Spring Walkthrough

December 26, 2022

Contents

1 Introduction to Spring **3**
1.1 What is it? . . . 3
1.2 What is it not? . . . 3
1.3 What can we do with it? . . . 3
1.4 How to get started? . . . 3

2 Creating Strategies **4**
2.1 No Code . . . 4
2.2 Full Code . . . 4
2.3 Parameterised . . . 4
2.3.1 Alpha Strategies . . . 4
2.3.2 Smart Orders . . . 4
2.4 Scribe . . . 4

3 Testing **6**
3.1 Backtest . . . 6
3.2 Quick Backtest . . . 6
3.2.1 How to use? . . . 7
3.3 Full Backtest . . . 9
3.4 How to use? . . . 9
3.5 Paper Trade . . . 12
3.5.1 How to use? . . . 12

4 Live Trade **19**
4.1 One Touch . . . 19
4.2 Automated . . . 19
4.3 How to use? . . . 19

5 Monitoring **20**
5.1 Live Bots . . . 20
5.1.1 Know More . . . 20
5.1.2 Restart . . . 21
5.2 Paper Bots . . . 23
5.3 Smart Order Sessions . . . 23

6 Navigate Through Spring **25**
6.1 Home Screen . . . 25
6.1.1 LiveTrade . . . 25
6.1.2 Discover Strategies . . . 25

6.1.3 Smart Orders . . . 25
6.1.4 Create Strategy . . . 26
6.1.5 Trending Strategies . . . 26
6.2 Trading . . . 26
6.2.1 My Bots . . . 26
6.2.2 My Strategies . . . 27
6.2.3 My Smart Orders . . . 27
6.3 Discover . . . 27
6.3.1 Strategies . . . 29
6.3.2 Smart Orders . . . 30
6.4 Research lab . . . 30
6.4.1 Create Folder . . . 31
6.4.2 Build Visually . . . 33
6.4.3 Code My Strategy . . . 33

1 Introduction to Spring

The potential for Algo trading in India is enormous. People favour making informed trades by analysing data and timing the execution of their trades. Utilising computer programmes in many elements of trading is nearly a requirement because of the competitive and volatile markets of today. As algo trading enters the Indian retail market, ICICIdirect provides its customers with a comprehensive solution.

1.1 What is it?

This platform was created with all types of traders and investors in mind. However, not all of the strategies offered on the platform are appropriate for all traders/ investors. It provides an environment for research and trading of systematic investment strategies. It supports a variety of instruments and asset types, including F&O and Equities. In the future, we intend to introduce this for more asset classes. This platform is additionally style agnostic. Creating complex (and simple) strategies is made simple, and it is frictionless to transition a strategy from backtesting to live trading and monitoring.

1.2 What is it not?

While it can trade in real-time, it is not meant for any kind of high-frequency trading (HFT).

1.3 What can we do with it?

You can perform analysis on your concepts, back-test them, and then use our techniques in real-world or even on paper trading. Your thoughts can be turned into trading methods with the aid of this platform.

To comprehend the Spring universe, please refer to the diagram below.

1.4 How to get started?

Follow the below steps to get started with the Spring platform. These steps are illustrated in detail in the upcoming sections.

1. Creating Strategies
2. Testing
3. Live Trade
4. Monitoring

Go through the final section Navigate Through Spring, for a walkthrough of the platform.

2 Creating Strategies

You can research on this platform and create your own strategies using the tools Spring provide. We provide four offerings for creating strategies: No Code, Parameterised, Full Code, and Scribe.

2.1 No Code

(Coming Soon)

Don't worry if you're intimidated by or unfamiliar with coding. You can design your own strategies using our visual programming tool.

Path: Spring > Research Lab > Create > Build Visually

2.2 Full Code

This platform has a python environment where if you can code it, you can run it. This platform supports all the essential python libraries necessary for trading. To code more efficiently and flawlessly you can refer to the technical documentation.

Path: Spring > Research Lab > Create > Code My Strategy

2.3 Parameterised

These are pre-built strategies that allow you to modify the parameters to suit your preferences. Before modifying the default parameters, you are encouraged to carefully go through the strategy descriptions and parameters, and understand the impact of them. You can find these strategies under the Discover section of the platform. We offer two kinds of parameterised strategies that are described below.

2.3.1 Alpha Strategies

A variety of strategies with the potential to outperform the benchmark or provide us a competitive advantage. Each strategy has a complete description that includes the strategy logic, parameters used, their value type, and risk parameters of the strategy.

Path: Spring > Discover > Strategies

2.3.2 Smart Orders

Smart orders help you execute pre-determined trades efficiently. Different types of executions are available that aim to optimize impact cost, time-to-fill, slippage, market timing or a combination thereof. The customer gets the benefits of automated and faster execution, less slippage, and improved timings.

Path: Spring > Discover > Smart Orders

2.4 Scribe

(Coming Soon)

You are welcome to consult with our professionals, who will code your strategies for you.

3 Testing

After creating a strategy, you might not want to execute it right away. Instead, you might like to test and verify the strategy to see if it produces the desired results. We provide a number of tools to help you test your strategies before going live. These tools are classified into the following categories:

3.1 Backtest

By backtesting, you may determine whether the logic behind the strategies we supply or the ones you create is producing favourable results or not. You can tweak the parameters under the parameterized strategies and backtest them. For your designed strategies, you can backtest and re-design them. We have two types of backtests: Quick and Full Backtests. See figure 1 for reference.

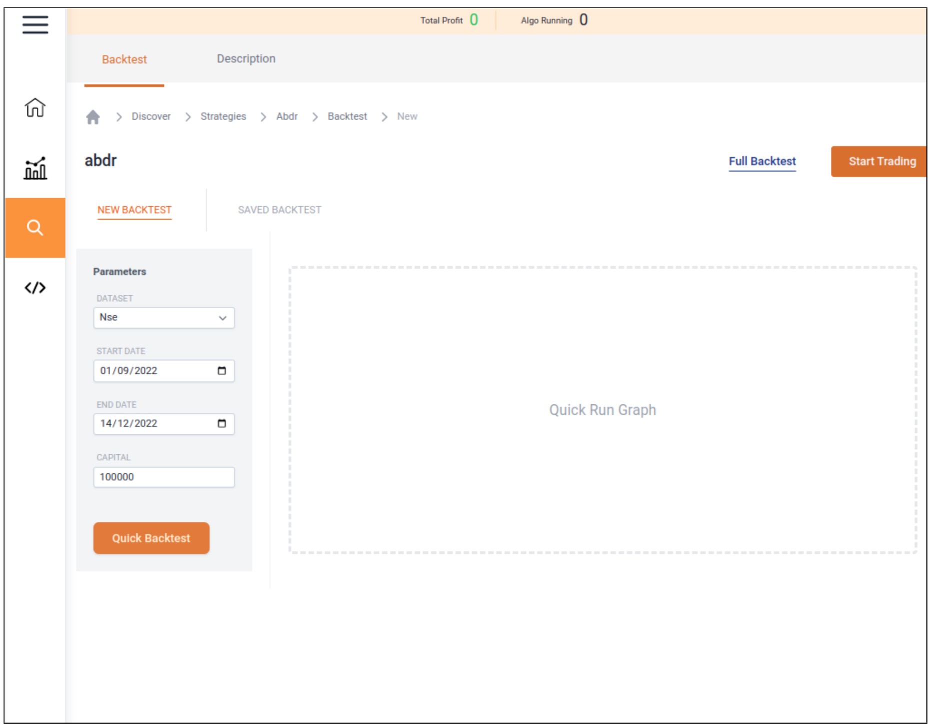

Figure 1: Backtest page

3.2 Quick Backtest

Quick backtest runs simulations of the strategy performance based on historical data with a reduced set of metrics calculations and shows the result in real-time. Also the result of the backtest is not saved when run in the quick mode.

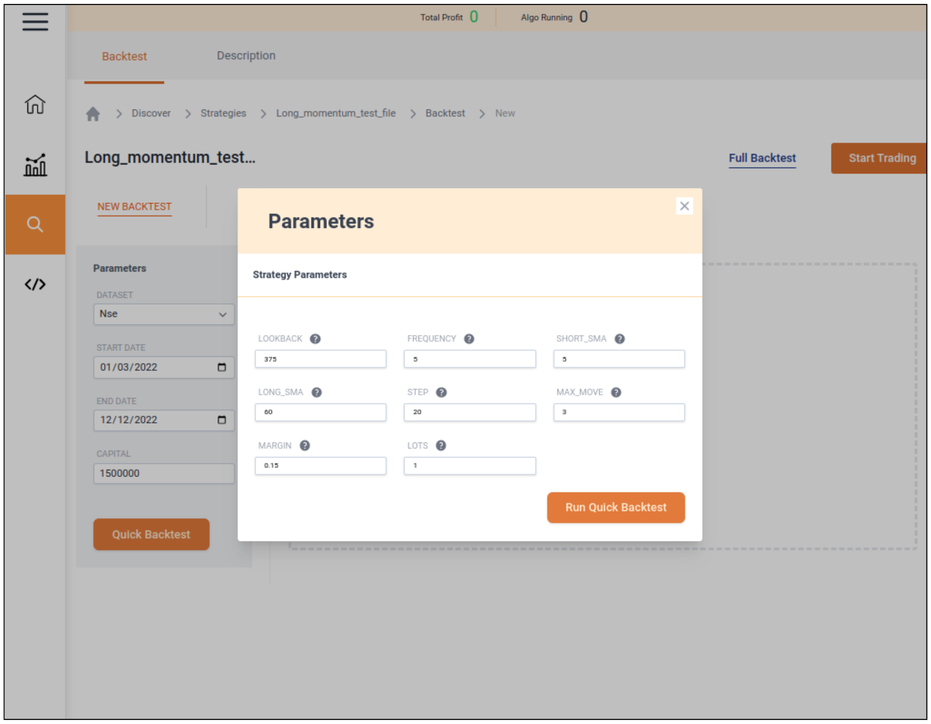

Figure 2: This page pops up when you start a quick backtest. Here you can tweak your parameters.

3.2.1 How to use?

- Open any strategy or any bot to start a quick backtest.
- Select the backtest parameters i.e. Dataset, Start Date, End date, Capital.
- Click on "Quick Backtest": It will pop up a screen where you can tweak the parameters, as shown in figure 2.
- Once you're all set, click on 'Run Quick Backtest' and wait for the output. This streams the results in real-time to the result window.
- The result window has three tabs: Performance, Console, and Logs. Go through the tabs to analyze the result.

Performance: Here the performance graph is displayed along with the parameters described below. Refer to figure 3.

- Returns - Profit percentage on the capital over the backtest period
- Alpha - The excess return of the stock with respect to the benchmark.
- Beta - A measure of sensitivity with respect to the benchmark.
- Sharpe - A comparison of the return of your investment with its risks.
- Drawdown - A measure of downside risk.

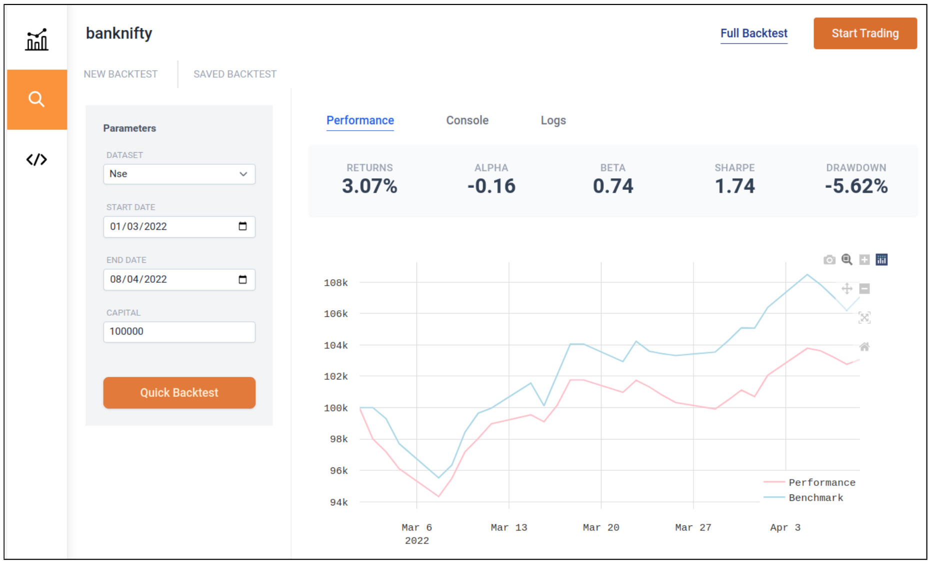

Figure 3: Performance of your strategy under quick backtest

Console: It keeps track of all the actions taken by the user or the platform. Refer to figure 4.

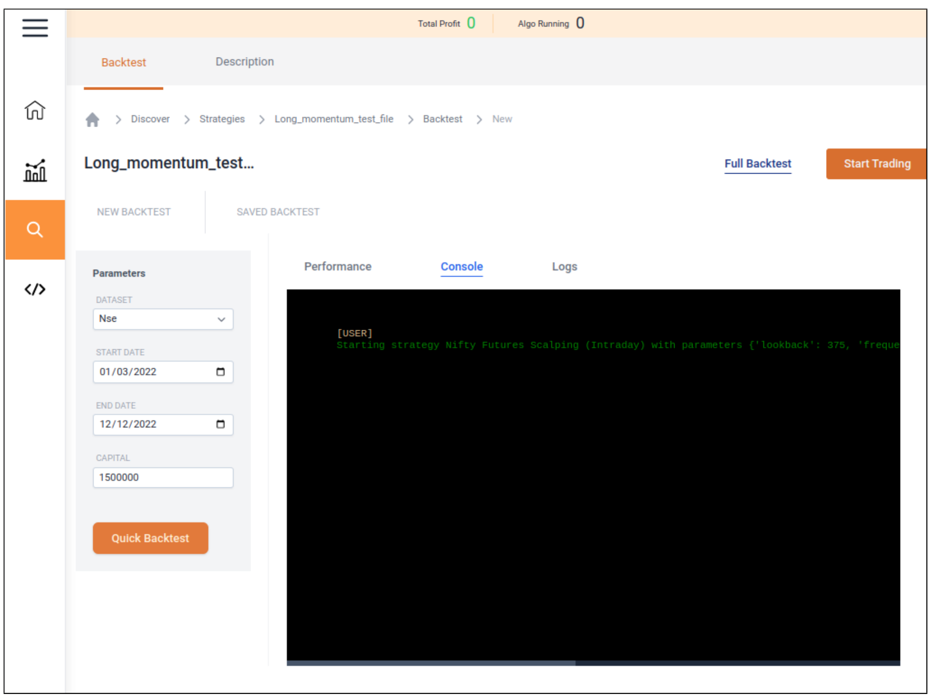

Figure 4: All the actions taken by the user/platform under quick backtest

Logs: It displays the errors if any, the output results of the code, and the simulations. Refer to figure 5.

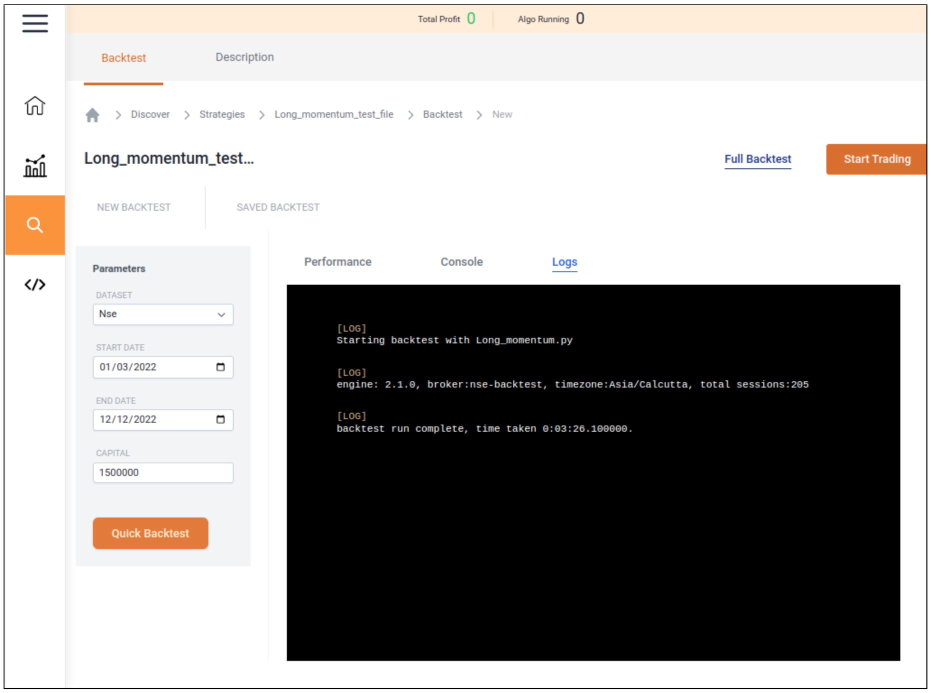

Figure 5: Output results of the code, if any, and simulations or the errors are displayed here in the Logs tab

3.3 Full Backtest

You should opt for a full backtest when you want to study the result thoroughly and save it for future reference. A full backtest provides various parameters to analyze the result.

3.4 How to use?

- Open any strategy to start a full backtest.
- Click on 'Full backtest'. It will pop up a screen where you can tweak the parameters, as shown in figure 6.
- Once you're all set, click on 'Run Full Backtest' and wait for the output. Full backtest runs in the background and results are made available once it completes the run.
- After performing a Full backtest, the result is categorized and displayed in the following tabs: Key Metrics, Tear sheet, Error Log, Output Log, and Code.

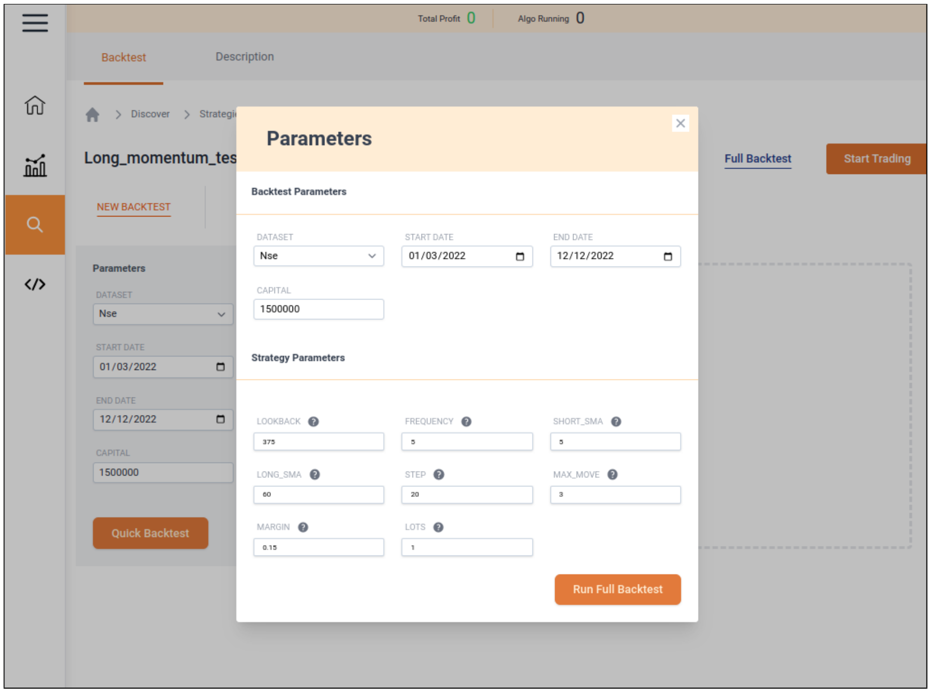

Figure 6: Tweak your parameters for performing a full backtest

Key Metrics Here you get a performance graph of strategy vs benchmark along with the parameters described below. Refer to figure 7 for a clear idea.

- Start Date - The start date of the backtest period
- End Date - The end date of the backtest period
- Starting Capital - The starting capital of the backtest
- Ending Capital - The amount you have, including P&L, after the backtest is completed
- Alpha - The excess return of the stock with respect to the benchmark
- Beta - A measure of sensitivity with respect to the benchmark
- Annual Return - Annualized profit percentage of the strategy
- Cumulative Return - Total return over the backtest period
- Annual Volatility - Annualized volatility of the strategy daily returns
- Sharpe Ratio - a comparison of the return of your investment with its risks
- Volatility - Volatility of the strategy daily returns
- Max Drawdown - A measure of downside risk

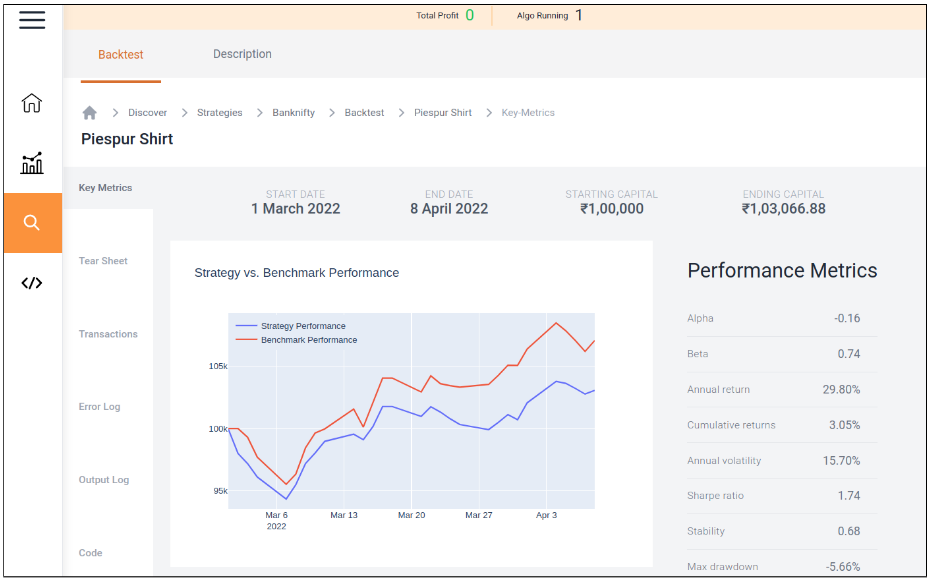

Figure 7: A performance graph of strategy vs benchmark along with some parameters to analyze the result

Tear sheet One pager overview of performance. Represents strategy vs performance metrics, metrics distribution, monthly returns heatmap, and per-trade statistics. Refer to figure 8.

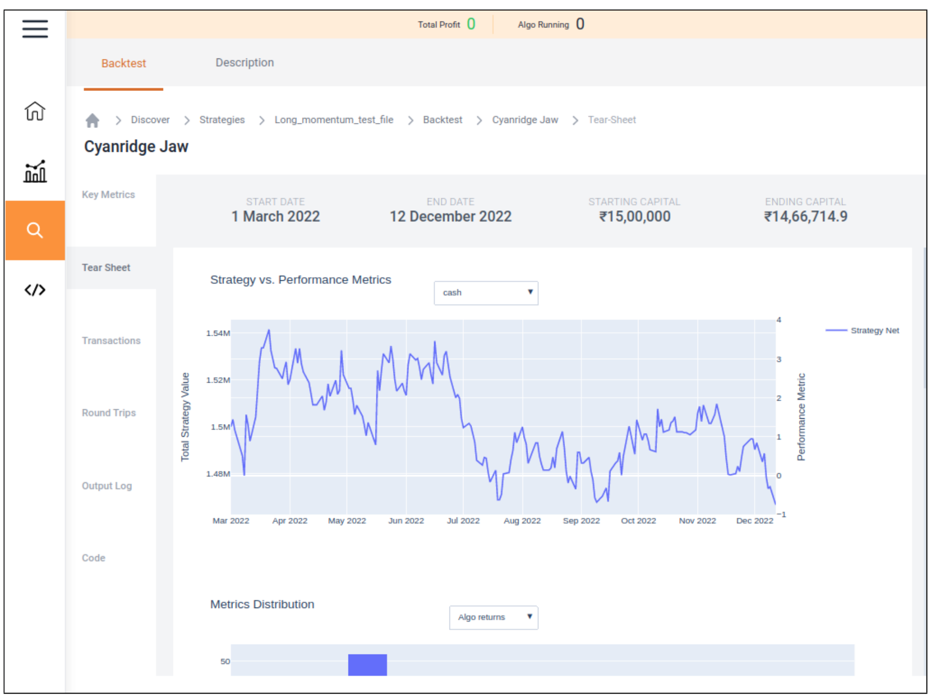

Figure 8: One pager overview of performance

Transactions The transactions tab displays all the transactions placed under the corresponding full backtest with details. Refer to figure 9.

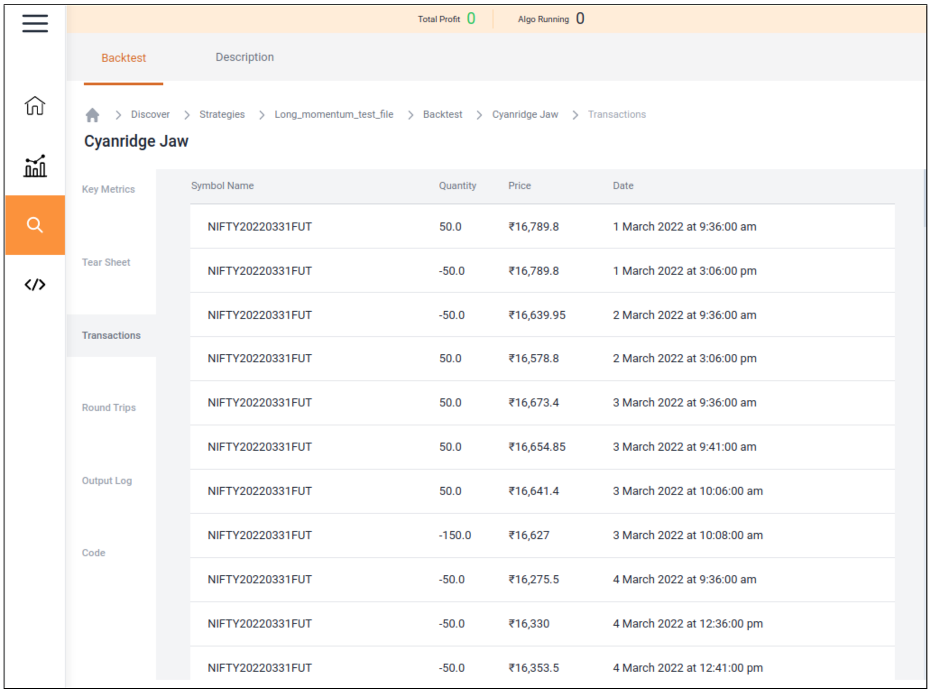

Figure 9: All transactions placed under the full backtest.

Round Trips The Round Trips displays details of those positions which were squared off during the backtest.

Output Log keeps track of all the output generated by the user and the platform. Refer to figure

Code Displays the strategy code, if you are the owner of the strategy. Refer to figure 12.

3.5 Paper Trade

Paper trade allows you to evaluate your strategy's performance in the real world before taking it live. Although no trading is conducted in the market, the data needed for paper trade is acquired from the live market. It displays the intended outcomes of trading in the live market.

3.5.1 How to use?

- Open any strategy or any paper bot.

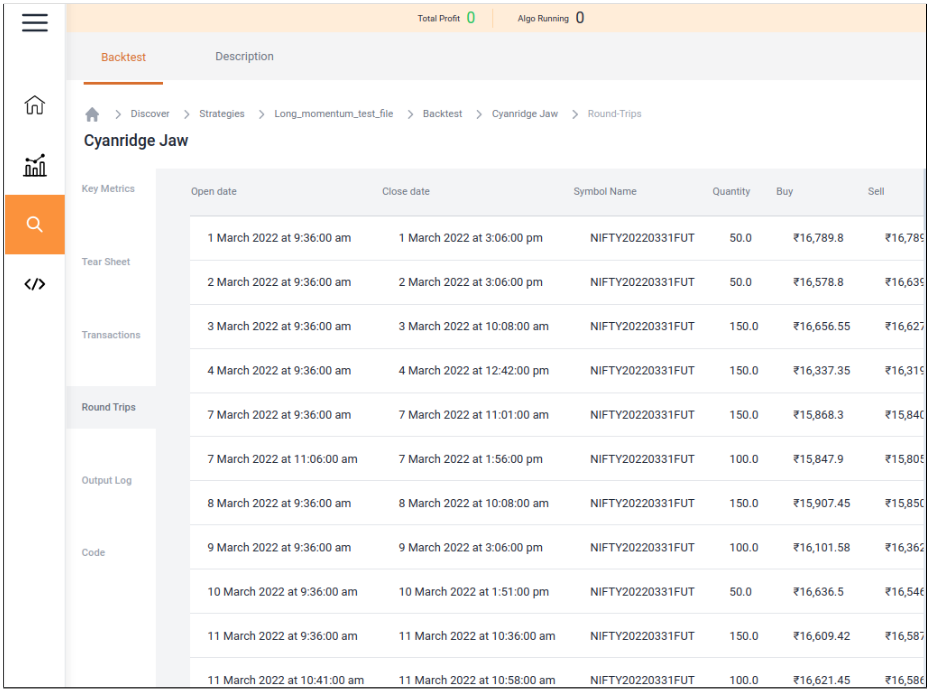

Figure 10: Squared off positions

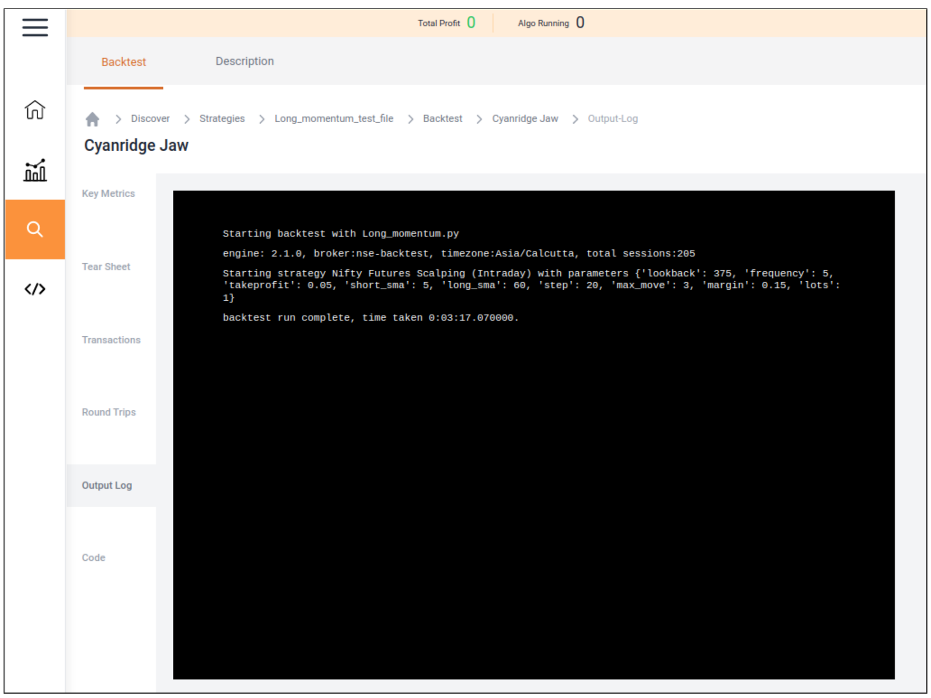

Figure 11: Output Log displays warnings, information, platform messages, errors (if any), and simulations.

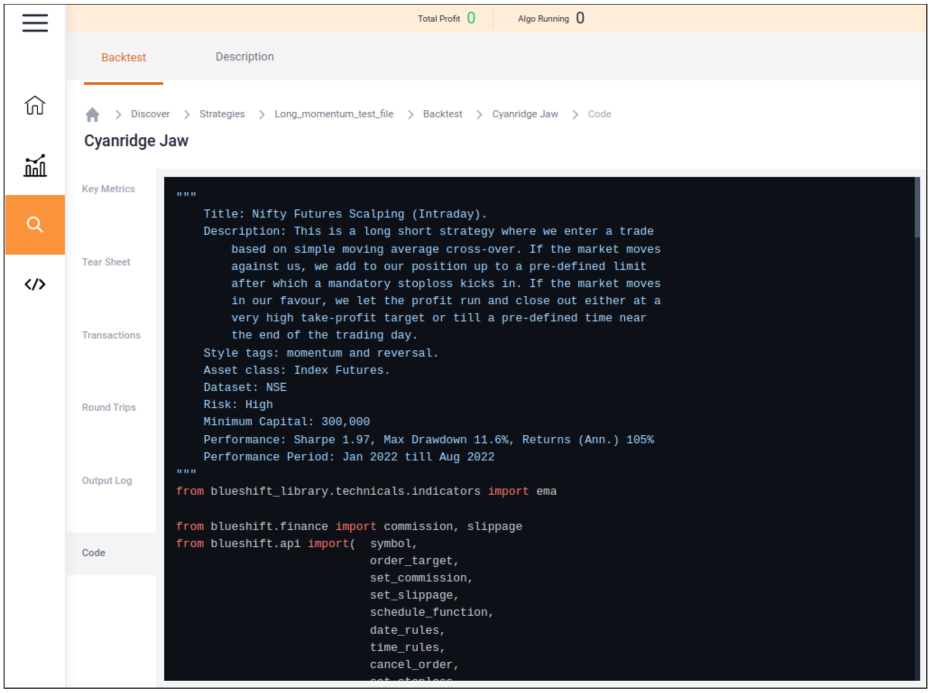

Figure 12: Strategy code

- Click on ‘Start Trading’. In the case of a paper bot, click on ‘Restart’.
- A screen will pop up with two options: Paper Trade and Live Trade. Click on ‘Paper Trade’.
- It will lead you to the trading page where you will get 5 steps.

Step 1- **Strategy parameters:** Here you will get a short description of strategy parameters and can edit them. Refer to figure 13.

Step 2- **Execution settings:** You can name this bot, edit the initial capital and end date for execution, and choose one-click execution. Refer to figure 14.

Step 3- **Risk Settings:** Edit your risk parameters here. Refer to figure 15.

Step 4- **Terms and Conditions:** Here you have to tick the square box to accept the terms and conditions. Refer to figure 16.

Clicking in the check box will pop up the T&C. Click on “I Accept” to proceed further. Refer to figure 17.

Step 5- **Confirm Settings:** Tick the square box to review deployment settings. Refer to figure 18.

Here you can review the deployment settings and also can review terms and conditions if required. Click on “Close” if satisfied. Refer to figure 19.

This should take you to the ‘My Bots’ page, and there you can see the status of the deployment. Else you will be taken to Console if there was any occur while deploying the paper trade.

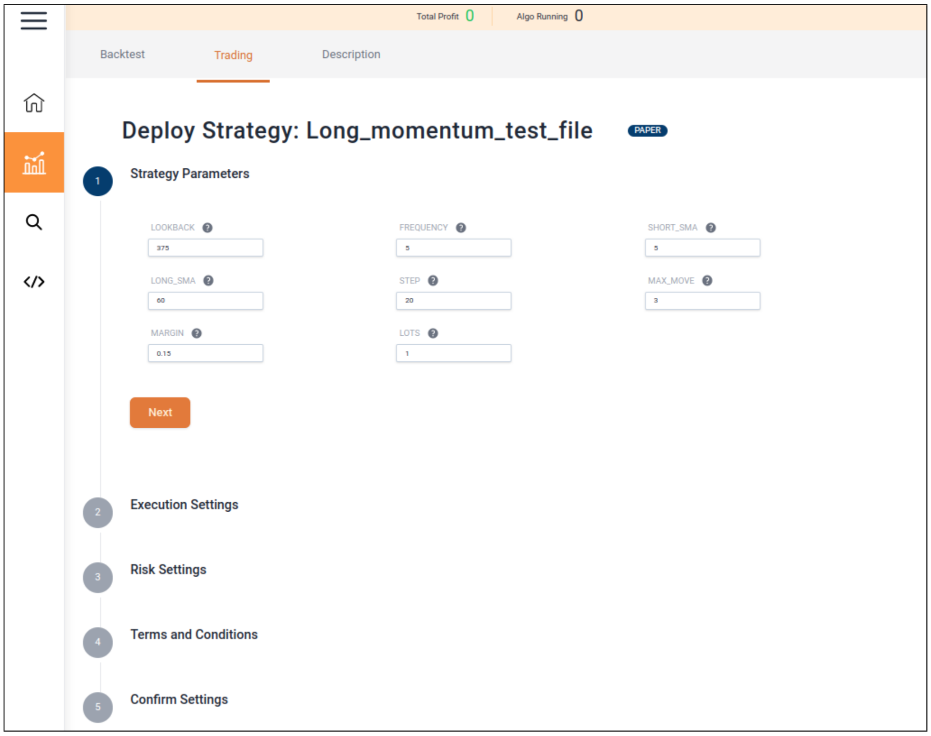

Figure 13: First step to paper trade your strategy

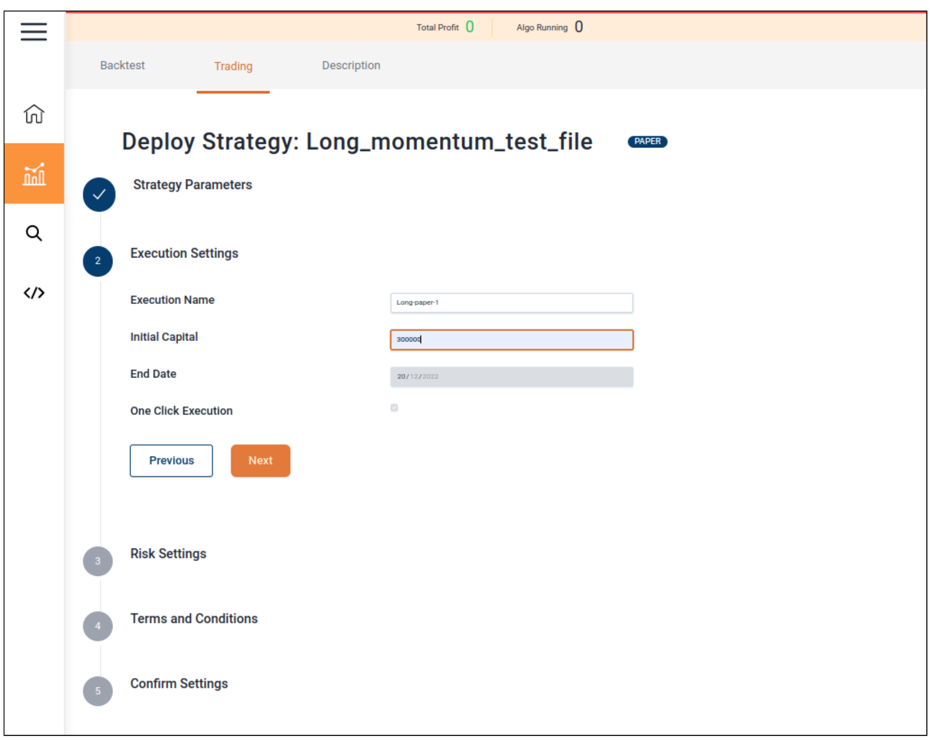

Figure 14: Second step to paper trade your strategy

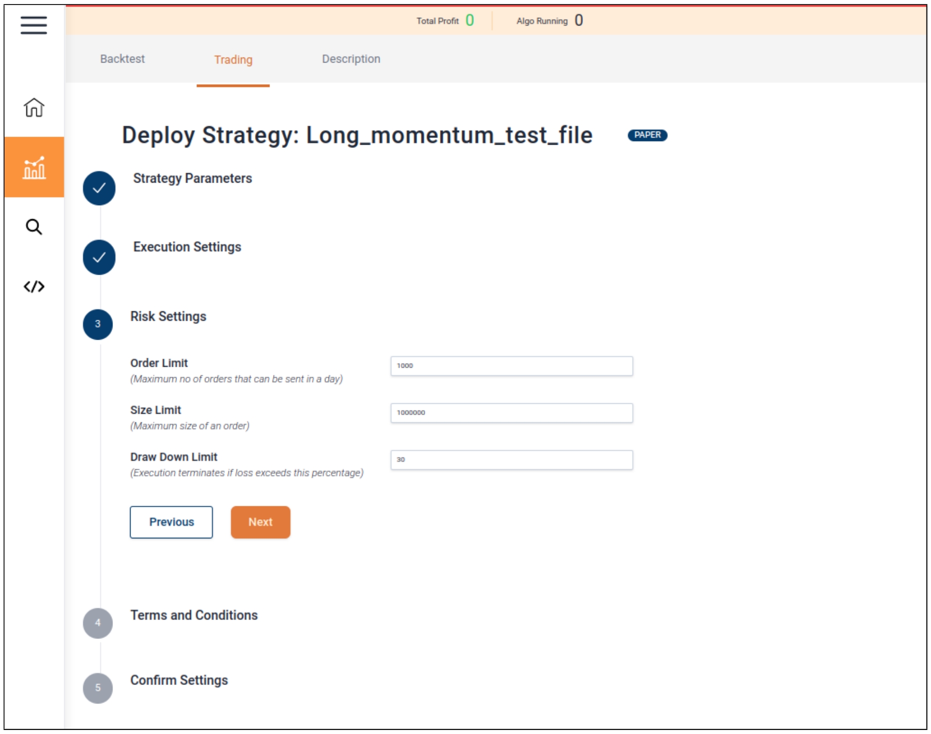

Figure 15: Third step to paper trade your strategy

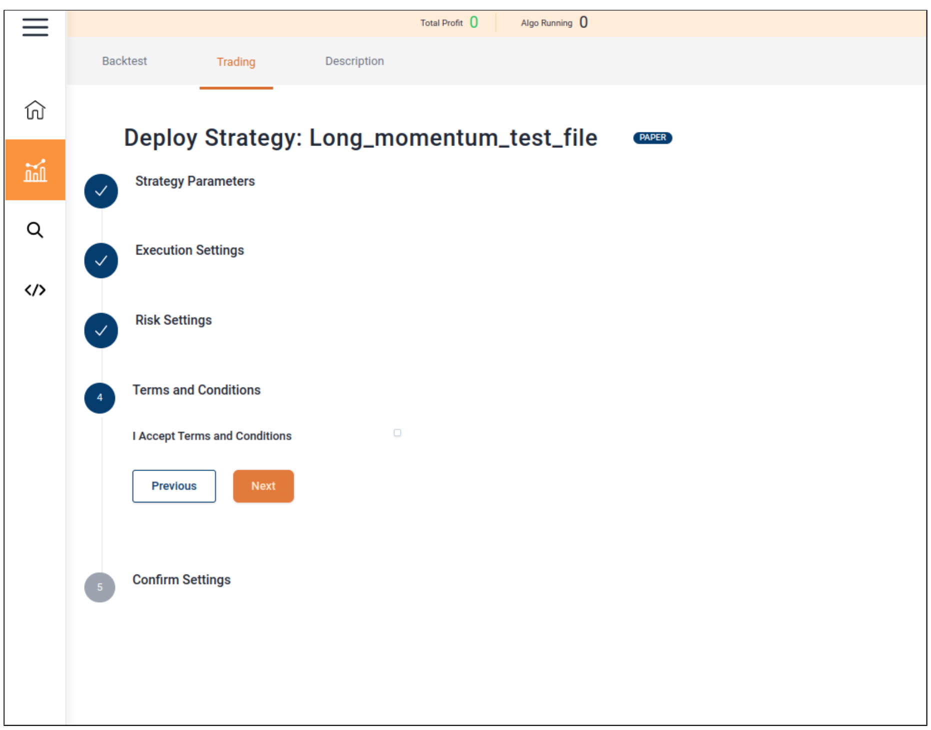

Figure 16: Fourth step to paper trade your strategy

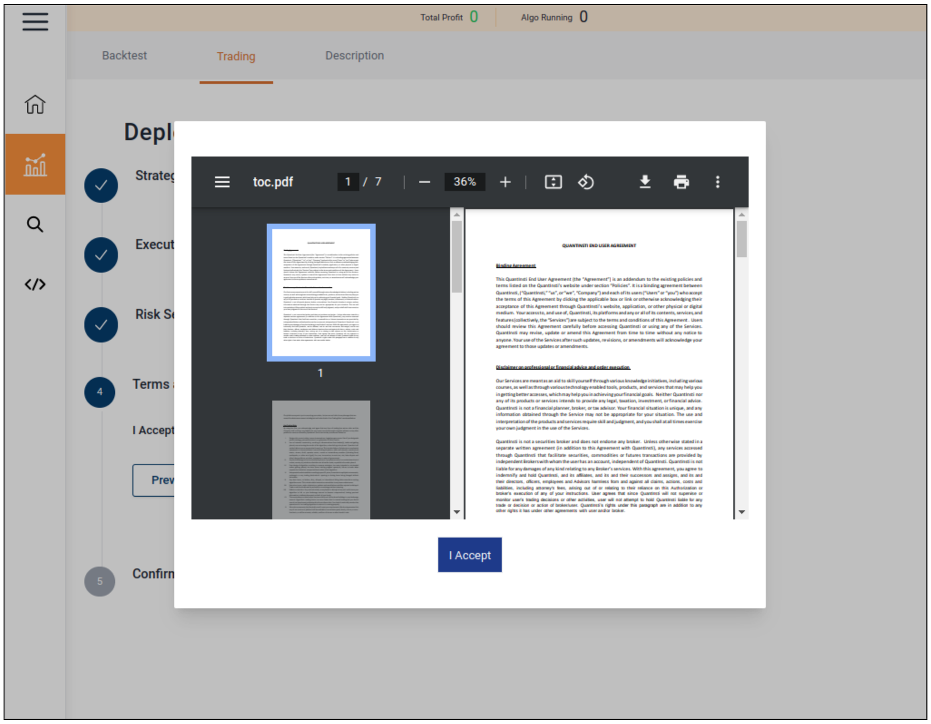

Figure 17: Terms and conditions

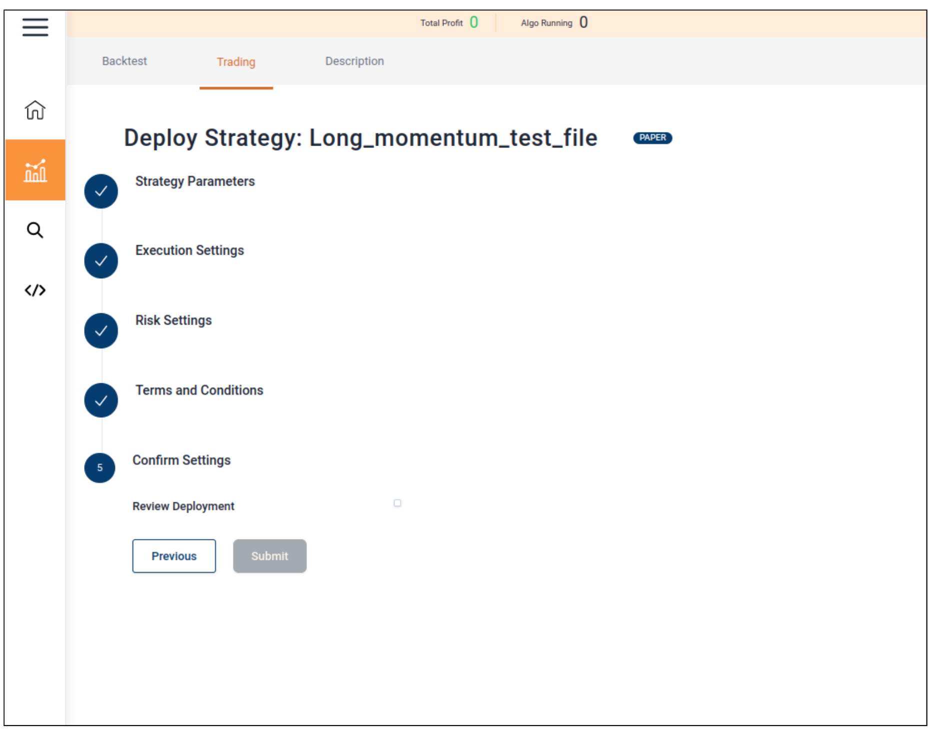

Figure 18: Fifth step to paper trade your strategy

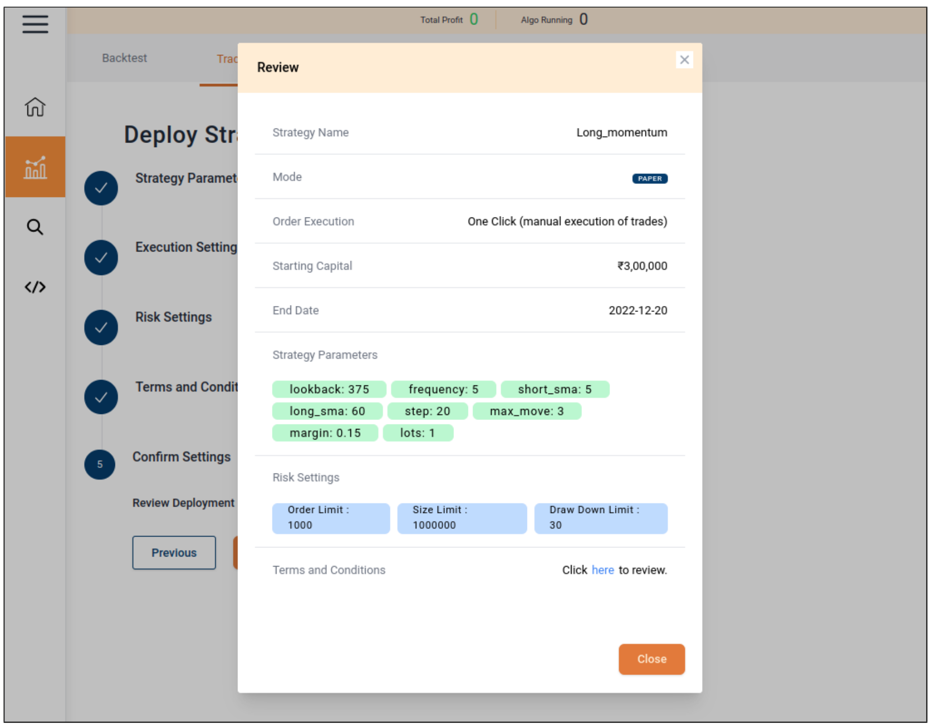

Figure 19: Review the settings

4 Live Trade

The strategy places orders in the live market once you opt for live trade. Different strategies place live orders in different ways. They are categorized as follow:

4.1 One Touch

With these strategies, we provide you alerts based on the created signals rather than placing trades directly to the exchange. The order is forwarded to exchange only after receiving client confirmation. It enables you to send orders with a single click while keeping an eye on market conditions.

4.2 Automated

These are the strategies that we are proposing. For such strategies, exchange authorisation is required. The strategy can be started, and the algo will handle the trades.

4.3 How to use?

- Open any strategy or any live bot.
- Click on 'Start Trading'. In case of live bot, click on 'Restart'.
- It will pop up a screen with two options: Paper Trade and Live Trade. Click on 'Live Trade'.
- It will lead you to the trading page where you will get 5 steps. These steps are the same as in the case of paper trade. Follow the steps illustrated in the Paper Trade subsection of the Testing section.

5 Monitoring

Once you start trading (live trade or paper trade), your strategy performnace will be displayed in bots. In the case of smart orders, they will be displayed under smart order sessions. The bots contain all the details of the corresponding algo execution and offer a few actions that you can take. Go through the following sections for a detailed description.

5.1 Live Bots

Here you can find all the strategies that you have taken live through live trade. You can also create a new bot either via Discover Strategies or by creating a new strategy. For each of the bots, you'll get two options: Know More and Restart.

5.1.1 Know More

Clicking on Know More will lead you to a new page where you'll get four tabs listed below with the 'Stop Algo' option to stop the live execution anytime.

Dashboard: The dashboard shows you the overview of all the trades taken which includes a performance graph, a summary of that strategy, and positions taken by the bot. Refer to figure 20.

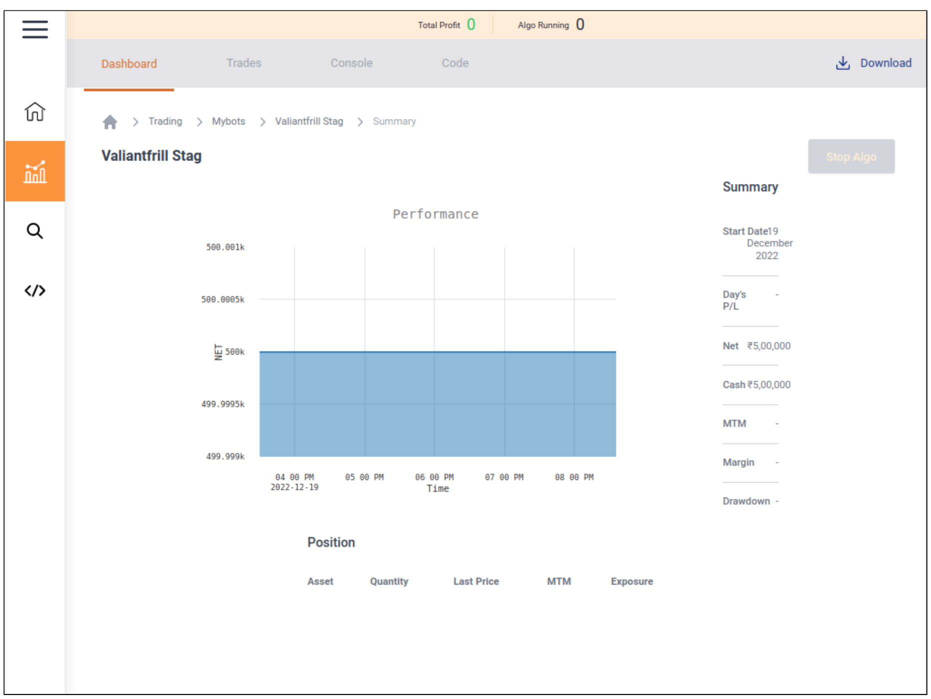

Figure 20: The overview of all the trades taken

The summary section has the following parameters to analyze the backtest result:

- Start Date: The date you started this bot
- Day's P/L: Total P/L (realized and unrealized) for the day for the bot
- Net: The current net value (net equity) of the bot. This equals to the starting capital + total profit and loss (realized or unrealized) till date
- Cash: The amount of initial capital allocated to the bot that is still available as cash
- MTM: Unrealised profit or loss of the bot
- Drawdown: The amount of decline from the top before the bot makes a comeback to the peak

It also has a Positions section that shows the positions taken by the bots, with the following parameters:

- Asset: Script or instruments in which you've taken position
- Quantity: Quantity of the corresponding asset
- Last Price: LTP of the corresponding asset
- MTM: Unrealised profit of the corresponding asset
- Exposure: Total market value of a position. A negative sign indicates a short (sell) position

Trades: This tab gives you the details of the trades taken by the bot.

Console: The console keeps track of all the actions taken on the bot by the user and the platform. Figure 21 gives a clear idea of what a console is.

Code: Here you can find the python code of your strategy if it is coded by you. E.g., figure 22 show a bot run from the discover page (not created by the user), and thus no code is found here.

5.1.2 Restart

You can optionally restart a stopped (or previously completed) bot. For a bot to be able to be restarted, it must have terminated without any error. Restarting a bot will resume the strategy execution with the remaining capitals and existing positions from when the bot was terminated. If you want to start with different parameters, capital or no positions, please launch a Paper or Live Trade instead of a restart. The restart page has three tabs that you can explore: Trading, Backtest, and Description.

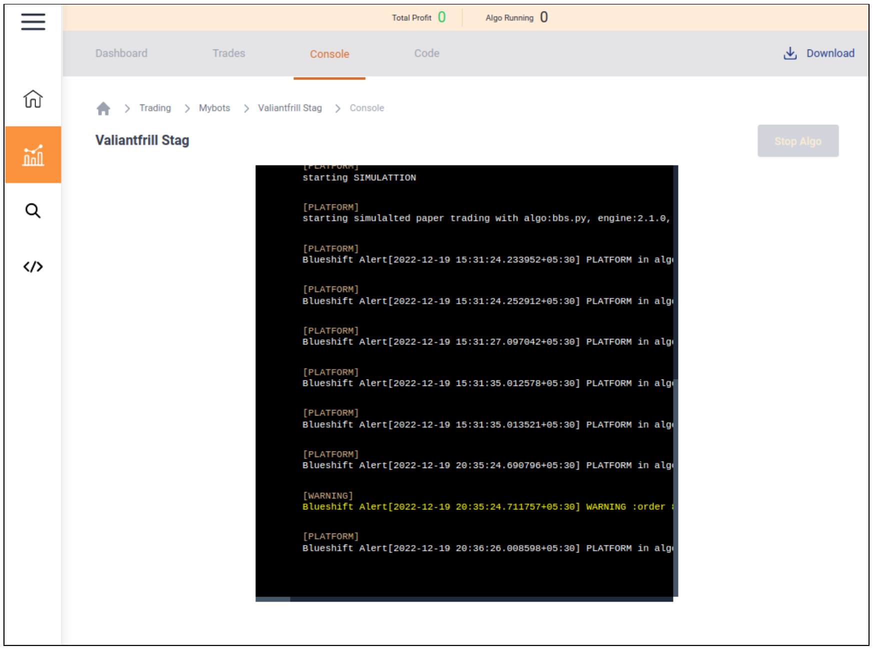

Figure 21: Console displays all the actions taken by the user or the platform, including simulations.

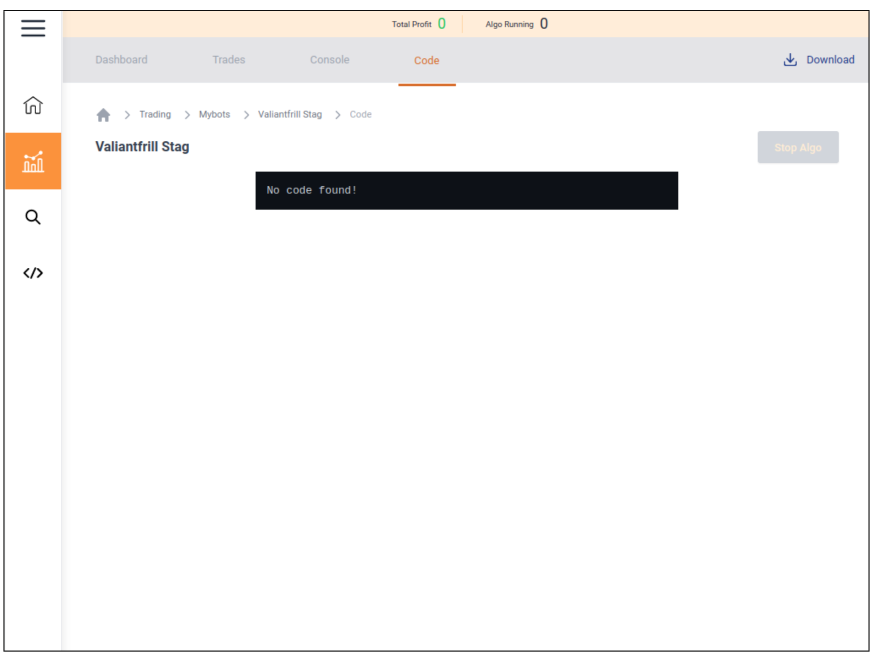

Figure 22: The overview of all the trades taken

Trading: A click on Restart will lead you to the Trading tab where you will get 5 steps to deploy the strategy and start trading in the live market. The steps are same as described under the Paper Trade or Live Trade subsection of the Testing section.

5.2 Paper Bots

Here you can find all the strategies that you have opted for paper trade. You can also create new bot either via Discover Strategies or by creating a new strategy. For each of the bots, you'll get two options: Details and Restart. In these two sections you will get the same features as in Live Bots. The only difference is that clicking on restart will take you to paper trade page instead of live trade.

5.3 Smart Order Sessions

Smart order sessions are list of all the smart orders those have been deployed. Follow the path: Trading > My Smart Orders, to get the list of all smart order sessions. Here you can check the start date and deployment status (Completed/ Failed/ Stopped/ Active) of each smart order session (rafar to figure). For more details click on a session, which would then display two tabs: Console and Trades.

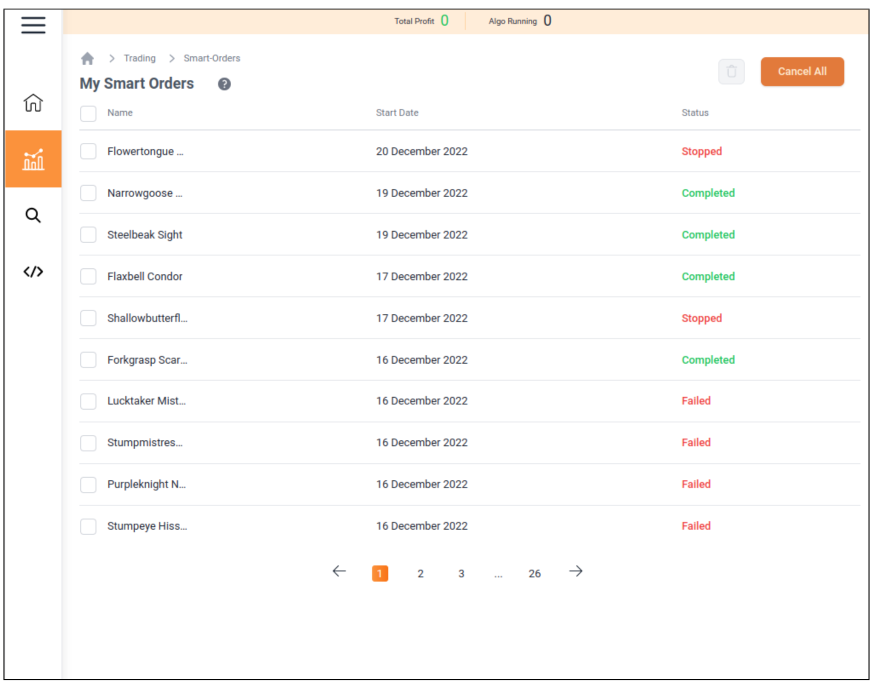

Figure 23: List of all smart order sessions

Console: Console keeps track of all the logs generated, e.g. all the actions taken by the user or the platform. Figure 24 provides more detail understanding of what a console is.

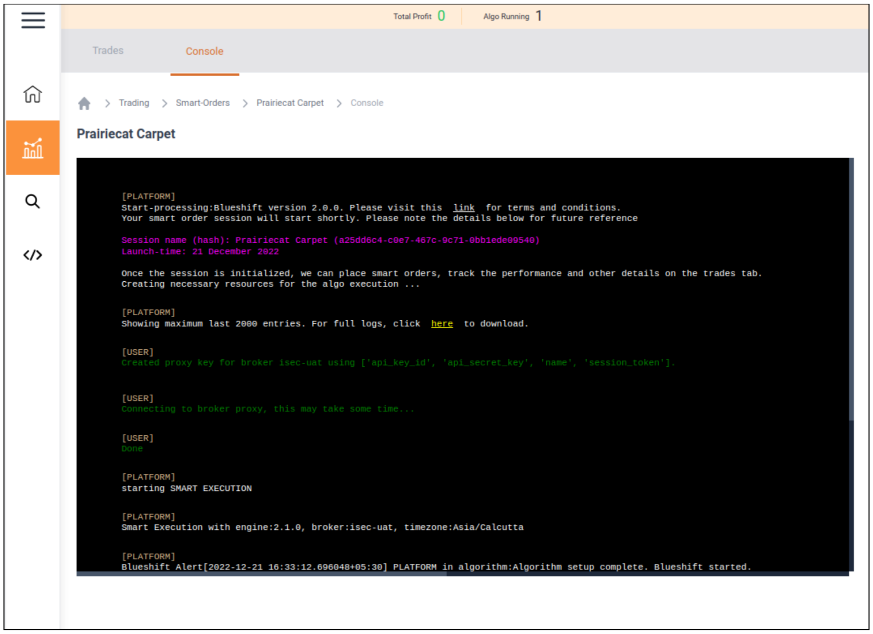

Figure 24: Console of a smart order session

Trades: The Trades page lists all the trades taken in the smart order session. For example, figure 25 shows trades taken in the session named Prairiecat Carpet.

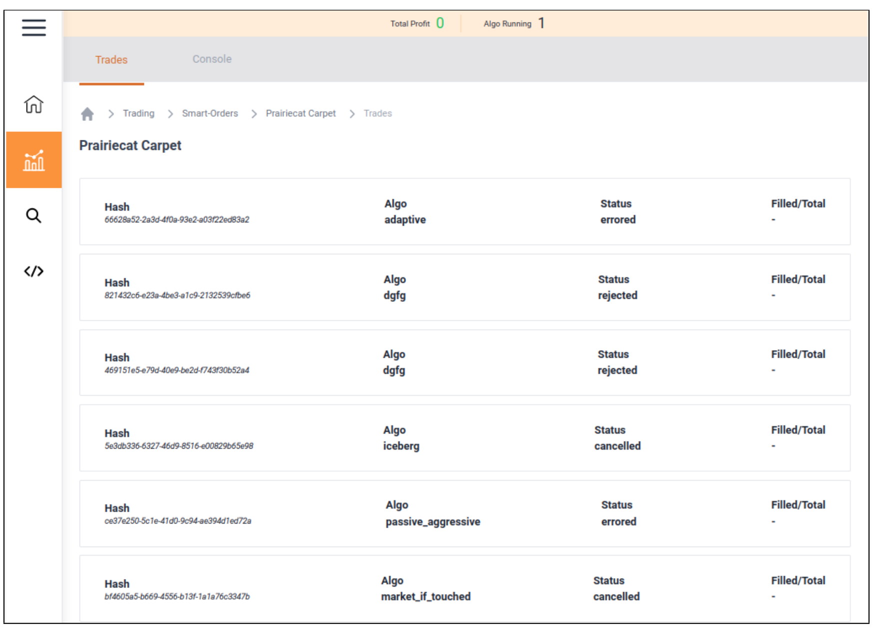

Figure 25: Trades taken in a smart order session

6 Navigate Through Spring

Let's take a walk through the Spring platform in order to use it more efficiently. The platform is divided into four major sections. These sections are described in detail below.

6.1 Home Screen

All the features are available upfront when a customer enters Spring for the very first time. It introduces the customer to the offerings that are described below. Refer to figure 26.

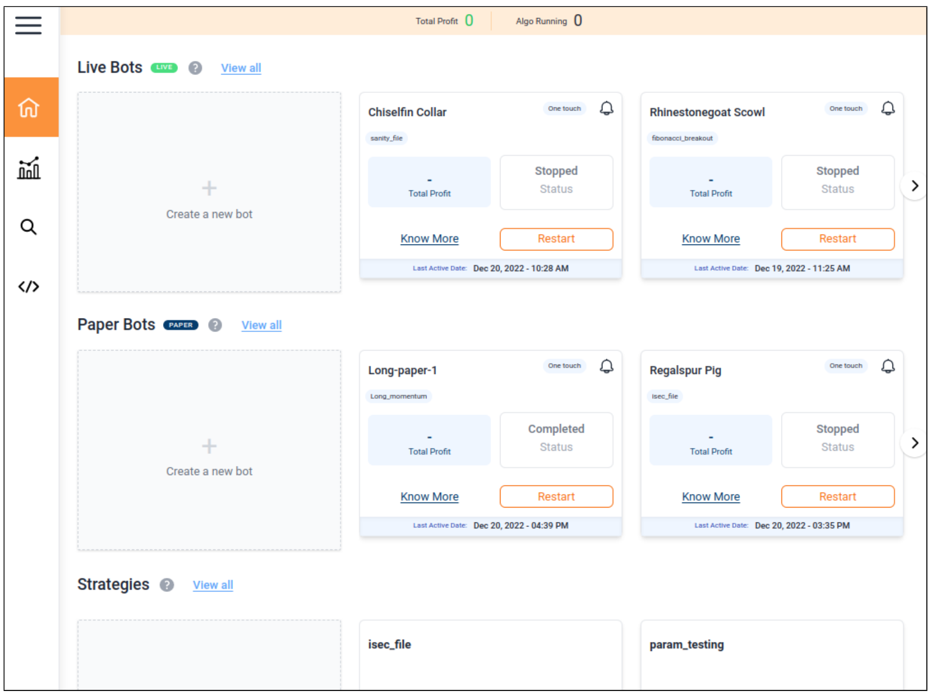

Figure 26: The home page

6.1.1 LiveTrade

You can directly take a strategy to live through paper trade or live trade here.

6.1.2 Discover Strategies

This will take you to the Discover section of this platform.

6.1.3 Smart Orders

This will take you to the page where you can get all the smart orders.

6.1.4 Create Strategy

You can start creating your strategies here either by coding or by building visually.

6.1.5 Trending Strategies

We have a bouquet of strategies designed for the customers. The most used strategies by the customers are showcased here.

6.2 Trading

This section would provide an overview of those strategies that the customer has added to the favourites or has taken to live. It includes:

6.2.1 My Bots

It has a collection of all the bots. These strategies are categorized into two categories:

Live bots: Here you can find all the live bots. Refer to figure 27.

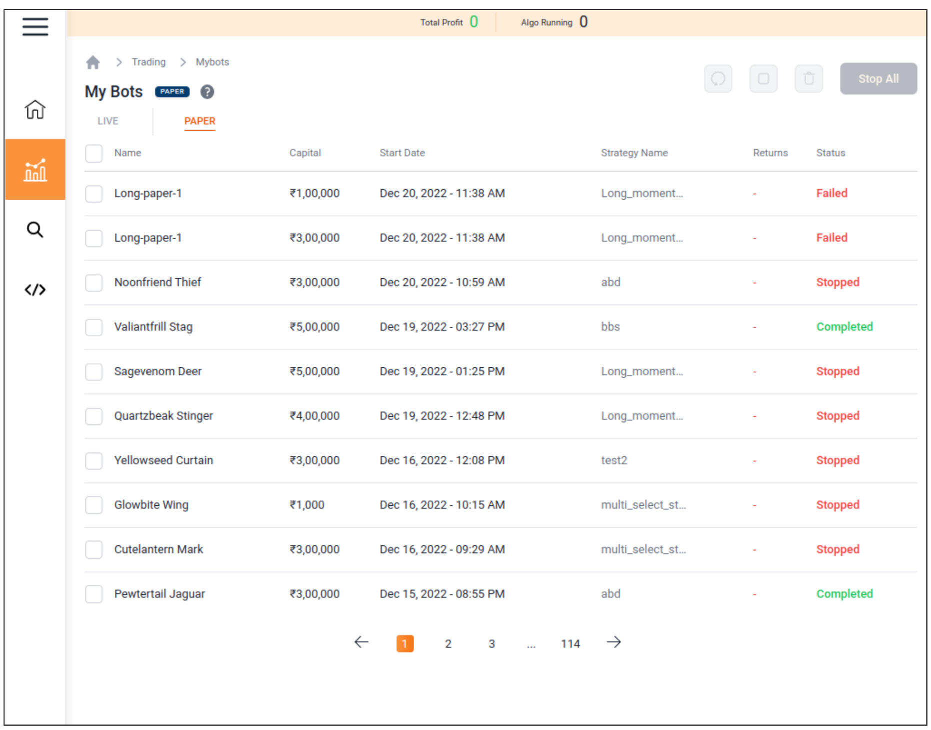

Figure 27: Collection of all the live bots.

Paper bots: Here you can find all the paper bots. Refer to figure 28.

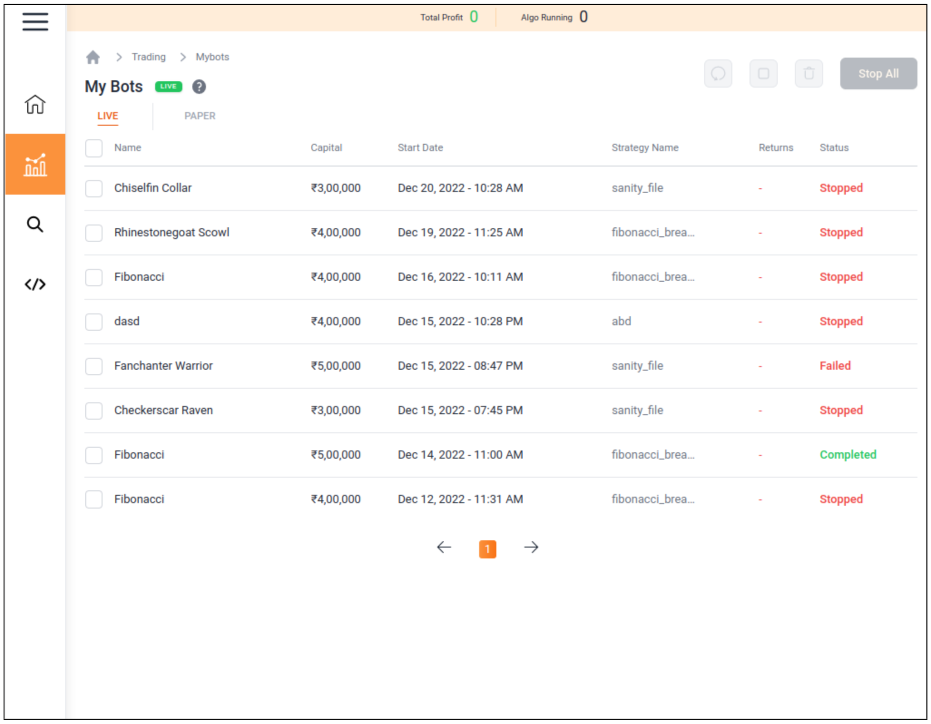

Figure 28: Collection of all the paper bots.

6.2.2 My Strategies

It gives an overview of all the strategies that have been added to favourites by the customer. The customer can add chosen strategies here and can start trading directly. Refer to figure 29.

6.2.3 My Smart Orders

It gives an overview of all the smart orders those have been added to favourites by the customer. The customer can add chosen smart orders here and can start executing in one go. Refer to figure 30.

6.3 Discover

This section lists all the offered Strategies and Smart orders. These all include a description section. It includes the logic of the strategy and parameters used along with a short description and default values. The customer can tweak the parameters as per convenience and can choose to either backtest or trade.

Here the customer gets the benefit of pre-designed strategies and smart orders which saves time and provides efficient execution.

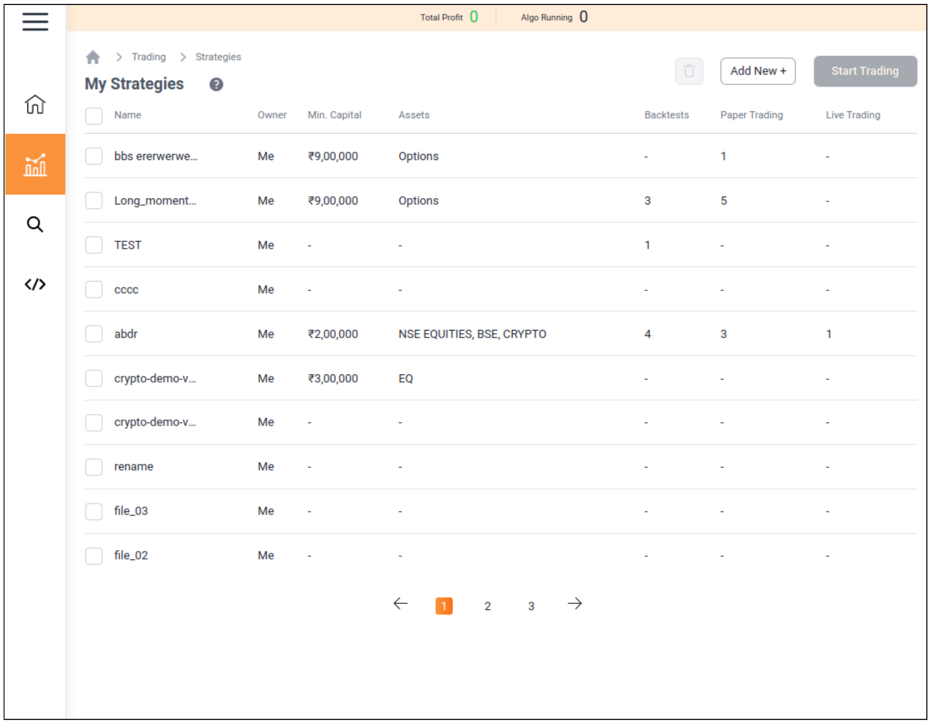

Figure 29: Collection of all your favourite strategies.

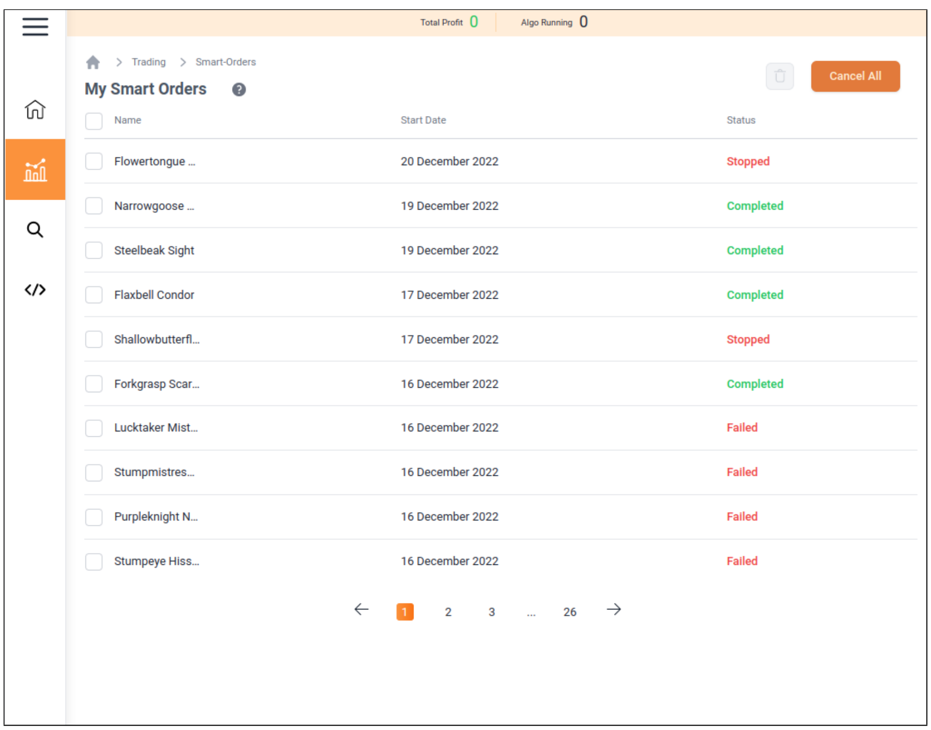

Figure 30: Collection of your selected smart orders.

6.3.1 Strategies

Here the customer gets pre-designed algos with editable parameters. The customer can tweak the parameters to get expected results from backtests. Refer to figure 31. A click on know more will take you to the description page where you can read details about the strategy and the parameters. An overview of the description page is shown in figure .

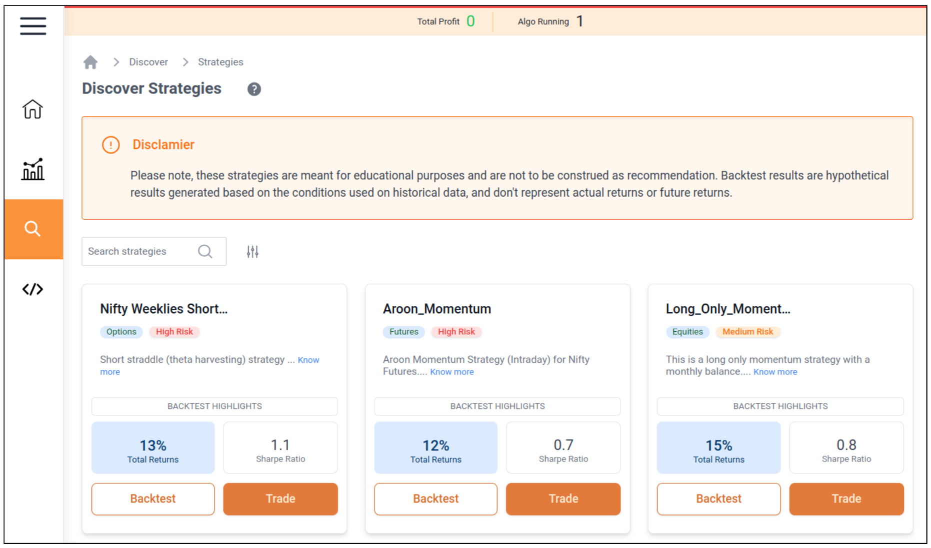

Figure 31: Collection of all the strategies.

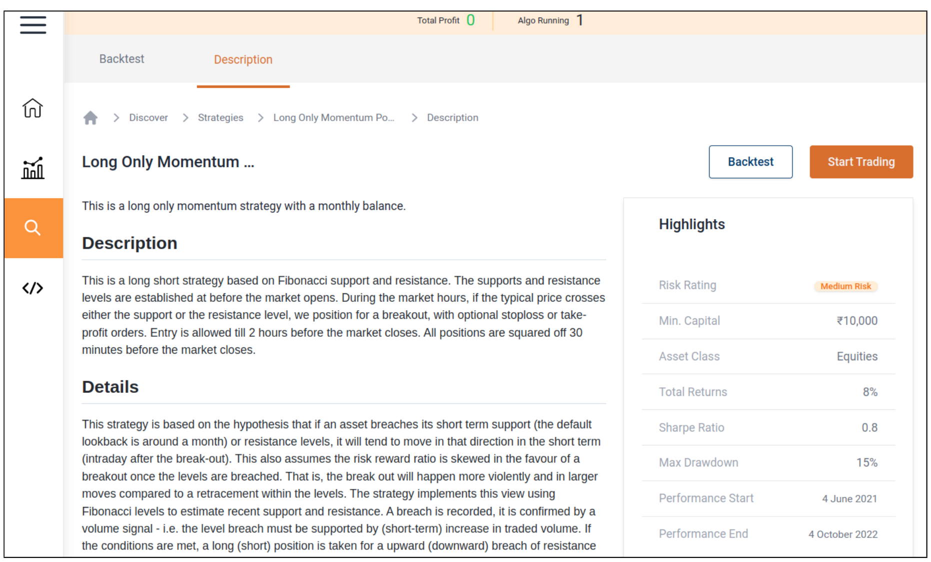

Figure 32: Description of a strategy

6.3.2 Smart Orders

Smart orders help you execute pre-determined trades efficiently. Figure 33 shows the list of smart orders offered under the Discover Smart Orders section. To deploy these smart orders click on 'Place Order' of a smart order card of your choice. For example, let's choose Adaptive, and click on the 'Place Order' button on the Adaptive card. It would take you to the deployment page followed by two steps that are explained below.

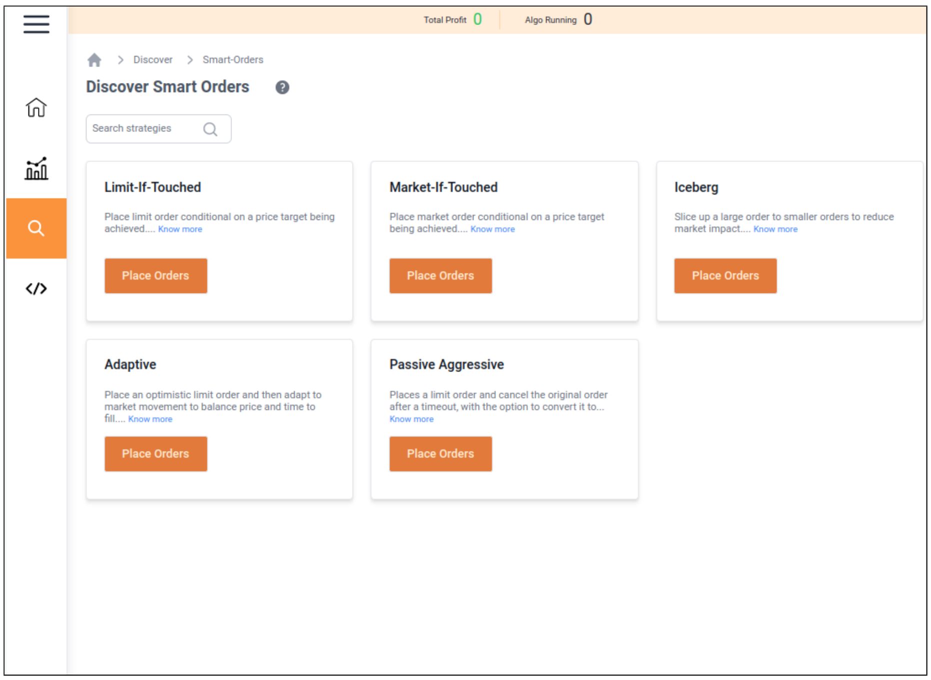

Figure 33: Collection of all the smart orders.

Step 1- Smart Order parameters: Tweak the parameters of the smart order at your convenience. Refer to figure 34.

Step 2- Confirm Settings: Click on the check box provided to review settings as shown in figure 35.

Review: Review and confirm your settings by clicking on 'Confirm', as shown in figure 36.

6.4 Research lab

This section lets you convert your idea into a trading strategy. If you have a logic in place, you can trade using our platform. Refer to figure 37.

Clicking on 'Create' will show a pop up with three options:

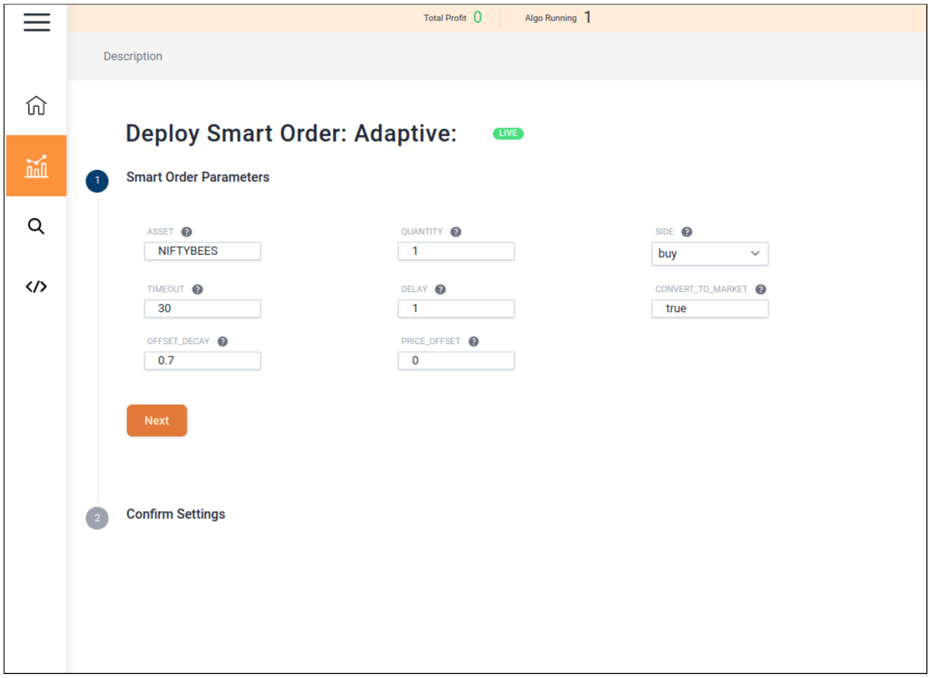

Figure 34: First step of smart order deployment to tweak the parameters

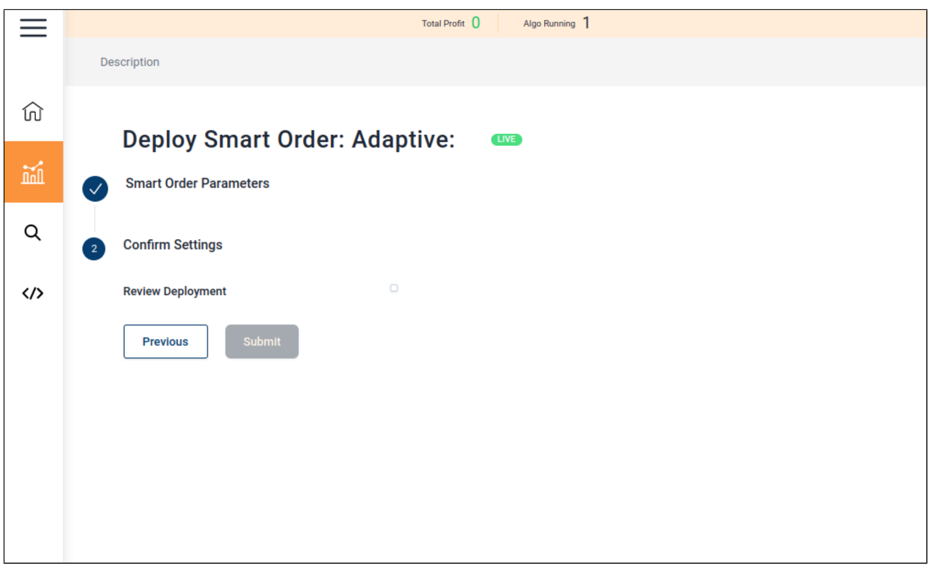

Figure 35: Second step of smart order deployment to review settings

6.4.1 Create Folder

Create a new folder to store your strategies in categories.

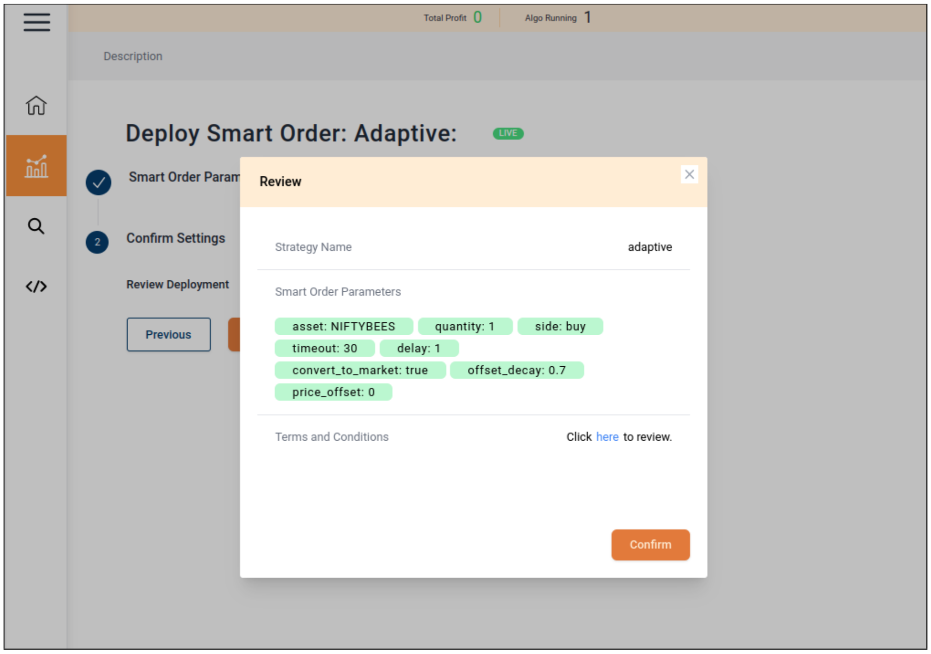

Figure 36: Confirm settings

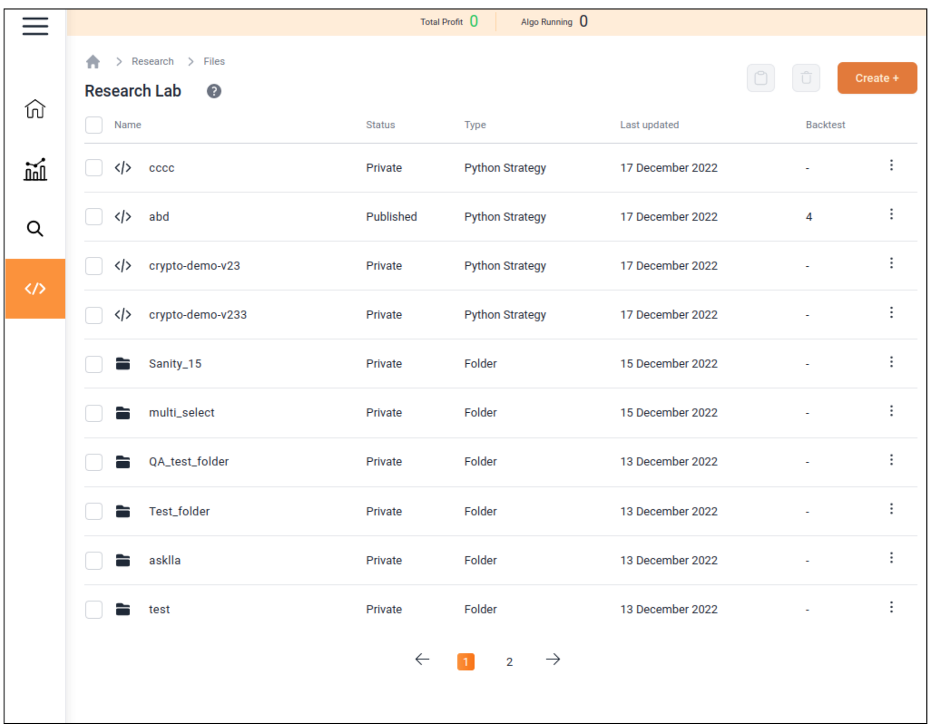

Figure 37: Collection of your created strategy.

6.4.2 Build Visually

(Coming Soon)

If you are unfamiliar to coding, you can build your strategy here. You can also provide a detail description of the strategy you are building, and showcase the parameters used.

6.4.3 Code My Strategy

Use the python environment to code and build your own strategy. You can provide a detail description of the strategy you are building, and showcase the parameters used.