

Technical Documentation

Finvesta Flow

Technology Stack

Backend:

1. Python
2. django
3. Numpy
4. Pandas
5. tensorflow

Frontend:

1. Reactjs
2. Redux
3. Highcharts
4. Redux Toolkit

Payment Gateway: Stripe

Deployment Server:

1. Frontend deployment
 - Staging Server (<http://finvesta-frontend2.itechnolabs.tech/>)
 - Production Server (<http://finvesta-frontend2.itechnolabs.tech/>)
2. backend deployment

- API URL Staging (<https://finvestabackend.itechnolabs.tech/>)

- API URL Production (<https://finvestabackend.itechnolabs.tech/>)

Source code Repository

Backend Repository:

https://bitbucket.org/itechnolabsca/finvesta/branch/finvesta_dev_backend

- Configured Branch
 - master for a production instance
 - finvesta_dev_backend for staging instance

Frontend Repository:

<https://bitbucket.org/itechnolabsca/finvesta-frontend/src/home-html/>

- Configured Branch
 - master for a production instance
 - development for staging instance

Source Code Directory Structure

Backend

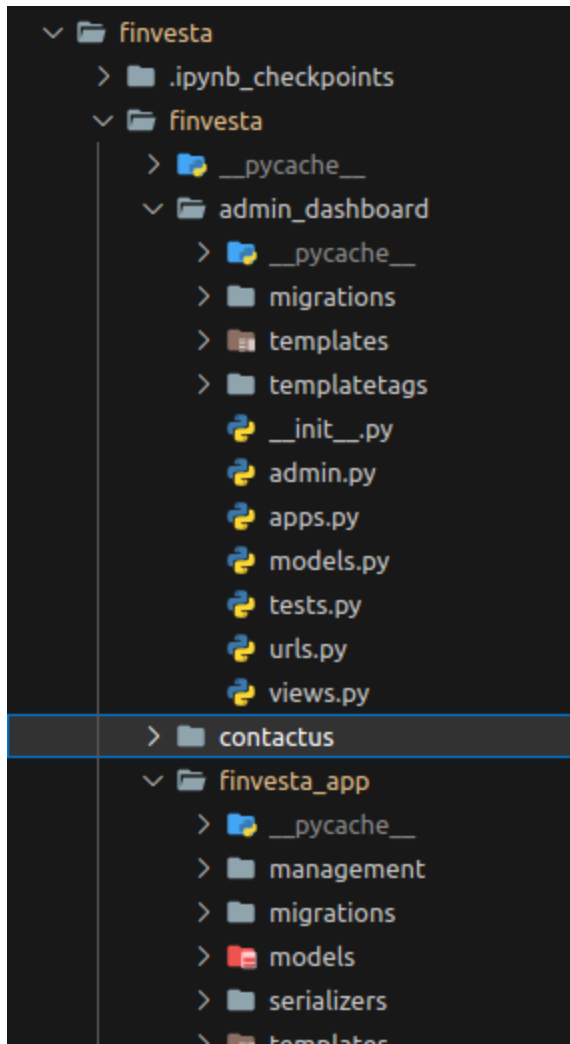
This Project uses a django framework that follows a module architecture to structure the code and django ORM with Postgres SQL to execute queries to the database. In this backend env vault (<https://www.dotenv.org/>) has been used to keep track of the env variable for different instances.

1. Database schema: Database schema is present in the app folder at the project's root, which contains the migration files.

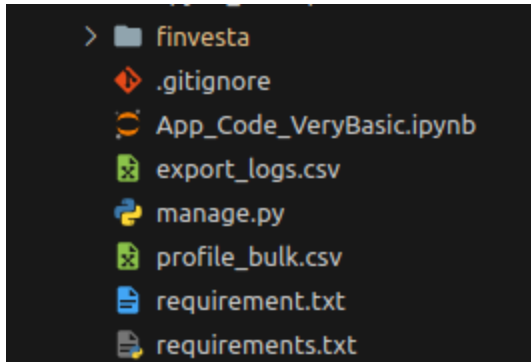
- To run the migration use the command:

```
Python manage.py migrate
```

it will apply all migration present in the migrations folders

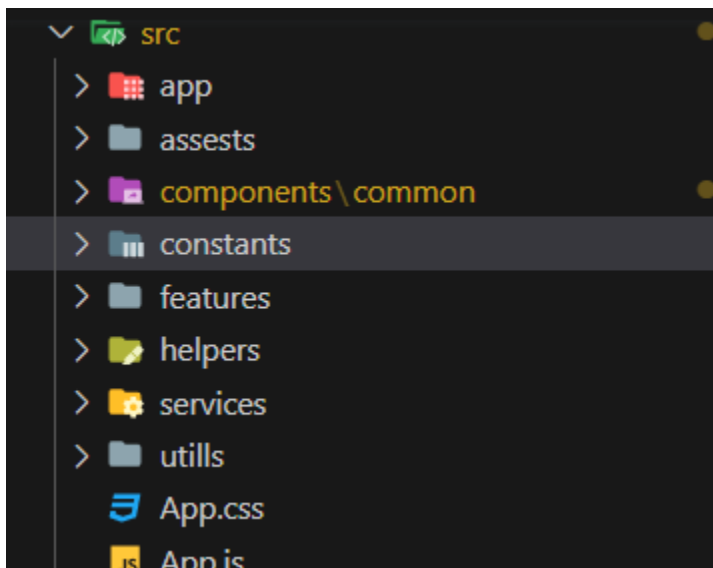


- To manage (project managements) like runserver, migrate, createsuperuser etc.
- Use the python manage.py file present in the root folder of the project.



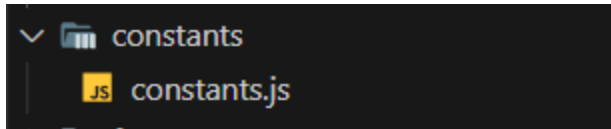
Frontend

- On the front end of the application, we are using the Reactjs library.
- The src folder contains all the code of the frontend application



Layout Folder : This Folder Contains header and footer .

The Constant folder contains the Base URL for Frontend and Backend.



The Helper Folder is created for using random colors for charts.

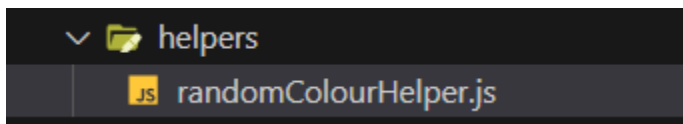
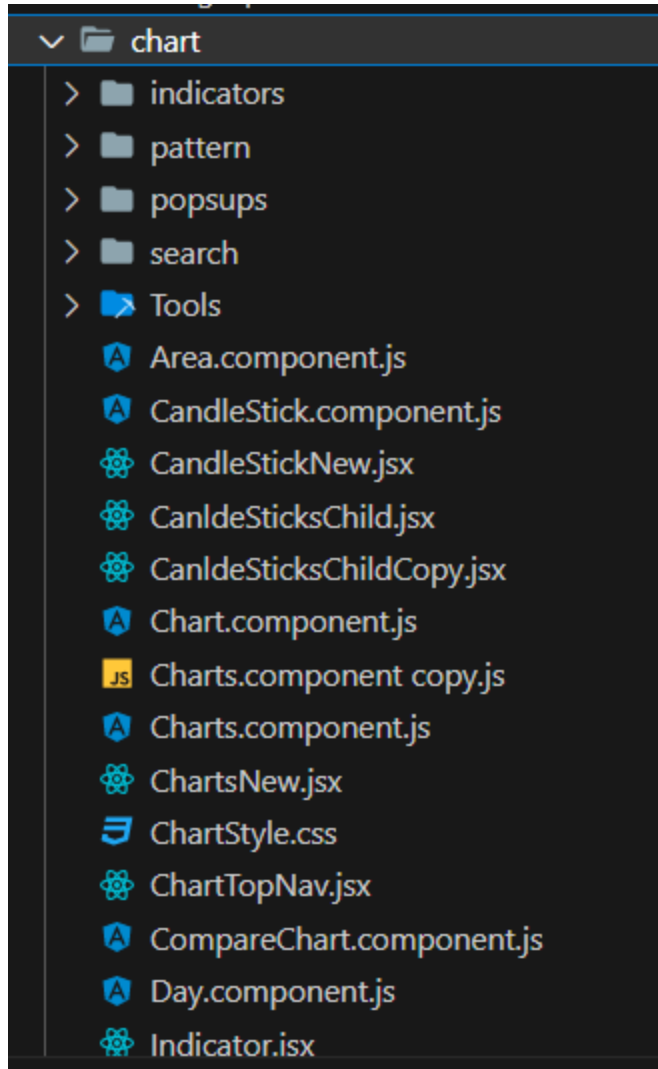
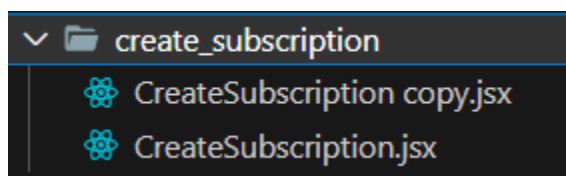


Chart folder is created for implementing Candlestick Charts, Indicators and display Different types of graphs.

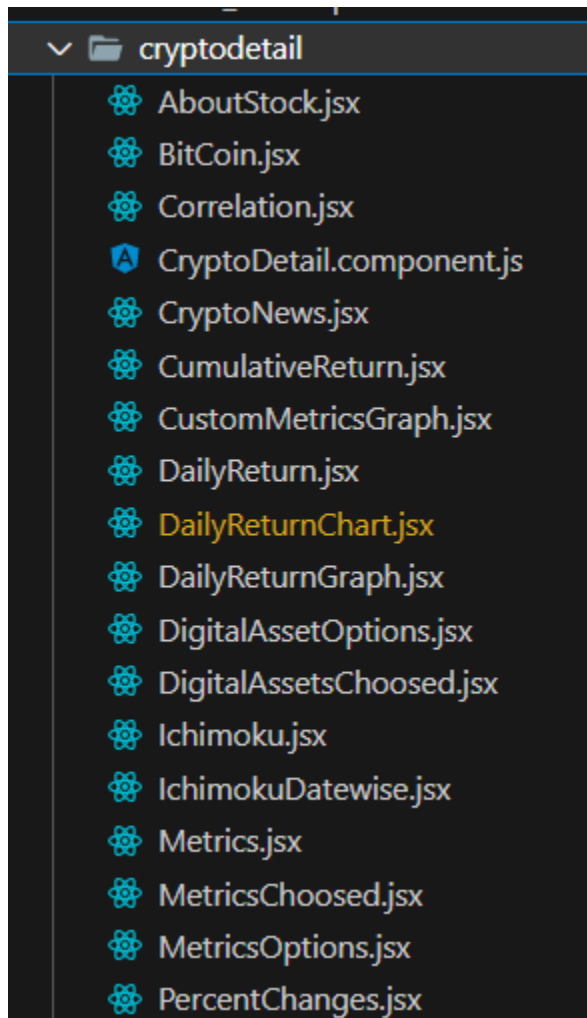


Create Subscription - This Folder Contains the code for user Subscription.

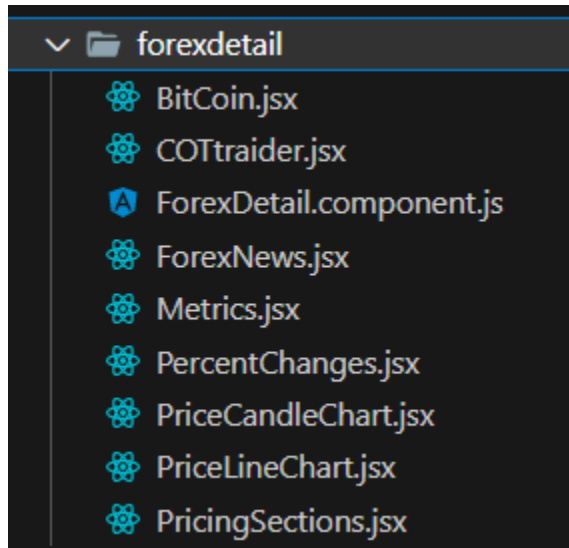


Crypto Detail - This Folder Contains the code for a Crypto Detail page which displays the different Graphs.

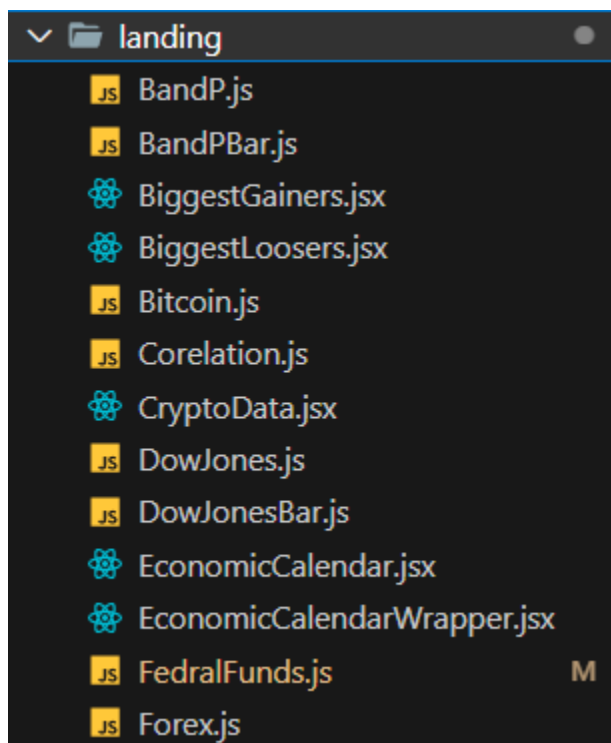
<https://finvesta-frontend2.itechnolabs.tech/cryptodetail/>



Forex Detail - This Folder Contains the code for a forex Detail page which displays the different Graphs.



Landing - This Folder Contains the code for a Landing page which is further divided into multiple Components.



Use case: Finvesta flow

Overview

The goal of InvestaFront is to give customers a thorough platform for monitoring and analyzing a variety of financial markets, such as equities, cryptocurrencies, and foreign exchange. From novice investors to seasoned traders, it provides a variety of services to meet their demands. Here is a summary of how InvestaFront can benefit users and who it can help:

A. Tracking Market Performance:

Users can access real-time data on the top gainers and losers in the stock market, upcoming IPOs, upcoming economic events, stock splits, and an earnings calendar on the InvestaFront homepage. Users can utilize this tool to stay up to date on market trends and make wise investing selections.

B. Analyzing Price and Compare Data

Users can view and examine price data for a variety of assets, including equities, foreign exchange, and cryptocurrencies, on the charts screen. Users can track price changes, evaluate prospective investment possibilities, and compare the performance of various assets.

C. Stock Analysis

Users may access essential indicators including averages, medians, standard deviation, variance, volatility, cumulative return, daily return, correlation, and beta with InvestaFront's easy stock analysis function. Users can use this analysis

to compare the performance and risk of various stocks to that of the S&P 500 index.

D. Single Stock Page

Each stock has a specific page on InvestaFront that includes details about trading, analyst ratings, comparable stocks, discounted cash flow, social sentiment, institutional investors, and buy/sell RSS feeds. Users are able to make more educated selections about particular stocks because of this comprehensive view.

E. Portfolio Management

Users can monitor and manage their financial portfolios using the portfolio screens. Users can track key data, monitor performance, and add holdings. Both amateur and experienced traders who want to monitor their investment portfolios might benefit from this service.

F. Subscription Plans and Privacy

Screens for subscription plans, privacy policies, terms and conditions, and contact information are provided by InvestaFront.

InvestaFront's overall goal is to provide customers with up-to-date market information and extensive analysis tools. Individual investors, traders, and finance aficionados can use it to manage their portfolios, analyze equities, remain current on market trends, and make wise investment decisions.

Case Study

Individuals and organizations need sophisticated tools to make wise investment decisions in today's complicated and dynamic financial market. This case study examines the use of a sophisticated investment analysis tool that makes use of a variety of characteristics, including market data and in-depth analytical tools. The goal is to give users a strong platform to improve their ability to analyze investments and make wise financial decisions..

Methodology

The proposed methodology involves the following steps:

A. Feature Development

A variety of features, including real-time market performance tracking, price and compare data charts, simplified stock analysis, thorough fundamental analysis, single stock pages with detailed information, portfolio management tools, and educational resources are all included in the investment analysis application. These features were created to meet the various needs of consumers, from inexperienced traders to investors.

B. Integration of Data Sources:

The application incorporates data from a number of sources, including the stock market, the foreign exchange market, and the cryptocurrency market. These resources include current information on economic developments, business financials, market trends, and other pertinent data points required for investment analysis.

C. Data Analysis and Visualization

To extract valuable insights from the enormous volume of financial data, the application makes use of sophisticated data analysis techniques, such as statistical computations, trend analysis, and correlation analysis. Interactive charts, graphs, and reports are used to deliver these findings in an approachable and visually appealing way.

D. User Experience and Accessibility

The application is made to be user-friendly, with an easy-to-use interface that enables users to easily browse between functions and retrieve the data they require.

The investment analysis application provides several benefits to users:

A. Enhanced Decision-making

The application enables users to make more informed financial decisions by offering real-time market data, in-depth research tools, and educational resources. They are skilled at trend analysis, stock performance evaluation, fundamental analysis, and portfolio management.

B. Time and Effort Savings

By handling data gathering, analysis, and visualization, the programme helps users significantly reduce the time and effort required for manual research and analysis. Users can obtain thorough data and insights in a small fraction of the time it would take using conventional techniques.

C. Risk Management

The advanced analysis tools and features enable users to assess risk factors such as volatility, correlations, and beta, helping them manage their investment risks more effectively. Users can make data-driven decisions and diversify their portfolios based on thorough analysis.

Use Cases:

A. Researching Investment Opportunities

Users of the application can use it to investigate and evaluate a range of investment alternatives, such as stocks, cryptocurrencies, and FX. To help them make wise investing decisions, they have access to detailed information like price charts, performance data, and fundamental analysis.

B. Portfolio Management

Users may effectively manage their investment portfolios with the app. They can monitor gains and losses, assess the performance of their investments, and examine the overall portfolio structure. This aids users in strategically choosing their asset allocation, diversification, and rebalancing strategies.

C. Market Monitoring

Through tools like Biggest Gainers, Biggest Losers, IPO Calendar, Economic Calendar, and Exchange Summary, users may keep up with the most recent market movements and news. This makes it possible for them to quickly spot prospective investment opportunities or respond to market fluctuations.

D. Technical Analysis

Through tools like Biggest Gainers, Biggest Losers, IPO Calendar, Economic Calendar, and Exchange Summary, users may keep up with the most recent market movements and news. This makes it possible for them to quickly spot prospective investment opportunities or respond to market fluctuations.

E. Fundamental Analysis

Users have access to comprehensive fundamental analysis data, which includes stock fundamentals, dividend history, and earnings surprises. This gives them the ability to assess the financial stability, future development potential, and company valuation of businesses, which helps them make long-term investment decisions.

F. Comparative Analysis

Integrated graphs allow users to compare the metrics and performance of various equities, FX pairings, or cryptocurrencies. As a result, they may evaluate comparative strengths and weaknesses, find correlations, and base their investment decisions on comparative analysis.

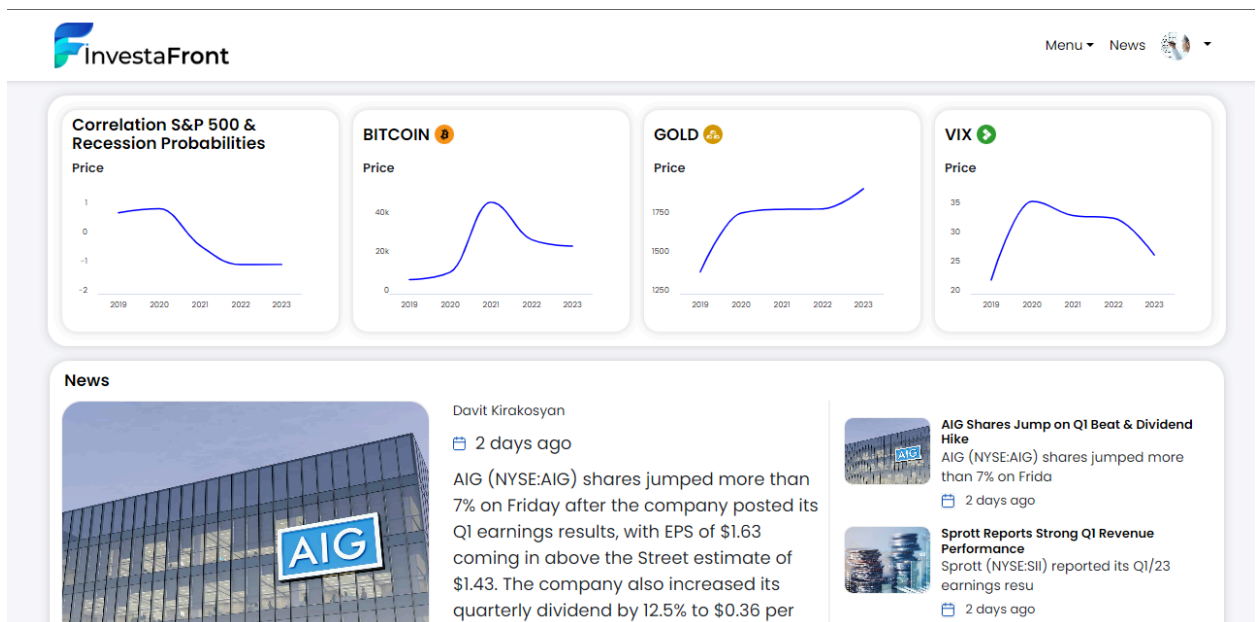
G. Notifications and Alerts

Users can set up customized alerts and notifications for particular stocks, currency pairs, or digital currency pairs. To keep informed and take prompt action, they can receive real-time information on price changes, news events, or specified criterion triggers.

Feature

Price charts of Stocks, Cryptocurrencies, FX (Forex)

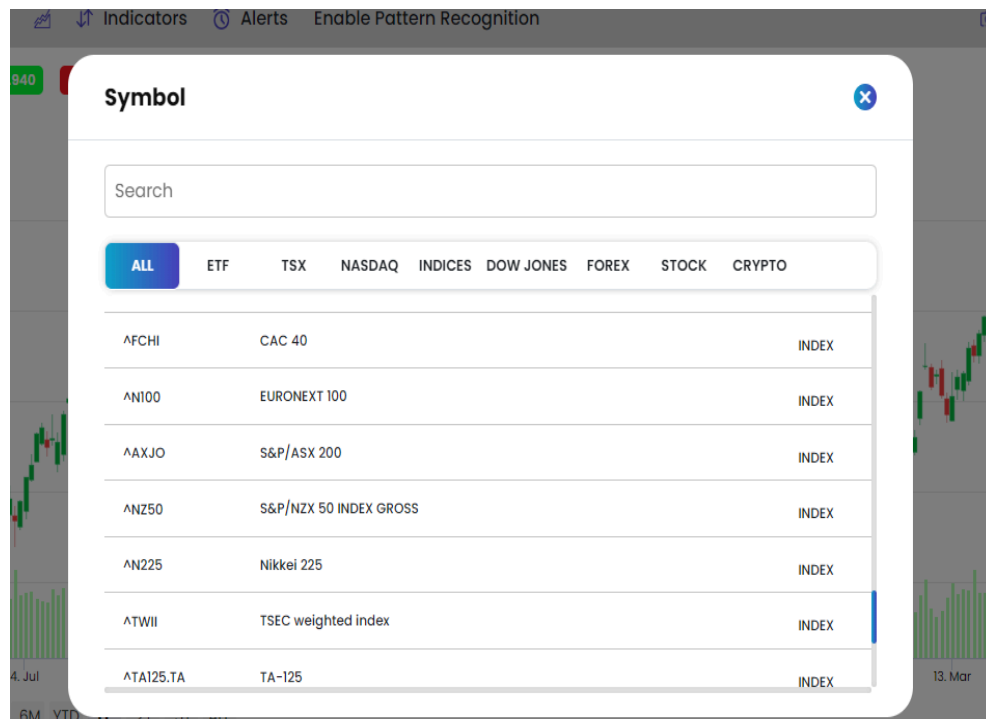
- Navigate to the website at <https://investa-frontend2.itechnolabs.tech>
- Sign in to the application by clicking the Login button located in the upper-right corner.
- Provide the necessary details. After successfully submitting the login form, the application's Homepage will be displayed



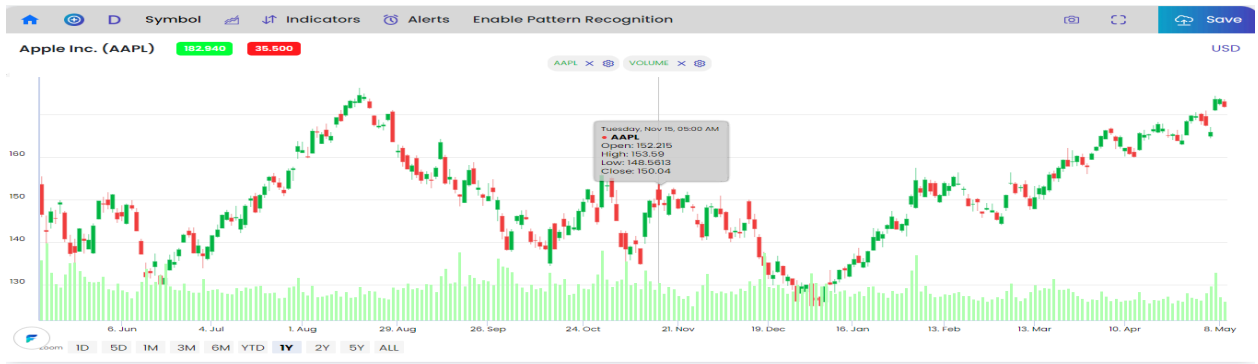
- Access the charts page by selecting 'Charts' one of the options from the menu located in the upper-right corner



- To analyze price charts for various stocks, cryptocurrencies, and foreign exchange, select the 'Symbol' option located in the top-left corner. A pop-up will appear, listing stocks, NASDAQ, Dow Jones, INDICES, cryptocurrencies, and foreign exchange



- Select a stock from the list or use the search bar to search for and select the desired stock.
- Stocks **Price chart** will be displayed:

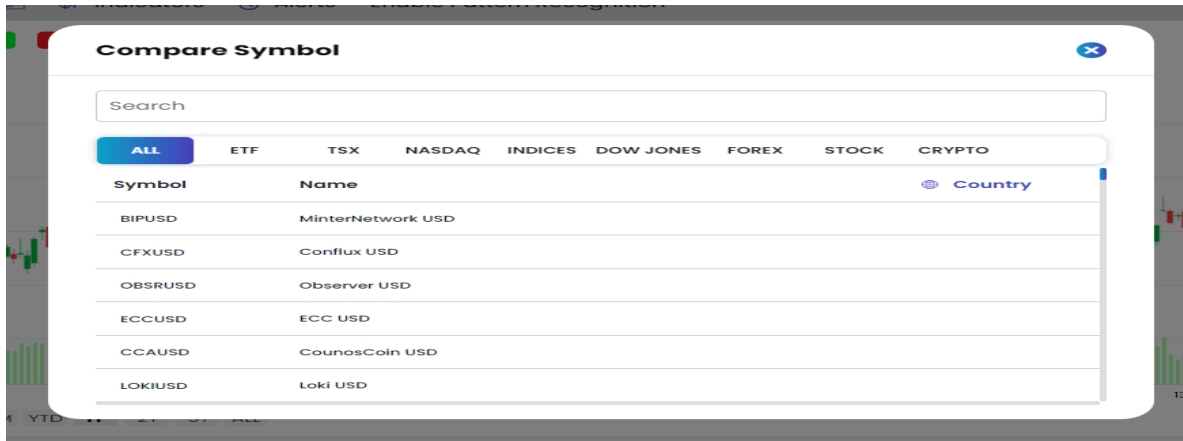


Compare Price Charts of Stocks, Cryptocurrency, and FX.

- Select the Plus icon located in the top left corner. A pop-up for symbols will appear.

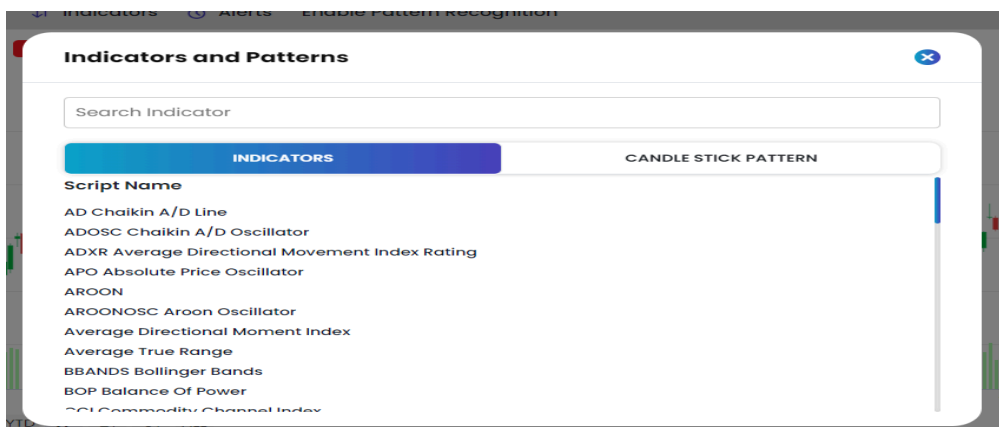


- Choose either the stocks to compare or search for the symbols from the stock list.



Utilize indicators and patterns to identify potential trends, patterns, and signals for informed trading decisions

- Go to the Charts page and select the indicator located in the top left corner. An Indicator and Pattern pop-up will appear.



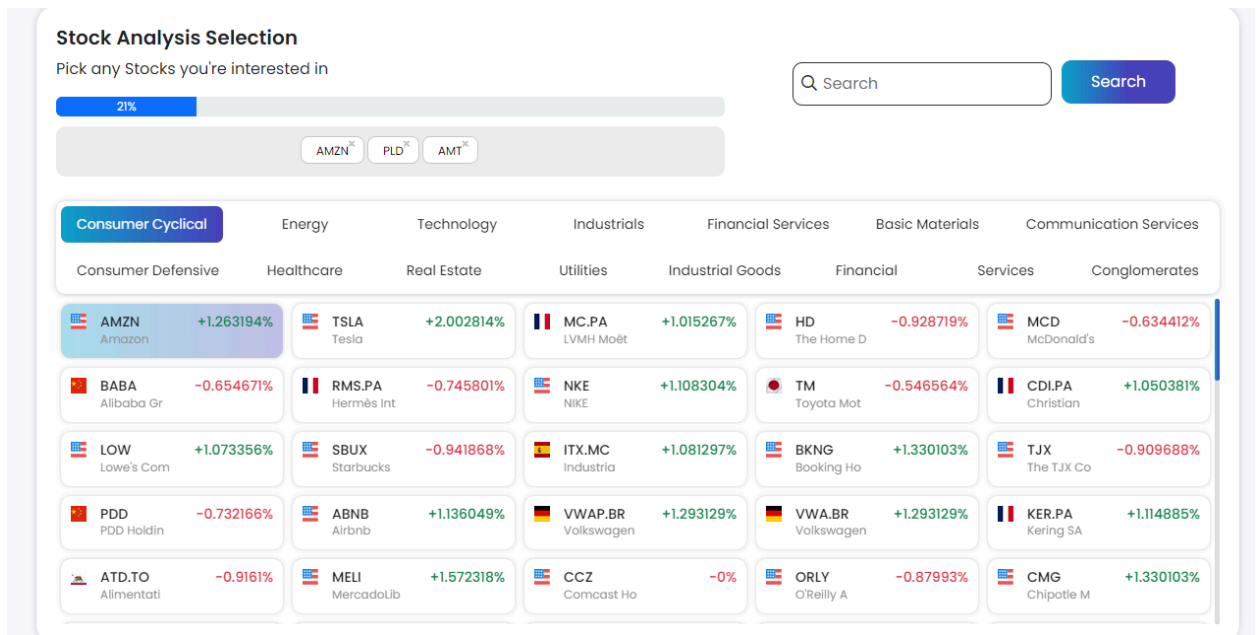
- Select an indicator or pattern from the list, or type it into the search bar, and then click on it.



Analyzing Stock Performance and Risk

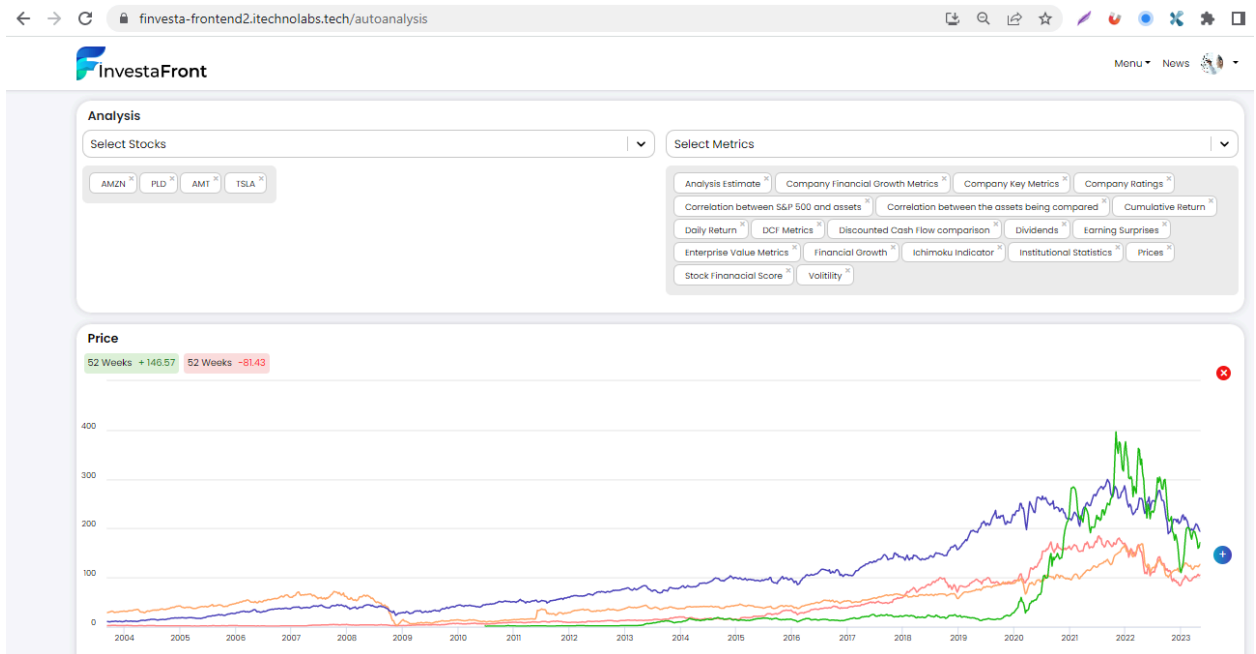
- Navigate to the Website <https://investa-frontend2.itechnolabs.tech/>.
- Click the menu in the top right corner, and select Stock Analysis.

- The stock analysis page will open. Choose the stocks to analyze (can select upto 15 stocks).



- Options Available :
 - Auto Analysis: In Auto analysis, options are pre-enabled by default. The analysis automatically includes a predefined set of options without requiring the user to manually enable them. This allows for a quicker and automated analysis process without the need for customization.
 - Custom Analysis : In custom analysis, the user has the ability to enable specific options based on their preferences, such as price, cumulative return, and other relevant factors. They have control over selecting and enabling the desired options for analysis.
- Select options as per the requirement.

- The user will be directed to the analysis page.

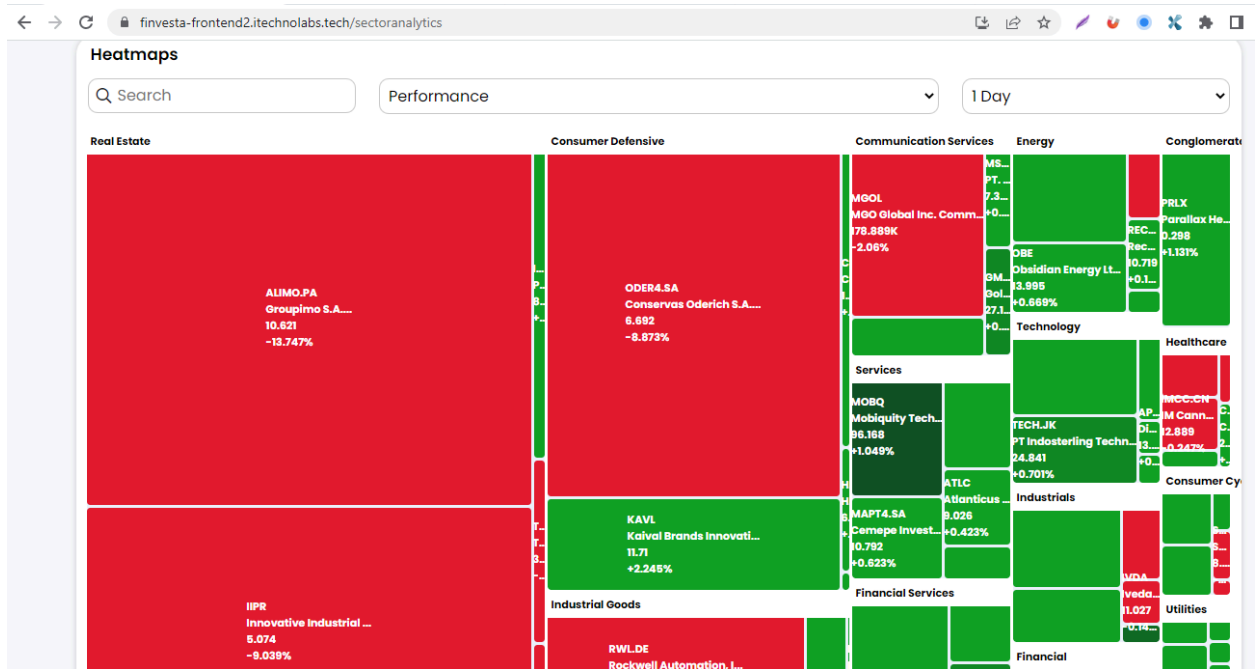


Sector Analysis : Sector Analysis with Advanced Features

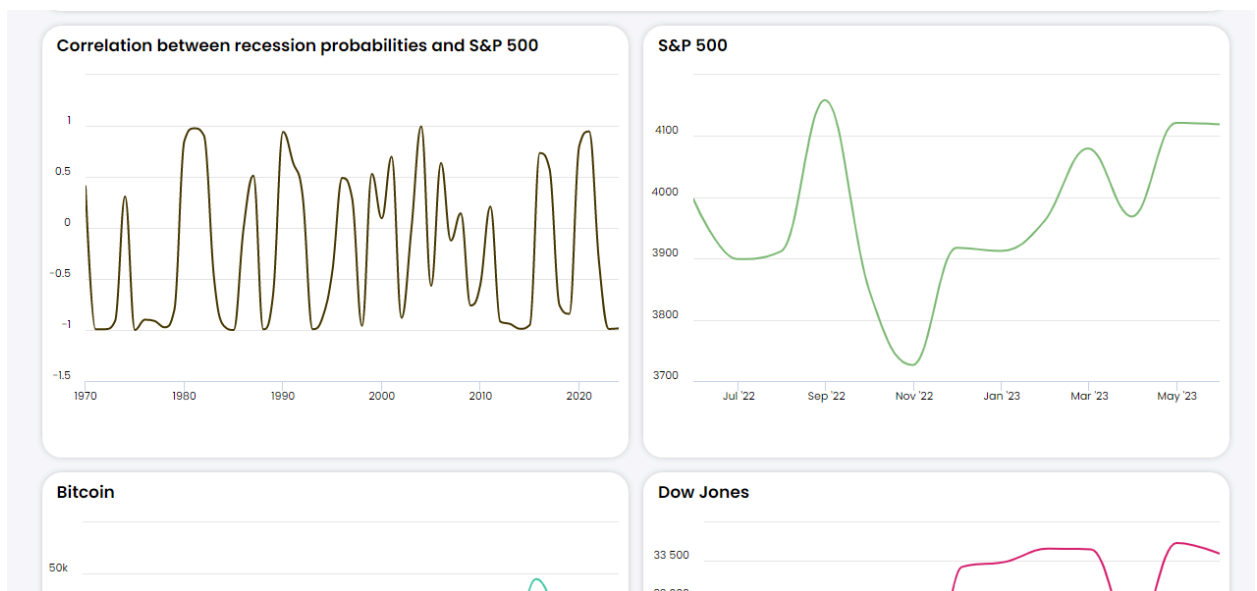
- Navigate to the Website <https://finvesta-frontend2.itechnolabs.tech/>
- Click the menu in the top right corner, and select Sector metrics.

The screenshot shows the InvestaFront website landing page. At the top, there's a navigation bar with the InvestaFront logo and a menu. The main content area features a large illustration of a person using a laptop and another person standing next to a bar chart. The text "Explore now!" is prominent, followed by a paragraph about the investment tool. Below the text are three buttons for BTC USD, TSLA, and AAPL. A menu is open on the right side, showing options like Home, Charts, Economic Data, Stock Analysis, Sector Metrics (highlighted), Financial Statements, Portfolio, and Subscription. The footer text reads "Our Features".

- Users will be navigated to the sector analysis page.



- View the price charts of various assets, including "Correlation between recession probabilities and S&P 500," "S&P 500," "Bitcoin," "Dow Jones," "GLD," "NASDAQ," "FTSE," and "VIX."



- Identify the biggest gainers within the sector, showcasing the stocks or assets that have experienced the most significant price appreciation.
- Identify the biggest losers within the sector, displaying the stocks or assets that have experienced the most significant price decline.

Biggest Gainers				Biggest Losers			
Company	Close Price	Change %	Change	Company	Close Price	Change %	Change
ZVZT	375.93	2846.16 %	363.17	Trevena, Inc.	1.77	-43.09 %	-1.34
Mobiquity Technologi...	0.27	74.97 %	0.12	SMX (Security Matter...	1.12	-38.96 %	-0.72
ClearOne, Inc.	2.14	72.58 %	0.9	Tonix Pharmaceutica...	0.35	-30.93 %	-0.16
TScan Therapeutics, L...	3.4	58.14 %	1.25	PRA Group, Inc.	23.95	-30.36 %	-10.44
Tidewater Inc. Series A	0.49	53.43 %	0.17	The Growth for Good ...	0.12	-28.12 %	-0.05
Bright Health Group, L...	0.26	52.94 %	0.09	Nuwellis, Inc.	3.21	-27.87 %	-1.24
Tidewater Inc. Series B	0.21	40.9 %	0.06	MoneyLion Inc.	14.26	-27.61 %	-5.44
InnSuites Hospitality ...	1.73	37.28 %	0.47	Coherus BioSciences,...	5.91	-27.4 %	-2.23
Y-mAbs Therapeutic...	9.23	36.34 %	2.46	Satisfy Communicati...	0.07	-26.67 %	-0.02

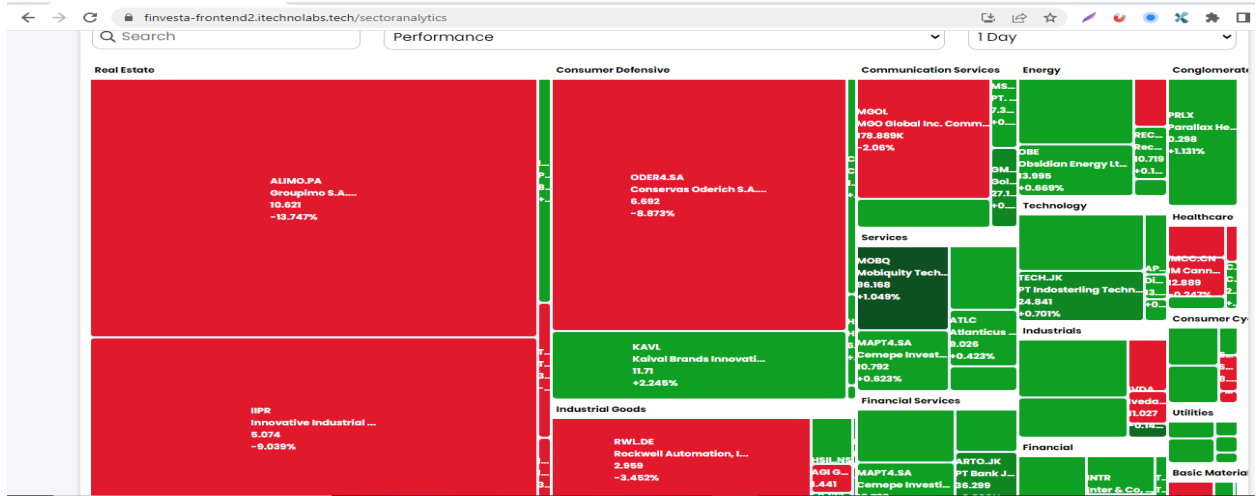
- Make informed investment decisions based on the analysis, considering the sector's performance, ESG scores, news, correlations, and social sentiments.

Sector Overview		Recent Apple Inc News			
Sector	Intraday change				
Materials	0.192	Tuesday, May 9th 2023 Palantir Shares Jump 20% Following Q1 Beat			
Communication Services	1.538	Tuesday, May 9th 2023 Catalent Shares Drop 25% on Q3 Earnings Delay & Expected Outlook Cut			
Consumer Cyclical	1.726	Tuesday, May 9th 2023 TaskUs Shares Drop on Revised Guidance			
Consumer Defensive	1.741	Tuesday, May 9th 2023 Amgen's Management Meeting Takeaways			
Energy	2.442	Tuesday, May 9th 2023 Wayfair Stock Jumps 27% Since Q1 Beat			
Financials	1.258	Tuesday, May 9th 2023 Rocket Companies Report Q1 EPS Miss While Revenues Better Than Expected			
Health Care	3.08	Monday, May 8th 2023 AIG Shares Jump on Q1 Beat & Dividend Hike			
Industrials	6.615	Monday, May 8th 2023 Sprott Reports Strong Q1 Revenue Performance			
Real Estate	4.934				

ESG Scores				
Sectors	E	S	G	%
WHOLESALE-CHEMICALS & ALLIED PRODUCTS	63.76%	64.23%	69.67%	65.88%
RETAIL-EATING & DRINKING PLACES	53.78%	75.13%	69.88%	66.27%

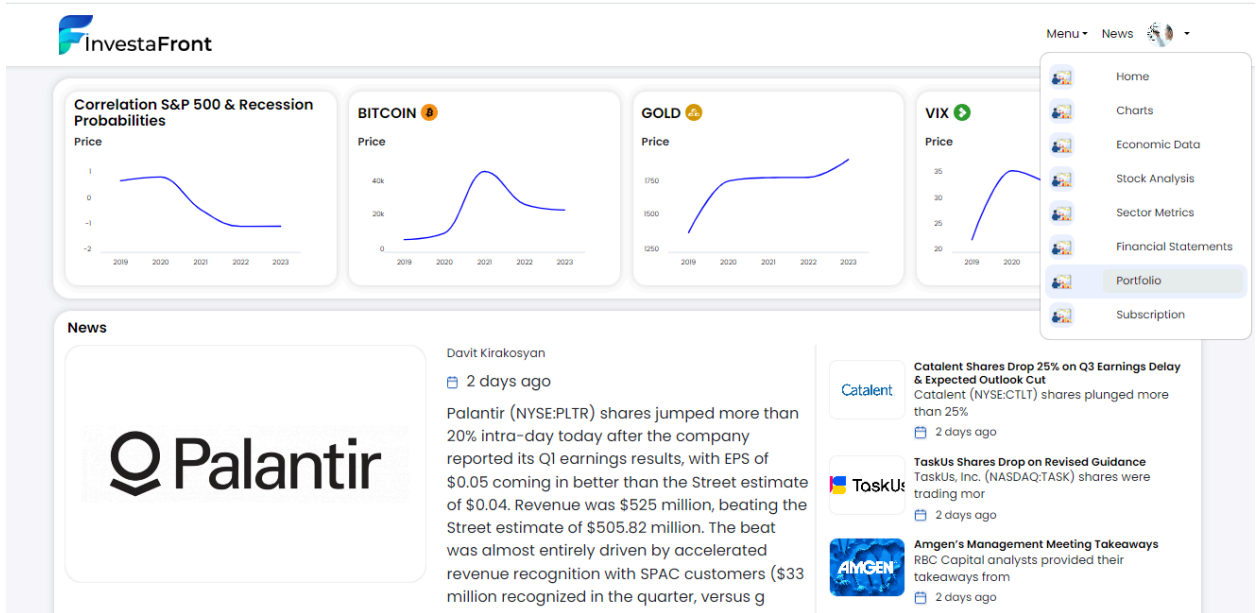
Sector Analysis with Heatmap

- Access the Sector Analysis page within the application.
- View the heatmap representation of sector performance.

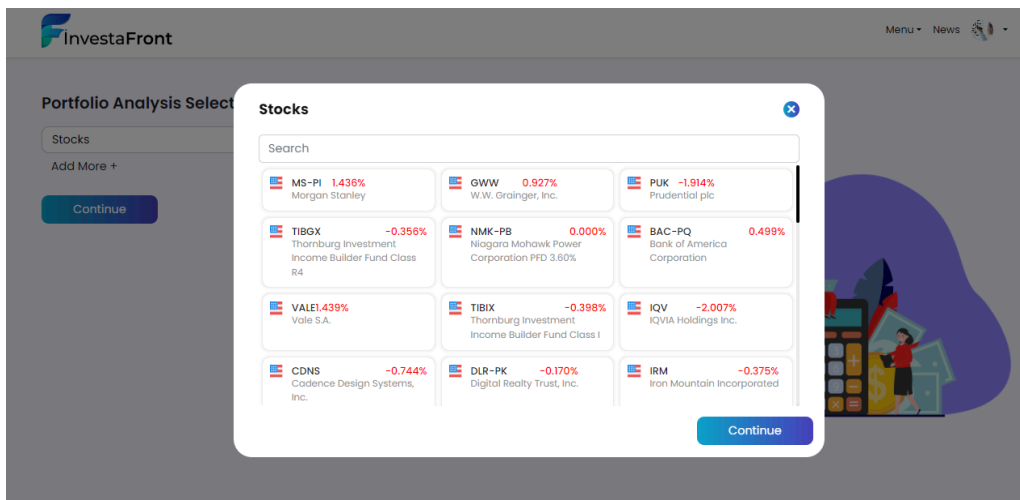


- Each sector is represented by a colored tile on the heatmap, where the color intensity indicates the strength of the sector's performance.
- Hover over a specific sector tile to view additional details, such as the sector name, current price, and percentage change
- Click on a sector tile to view stocks in the particular sector.
- Utilize the heatmap as a visual tool for sector rotation strategies, determining which sectors are currently exhibiting strength and may warrant allocation adjustments within a portfolio.

Portfolio Management

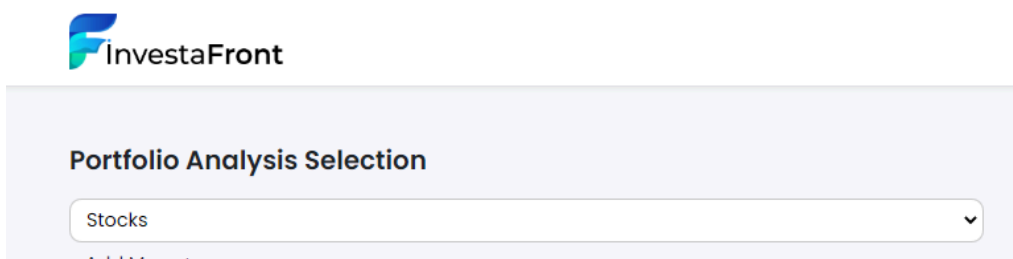


- Select multiple stocks from a list of available options.

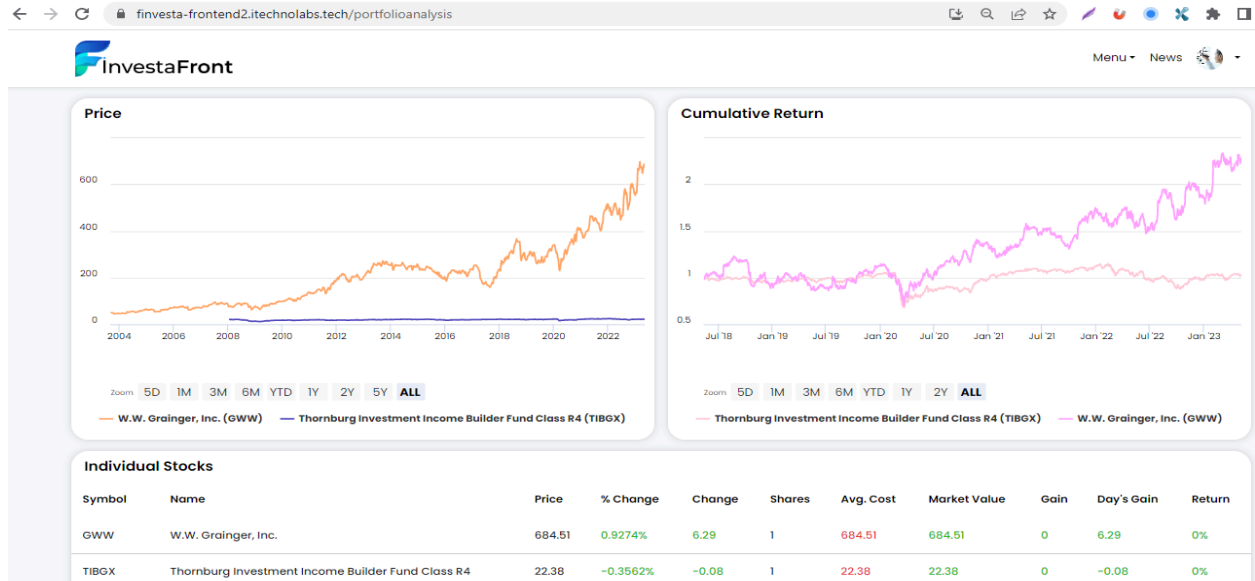


The

application displays the current price of each stock based on the specified number of shares, providing an updated portfolio value.



Navigate to the Portfolio Analysis page for a comprehensive overview of the portfolio.



View the current price, cumulative return, and other relevant information for the overall portfolio.

Access a list of individual stocks within the portfolio, displaying their current prices, cumulative returns, and other details.

Symbol	Name	Price	% Change	Change	Shares	Avg. Cost	Market Value	Gain	Day's Gain	Return
GWW	W.W. Grainger, Inc.	684.51	0.9274%	6.29	1	684.51	684.51	0	6.29	0%
TIBGX	Thornburg Investment Income Builder Fund Class R4	22.38	-0.3562%	-0.08	1	22.38	22.38	0	-0.08	0%

Analyze the current portfolio composition, including the allocation of stocks and their respective weights.



Stay updated with news related to the stocks in the portfolio, helping to make informed investment decisions.

Utilize the Piotroski Score, a fundamental analysis tool, to assess the financial health and strength of individual stocks within the portfolio.

News

- Palantir Shares Jump 20% Following Q1 Beat**
2 days ago
- Catalent Shares Drop 25% on Q3 Earnings Delay & Expected Outlook Cut**
2 days ago
- TaskUs Shares Drop on Revised Guidance**
2 days ago
- Amgen's Management Meeting Takeaways**
2 days ago
- Wayfair Stock Jumps 27% Since Q1 Beat**
2 days ago
- Rocket Companies Report Q1 EPS Miss While Revenues Better Than Expected**
2 days ago
- AIG Shares Jump on Q1 Beat & Dividend Hike**
3 days ago
- Spratt Reports Strong Q1 Revenue Performance**
3 days ago
- Essent Reports Better Than Expected Q1 Earnings Results**
3 days ago

Correlation Between Portfolio and S&P 500

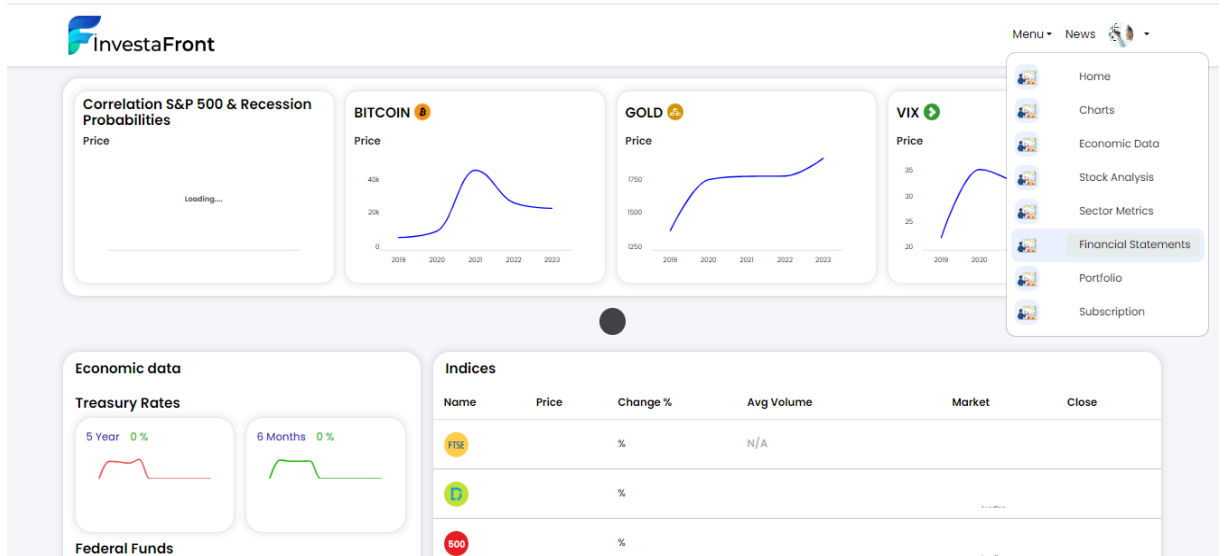
GWW,TIBCX

PiotroskiScore

Low Average High Extreme

Financial Statements Analysis

- Access the Financial Statements feature within the application.



- Choose the desired financial statement to analyze, such as the Balance Sheet, Income Statement, or Cash Flow.
- The application displays a list of stocks available for analysis.



Financial Statement <small>Balance Sheet</small>		Visualize
Metrics	AAPL	
Date	2022-09-24	
Symbol	AAPL	
Period	FY	
Liabilities	302.1B	
Assets	352.8B	
Retained Earnings Accumulated Deficit	-3.1B	
Liabilities And Stock Holders Equity	352.8B	
Common Stock Shares Authorized	50.4B	
Property Plant And Equipment Net	42.1B	
Common Stocks Including Additional Paid In Capital	64.8B	
Common Stock Shares Issued	15.9B	
Common Stock Shares Outstanding	15.9B	
Accumulated Other Comprehensive Income Loss Net Of Tax	-11.1B	
Stock Holders Equity	50.7B	
Liabilities Current	154B	

- Select one or multiple stocks from the list to retrieve their respective financial statements.
- The application retrieves and presents the financial statements of the selected stocks, showing relevant metrics and data for the chosen statement.
- Customize the displayed metrics based on personal preferences or specific analysis requirements.
- Explore the Balance Sheet metrics, including assets, liabilities, and equity, to assess the financial health and position of the selected stocks.
- Analyze the Income Statement metrics, such as revenue, expenses, and net income, to understand the profitability and performance of the selected stocks.
- Review the Cash Flow metrics, including operating, investing, and financing activities, to assess the cash flow generation and utilization of the selected stocks.

