

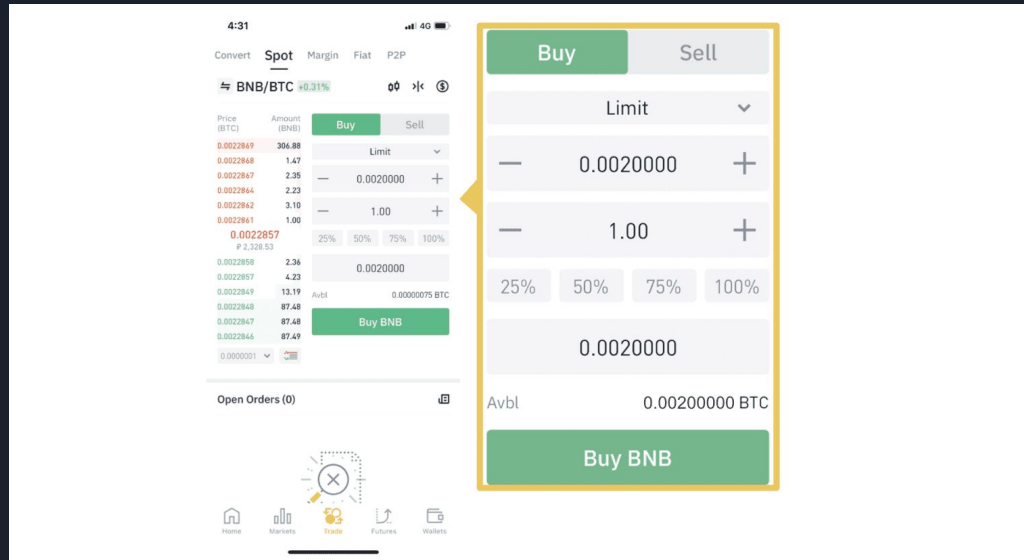
A blue parallelogram and a light green parallelogram are positioned on the left side of the slide, overlapping each other and the dark background.

Coin Expanse

A next Generation Crypto Trading Platform

Their Functionality

- Popular crypto trading platforms such as Crypto.com, FTX exchange, and Binance all have similar buying and selling formats:




Our Functionality

- Our buying and selling format is a non-traditional way to manage your crypto portfolio:

The screenshot displays a user interface for creating a trading strategy. On the left, a sidebar titled 'OPERATIONS' and 'INDICATORS' lists 'Default Indicator' and 'Default Indicator'. Below this, the 'RSI' (Relative Strength Index) indicator is described as a momentum indicator that measures the magnitude of recent price changes to analyze overbought or oversold conditions. A button 'ADD TO CREATION SPACE' is present. Below the RSI description, the 'STOCH' (Stochastic Oscillator) indicator is described as a momentum indicator comparing a particular closing price of a security to a range of its prices over a certain period of time. Another 'ADD TO CREATION SPACE' button is present.

The main area shows a strategy configuration for 'Complicated Litecoin'. The 'Strategy Name' is 'Complicated Litecoin', the 'Quantity' is '56', and the 'Strategy Option' is 'BUY' (highlighted in purple). The strategy is built using a logical structure: 'AND' (blue bar) connects 'RSI' (green bar) and 'BBANDS2' (purple bar). 'BBANDS2' is further connected to 'STOCH' (purple bar) via an 'OR' (orange bar) condition. The 'NOT' (red bar) condition is also present but not active.

The 'RSI' configuration shows 'Litecoin' selected, 'Value' set to '56', and '1d' selected for the period. The 'BBANDS2' configuration shows 'Litecoin' selected, 'Lower' set to '10', 'Middle' set to '20', 'Upper' set to '100', and '1d' selected for the period. The 'STOCH' configuration shows 'Litecoin' selected, 'Lower' set to '100', 'Upper' set to '200', and '1w' selected for the period.



Problem solved: the problem of missing strategies

- With other crypto trading websites you can't implement automatic trading strategies, you can only set bounds for limit orders:
 - Limit orders enable the user to set buy and sell orders once a coin reaches a certain market price.
- Coin Expanse enables the user to not only create more complicated trading strategies, but also enables the user to save these strategies for later use.
- Coin Expanse users are allowed to condition their strategies on the market price of coins, as well as various indicators such as RSI's and STOCH's.
 - RSI - The Relative Strength Index (RSI) is a momentum indicator that measures the magnitude of recent price changes to analyze overbought or oversold conditions.
 - STOCH - A stochastic oscillator (STOCH) is a momentum indicator comparing a particular closing price of a security to a range of its prices over a certain period of time.
 - Our customers are able to use these indicators to assist them in their trading.



Website Dependencies

- **Binance API***
(<https://github.com/binance/binance-spot-api-docs/blob/master/rest-api.md>) - an official REST API provided by the crypto trading platform Binance. This is where we send our get requests to query for data, as well as make post requests for transactions.
- **News api** - the api we use to make get requests for up to date crypto news and market changes.
- **net** - gem used to build http user agents.
- **uri** - URI is a module providing classes to handle Uniform Resource Identifiers.
- **binance-ruby** - "(not yet used) api wrapper for binance queries".
- **json** - provides an API for parsing JSON from text as well as generating JSON text from arbitrary Ruby objects.
- **seedbank** - used to organise the seed files into a folder.
- **digest** - "performs the encryption of user passwords stored in the database".
- **chartkick** - gem used for organising market data into tables and graphs.



Technical Details

- Utilizes a wide variety of gems to implement a streamlined UI and backend
 - chartkick, binance-ruby, securerandom, sidekiq
- Javascript, jQuery, jQuery-ui
 - All utilized for asynchronous modification of different pages on our application
 - Key component in creating the meta-programming GUI for automated strategy creation
- Bootstrap/MDB
 - Used mainly for SCSS styling
 - Also used to give smaller components dynamic functionality
 - Modals, pop-ups, and button/link events
- Strategies utilize a mini-parser to determine if a given strategy should execute given the current state of the indicators and the conditions referenced in the strategy
 - DOM mapping function used to convert HTML of GUI into a JSON, which is stored as a string in our DB
 - Ruby function parses this JSON every 15 minutes using a mini interpreter, which constructs a final boolean value
- All graphs and charts are managed by chartkick, which we feed information into from API calls that get cryptocurrency data and metrics

Non-Technical Details

- **Most Proud of:** We are most proud of our finished product as well as how we seamlessly worked as a team, had minimal arguments, and encouraged each other to be our best selves.
- **Room For Improvement:** There is always room for improvement, however, we would like to be able to:
 - brush up the front end manual ordering page
 - add support for more coins on the manual ordering page and automatic trading page
 - add more functionality to the automatic strategies page
 - add a user portfolio to enable the user to view all their coins and trading strategies
- **Teamwork lessons:**
 - successful conflict resolution is a major part of good teamwork
 - patience and empathy are two key traits
 - Communication and trust are essential





Culmination

- Most proud of
 - Strategy creation GUI
 - Live-updating charts with chartkick and task scheduling
 - Mini parser for strategies
 - Use of API and network protocols and certs for transactions
- Future Improvements
 - Portfolio
 - Ways to share and import strategies from other users
 - Ways to query
 - In-depth news querying
- What we learned
 - Effective coding techniques
 - API usage and design
 - Good UI/UX in RoR, as well as dynamic content updating



Live Demo

<http://www.coinexpanse.com/>