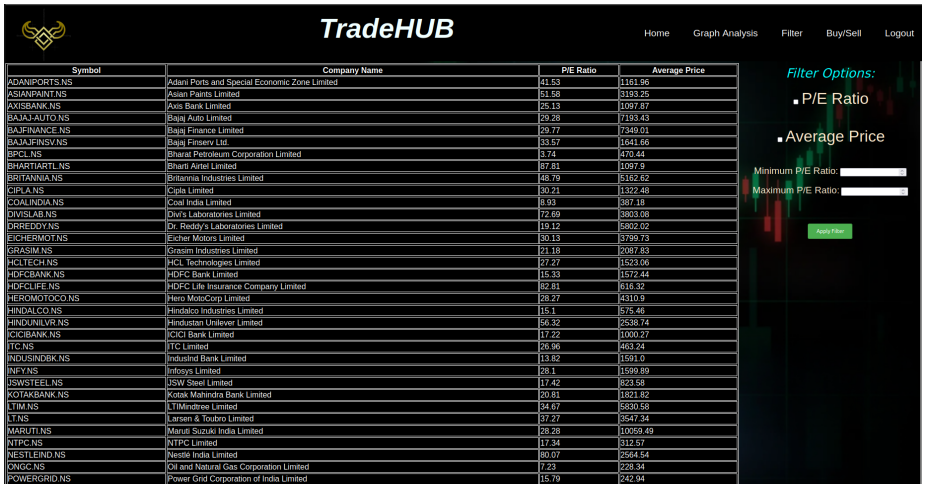


Figure 4: Graph Analysis Page



Symbol	Company Name	P/E Ratio	Average Price
ADANIPORTS.NS	Adani Ports and Special Economic Zone Limited	41.53	1161.96
ASIANPAINT.NS	Asian Paints Limited	51.58	3193.25
AXISBANK.NS	Axis Bank Limited	25.13	1097.87
BAJAJ-AUTO.NS	Bajaj Auto Limited	29.28	7193.43
BAJFINANCE.NS	Bajaj Finance Limited	29.77	7349.01
BAJAJFINSV.NS	Bajaj Finserv Ltd.	33.57	1641.66
BPCL.NS	Bharat Petroleum Corporation Limited	3.74	470.44
BHARTIARTL.NS	Bharti Airtel Limited	87.81	1097.9
BRITANNIA.NS	Britannia Industries Limited	48.79	5162.62
CIPLA.NS	Cipla Limited	30.21	1322.48
COALINDIA.NS	Coal India Limited	8.93	387.18
DIVISLAB.NS	Divi's Laboratories Limited	72.69	3803.08
DRREDDY.NS	Dr. Reddy's Laboratories Limited	19.12	5802.02
EICHERMOT.NS	Eicher Motors Limited	30.13	3799.73
GRASIM.NS	Grasim Industries Limited	21.18	2087.83
HCLTECH.NS	HCL Technologies Limited	27.27	1523.06
HDFCBANK.NS	HDFC Bank Limited	15.33	1572.44
HDFCLIFE.NS	HDFC Life Insurance Company Limited	82.81	616.32
HEROMOTOCO.NS	Hero MotoCorp Limited	28.27	4310.9
HINDALCO.NS	Hindalco Industries Limited	15.1	575.46
HINDUNILVR.NS	Hindustan Unilever Limited	56.32	2536.74
ICICIBANK.NS	ICICI Bank Limited	17.22	1000.27
ITC.NS	ITC Limited	26.96	463.24
INDUSINDBK.NS	IndusInd Bank Limited	13.82	1591.0
INFY.NS	Infosys Limited	28.1	1599.89
JSWSTEEL.NS	JSW Steel Limited	17.42	823.58
KOTAKBANK.NS	Kotak Mahindra Bank Limited	20.81	1821.92
LTIM.NS	LTIMindtree Limited	34.67	5630.58
LT.NS	Larsen & Toubro Limited	37.27	3547.34
MARUTI.NS	Maruti Suzuki India Limited	28.28	10059.49
NTPC.NS	NTPC Limited	17.34	312.57
NESTLEIND.NS	Nestlé India Limited	80.07	2564.54
ONGC.NS	Oil and Natural Gas Corporation Limited	7.23	228.34
POWERGRID.NS	Power Grid Corporation of India Limited	15.79	242.94

Figure 5: Filter Page

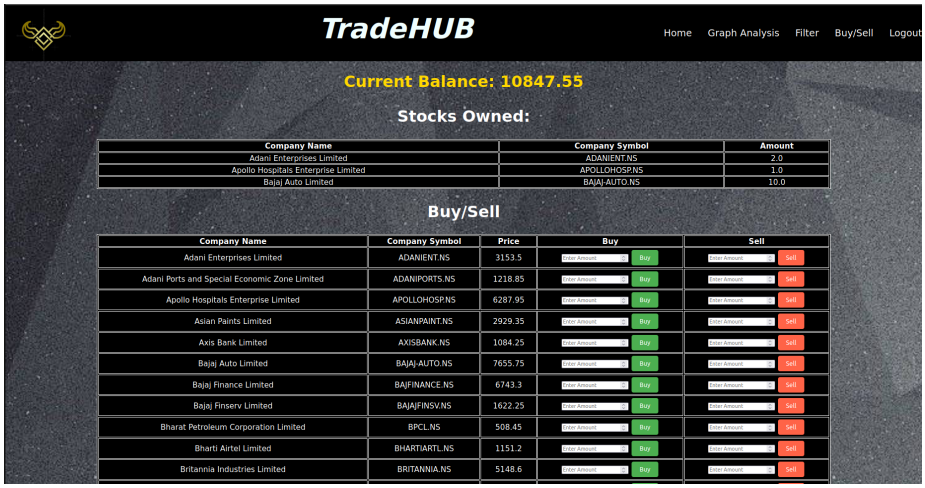


Figure 6: Buy/Sell Page