

Here are five crypto day trading strategies based on research from BitcoinTalk and IG Community, along with the required analytics and tools for each:

### 1. Range Trading Dashboard

- **Strategy:** Involves identifying price ranges within which the cryptocurrency is expected to trade. Traders buy at the bottom of the range (support) and sell at the top of the range (resistance).
- **Required Tools:**
  - **Support and Resistance Levels:** Use tools that can draw horizontal lines at key levels where price has historically reversed. These levels need to result in a buy/sell/hold recommendation based on a strategy involving a medium high risk/reward. Propose your best opinion on the calculation to reach these outputs.
  - **Volume Indicators:** Helps in confirming the strength of the support and resistance levels.
  - **Oscillators** (e.g., RSI or Stochastic): To identify overbought or oversold conditions within the range.
  - **Bollinger Bands:** To visualize volatility and identify possible breakouts from the range.

2.

`support = df['low'].min()` # Minimum of the low prices in the last 24 hours

`resistance = df['high'].max()` # Maximum of the high prices in the last 24 hours

### Mean Reversion Dashboard

- **Strategy:** This strategy assumes that prices will revert to their mean or average level after an extended move in either direction. Traders capitalize on overextensions and expect a reversal back to the mean.
- **Required Tools:**
  - **Moving Averages:** Calculate the mean price over different periods to identify overextensions.
  - **Z-Score Indicators:** To quantify how far the current price is from its mean.
  - **Volume Indicators:** To confirm the reversal when the market is overextended.
  - **Relative Strength Index (RSI):** To identify overbought or oversold conditions.

### 3. Breakout Trading Dashboard

- **Strategy:** This strategy focuses on entering trades as soon as the price breaks out of a defined range or a key support/resistance level. It usually accompanies increased volatility and volume.

- **Required Tools:**
  - **Price Channels:** Tools to draw channels around the range or trend to identify breakout points.
  - **Volume Indicators:** To confirm breakouts with high volume, indicating strong momentum.
  - **Volatility Indicators** (e.g., ATR): To assess the potential movement post-breakout.
  - **Momentum Indicators** (e.g., MACD): To determine the strength of the breakout.

#### 4. Trend Pullback Trading Dashboard

- **Strategy:** In this strategy, traders look to enter a trade when the price pulls back during a strong trend, betting that the trend will resume.
- **Required Tools:**
  - **Moving Averages** (e.g., EMA, SMA): To identify the underlying trend direction and pullback points.
  - **Fibonacci Retracement:** To identify potential levels where the pullback may end.
  - **Volume Profile:** To understand where the majority of trading activity has occurred and anticipate pullback levels.
  - **RSI/Stochastic:** To identify potential overbought/oversold conditions during pullbacks.

#### 5. Support and Resistance Trading Dashboard

- **Strategy:** This strategy focuses on trading at key support or resistance levels, anticipating price reversals.
- **Required Tools:**
  - **Support and Resistance Tools:** Tools that can automatically draw key horizontal levels based on historical data.
  - **Candlestick Patterns:** For identifying reversal patterns near support or resistance levels.
  - **Volume Indicators:** To confirm the strength of the support or resistance level.
  - **Pivot Points:** To provide additional confirmation of key levels.

#### Data and Analytics Behind These Tools:

- **Price Data:** Real-time OHLC (Open, High, Low, Close) data is fundamental for all strategies.
- **Volume Data:** Helps in confirming price movements and trends.
- **Historical Data:** Essential for calculating moving averages, Fibonacci levels, and identifying key support/resistance levels.
- **Volatility Data:** Indicators like ATR (Average True Range) provide insights into market volatility.

- **Order Book Data:** To analyze market depth and potential support/resistance levels from pending orders.

These tools and analytics are necessary for building a comprehensive trading platform that can support these strategies effectively.

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A reversal trade is a trading strategy that aims to capitalize on a change in the direction of a price trend. In other words, it involves entering a trade in the opposite direction of the prevailing trend, anticipating that the trend will reverse.

#### **Key Aspects of Reversal Trading:**

- **Identifying Reversals:** Traders look for signs that the current trend is losing momentum and that a reversal might be imminent. Common indicators include:
  - **Divergence:** When the price moves in one direction but an indicator (like RSI or MACD) moves in the opposite direction, signaling a potential reversal.
  - **Candlestick Patterns:** Certain patterns, such as a "head and shoulders" or "double top/bottom," can indicate a trend reversal.
  - **Support/Resistance Levels:** If the price fails to break through a strong support or resistance level and begins to move in the opposite direction, a reversal may be happening.
- **Execution:** Once a reversal is identified, the trader enters a position opposite to the current trend. For example:
  - If the market has been in an uptrend but signs of reversal appear, a trader might sell (short) the asset, anticipating a downtrend.
  - Conversely, if the market has been in a downtrend and signs of reversal are present, a trader might buy (long) the asset, expecting an uptrend.
- **Risk Management:** Reversal trades can be risky because entering against the prevailing trend carries the danger that the trend may continue rather than reverse. Traders often use tight stop-loss orders to limit potential losses if the anticipated reversal does not occur.

#### **Example:**

- **In an Uptrend:** Suppose a cryptocurrency has been trending upwards for several days, but now shows a bearish divergence with the RSI (Relative Strength Index), where the price makes a new high, but the RSI fails to make a new high. This divergence might signal a weakening uptrend and potential reversal. A trader might enter a short position, expecting the price to fall.

- **In a Downtrend:** Conversely, if a cryptocurrency has been declining, but then forms a double bottom pattern—a bullish reversal pattern where the price hits a low twice before moving higher—a trader might enter a long position, expecting the price to rise.

The strategy that should be prioritized depends on several factors, including your experience level, risk tolerance, and the specific market conditions. However, for most traders, especially those newer to crypto day trading, **Range Trading** is often recommended as a starting point. Here's why:

## 1. Range Trading

- **Why Prioritize It?**
  - **Simplicity:** Range trading involves identifying and trading within defined price ranges, making it easier to grasp for beginners.
  - **Low Volatility:** It generally involves trading in low volatility environments, reducing the likelihood of large, unexpected price swings.
  - **Frequent Opportunities:** Since markets spend a lot of time in ranges (as opposed to trending), there are more opportunities to execute trades.
- **Analytics and Tools Needed:**
  - **Support and Resistance Levels:** Tools to identify key support and resistance zones.
  - **Volume Analysis:** To confirm the strength of moves within the range.
  - **Oscillators:** Indicators like RSI or Stochastic to identify overbought or oversold conditions within the range.

## 2. Breakout Trading

- **Why Prioritize It?**
  - **High Potential Returns:** Breakouts can lead to significant price movements, offering high reward potential.
  - **Clear Entry Points:** Entry points are often well-defined, based on breakouts of key levels.
- **Analytics and Tools Needed:**
  - **Volume Indicators:** To confirm the strength of a breakout.
  - **Moving Averages:** To smooth out price data and help identify breakouts.
  - **Volatility Indicators:** Tools like Bollinger Bands to gauge market volatility and anticipate breakouts.

## 3. Mean Reversion

- **Why Prioritize It?**
  - **Contrarian Approach:** Profitable in markets that frequently revert to the mean rather than trending.

- **High Frequency:** Opportunities are often more frequent in markets prone to mean reversion.
- **Analytics and Tools Needed:**
  - **Moving Averages:** To identify the mean or average price level.
  - **Bollinger Bands:** To see when price deviates significantly from the mean.
  - **Volume Indicators:** To confirm the potential for mean reversion.

#### 4. Trend Pullback Trades

- **Why Prioritize It?**
  - **Combination of Trends and Reversals:** Allows trading in the direction of the trend while taking advantage of temporary reversals.
  - **Risk Management:** Easier to manage risk, as trades are taken in line with the prevailing trend.
- **Analytics and Tools Needed:**
  - **Moving Averages:** To identify the prevailing trend.
  - **Fibonacci Retracements:** To identify potential pullback levels.
  - **Trend Lines:** To confirm trend continuation after pullbacks.

#### 5. Reversal Trading

- **Why Prioritize It?**
  - **High Reward:** Potentially large gains if a reversal is correctly identified and executed.
  - **Advanced Strategy:** Suitable for traders with experience in identifying and timing market reversals.
- **Analytics and Tools Needed:**
  - **Divergence Indicators:** Tools like MACD or RSI to identify divergence.
  - **Candlestick Patterns:** To spot potential reversal signals.
  - **Volume Analysis:** To confirm the strength of the reversal.

#### Recommendation:

For most traders, starting with **Range Trading** or **Trend Pullback Trades** is advisable due to their relative simplicity, lower risk, and higher frequency of opportunities. As you gain more experience and confidence, you can explore more complex strategies like **Breakout Trading** and **Reversal Trading**.

To create a comprehensive Tableau dashboard with the features you've outlined, here are the prerequisites you'll need:

### 1. Data Preparation and SQL Connection:

- **Live Data Connection:**
  - Ensure that your OHLC (Open, High, Low, Close) data is properly structured and accessible via your SQL database.
  - The database should include columns for timestamp, open, high, low, close, volume, and any other relevant metrics like Bollinger Bands, Support, and Resistance.
- **Tableau SQL Connection:**
  - Set up a live connection between Tableau and your SQL database.
  - Make sure that the connection can handle real-time updates or refreshes at regular intervals (e.g., every 10 seconds or as required).

### 2. Data Calculation:

- **Bollinger Bands Calculation:**
  - The SQL database should either have pre-calculated Bollinger Bands or you need to create calculated fields in Tableau for this.
  - Bollinger Bands typically consist of a middle band (usually a 20-day SMA), an upper band ( $SMA + 2 \text{ standard deviations}$ ), and a lower band ( $SMA - 2 \text{ standard deviations}$ ).
- **Support and Resistance Levels:**
  - These levels can either be calculated within your SQL database or dynamically calculated in Tableau.
  - You'll need to define the logic for identifying support and resistance points based on historical data.

### 3. Tableau Setup:

- **User Interface Elements:**
  - **Crypto Identifier Input:** Use a parameter or filter in Tableau that allows users to select the cryptocurrency they are interested in.
  - **Time Range Selector:** Create a date range filter to allow users to select different time ranges (e.g., 24 hours, 48 hours, 1 week).
- **Charts and Visualizations:**
  - **Candlestick Chart:** Use the OHLC data to create a candlestick chart for visualizing price movements.

- **Bollinger Bands Overlay:** Overlay Bollinger Bands on the candlestick chart to provide context on price volatility.
- **Support and Resistance Lines:** Add horizontal lines on the chart to indicate calculated support and resistance levels.
- **Live Prices:** Display the current price of the selected cryptocurrency, updated in real-time.
- **What-If Scenarios:** Consider using Tableau's scenario analysis features to allow users to explore different trading strategies or hypothetical situations.
- **Dashboard Layout:**
  - **Interactive Elements:** Ensure your dashboard has clear, interactive elements that make it easy for users to select crypto identifiers, time ranges, and view the corresponding data.
  - **Real-Time Updates:** Ensure your dashboard is set up to refresh data based on the intervals you've defined.

#### 4. Azure Integration (Optional):

- **Azure Resources:**
  - You can leverage Azure services like Azure SQL Database or Azure Data Factory for managing your data if necessary.
  - Consider using Azure Machine Learning for advanced analytics or predictive modeling if you plan to expand the dashboard's capabilities in the future.

#### 5. Tableau Skills:

- **Basic Tableau Proficiency:**
  - Familiarize yourself with creating calculated fields, using parameters, and building interactive dashboards in Tableau.
  - Understand how to connect Tableau to your SQL database and how to set up live data connections.
- **Advanced Tableau Techniques (Optional):**
  - Learn about Tableau's scenario analysis, predictive analytics, and how to use Tableau's built-in functions to create complex calculations and visualizations.

#### 6. Testing and Iteration:

- **Prototype Development:**
  - Start with a basic prototype of your dashboard, focusing on key elements like the candlestick chart, Bollinger Bands, and user inputs.
- **User Feedback:**

- Gather feedback from potential users or stakeholders and iterate on the design and functionality of the dashboard.

## 7. Deployment:

- **Tableau Server or Tableau Online (Optional):**

- If you want to share the dashboard with others, consider setting up Tableau Server or Tableau Online for broader access.

By following these prerequisites, you'll be able to create a powerful and comprehensive Tableau dashboard that meets your needs for crypto day trading analysis.

## Workflow Example for Dashboard Creation:

### 1. Data Ingestion:

- Use Azure Logic Apps or Azure Data Factory to periodically pull data from cryptocurrency APIs.
- Store the data in Azure SQL Database or Cosmos DB.

### 2. Data Processing:

- Use Azure Functions for real-time data processing, such as calculating indicators like Bollinger Bands.
- Azure Machine Learning can be employed for advanced analytics, like price prediction.

### 3. Data Visualization:

- Use Tableau to connect to your Azure SQL Database or other data sources, pulling in the processed data.
- Build your dashboards with live price feeds, Bollinger Bands, support/resistance levels, and other analytics.

### 4. Automation and Monitoring:

- Use Azure Monitor and Logic Apps to automate data updates and monitor the health of your data pipelines.

By leveraging these Azure resources, you can build a robust, real-time dashboard that offers comprehensive insights into cryptocurrency markets, supporting various trading strategies and data visualizations.

```
{
  "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
  "contentVersion": "1.0.0.0",
  "parameters": {
```



```

    "customConnectorApiVersion": {
      "type": "string"
    },
    "customConnectorName": {
      "type": "string"
    },
    "customConnectorLocation": {
      "type": "string"
    },
    "tags": {
      "type": "object",
      "defaultValue": {}
    }
  },
  "resources": [
    {
      "apiVersion": "[parameters('customConnectorApiVersion')]",
      "name": "[parameters('customConnectorName')]",
      "type": "Microsoft.Web/customApis",
      "location": "[parameters('customConnectorLocation')]",
      "tags": "[parameters('tags')]",
      "properties": {
        "displayName": "[parameters('customConnectorName')]",
        "backendService": {
          "serviceurl": "http://placeholder"
        }
      }
    }
  ]
}

```

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To create a comprehensive Tableau dashboard for the crypto day trading strategies you've outlined, here's how you can approach it step-by-step, leveraging the concepts and tools in Tableau:

## 1. Data Preparation and Connection Setup

- **Data Structuring:**

- Ensure your data is structured with columns for OHLC (Open, High, Low, Close), timestamp, volume, indicators (like RSI, MACD, etc.), Bollinger Bands, Support, and Resistance levels.
- The data should be either live (connected to a SQL database) or refreshed periodically to keep the analysis real-time.
- **SQL Connection:**
  - Establish a live connection between Tableau and your SQL database.
  - For real-time analysis, configure Tableau to refresh data at specified intervals (e.g., every few seconds).

## 2. Key Calculations and Indicators in Tableau

- **Bollinger Bands:**
  - Create calculated fields in Tableau to compute Bollinger Bands if not pre-calculated. This involves creating a middle band (20-day SMA), upper band ( $SMA + 2 \text{ standard deviations}$ ), and lower band ( $SMA - 2 \text{ standard deviations}$ ).
- **Support and Resistance Levels:**
  - Either pre-calculate these levels in your SQL database or create dynamic calculations in Tableau. Use historical price data to identify these critical levels.
- **Other Indicators:**
  - Add calculated fields for RSI, MACD, or other relevant indicators based on your strategies. For example, RSI can be calculated using standard formulas within Tableau.

## 3. Building the Dashboard

- **User Interface Elements:**
  - **Crypto Selector:** Use parameters or filters for users to select a cryptocurrency.
  - **Time Range Selector:** Implement a date range filter for various time frames like 24 hours, 48 hours, or a week.
- **Visualizations:**
  - **Candlestick Chart:** Use the OHLC data to create a candlestick chart. Overlay Bollinger Bands to visualize price volatility.
  - **Support and Resistance Levels:** Add horizontal lines to indicate these levels. This could be done using reference lines based on your calculated fields.
  - **Live Price Ticker:** Display real-time prices using a text box or dynamic title that updates with the latest data.

- **Volume Indicators:** Include bar charts or line graphs to show trading volumes, which helps confirm breakouts or trends.
- **Indicators Overlay:** Use dual-axis charts to overlay indicators like RSI, MACD, or Stochastic with price movements.
- **What-If Analysis:**
  - Implement Tableau's scenario analysis features, such as parameters and calculated fields, to allow users to simulate different trading conditions and strategies.

#### 4. Real-Time and Interactivity

- **Auto-refresh:**
  - Ensure your Tableau dashboard is set up to auto-refresh at the intervals necessary for real-time data analysis.
- **Interactivity:**
  - Use dashboard actions like filter actions, highlight actions, and URL actions to make the dashboard interactive, allowing users to drill down into specific details or switch between different strategies and visualizations.

#### 5. Deployment and Automation

- **Tableau Server or Tableau Online:**
  - Deploy the dashboard on Tableau Server or Tableau Online for broader access. This allows users to interact with the dashboard from any location with internet access.
- **Automation and Monitoring:**
  - If integrated with Azure or similar platforms, use services like Azure Monitor to automate and monitor your data pipelines, ensuring data integrity and consistent updates.

#### 6. Testing and Optimization

- **Prototype and User Feedback:**
  - Begin with a prototype, focusing on core functionalities like the candlestick chart and Bollinger Bands. Gather feedback from users to refine the dashboard.
- **Performance Optimization:**
  - Optimize the performance by aggregating data where possible and limiting the data load with filters or extracts, ensuring smooth user experience even with large datasets.

#### Additional References:

- **Calculated Fields:** You can refer to chapters on calculated fields in your "Practical Tableau" book for more details on creating complex indicators and calculations.

- **Data Connection and Filtering:** The sections on data connection and filtering in your books provide detailed steps for connecting Tableau to SQL databases and applying filters, which will be crucial for handling large, real-time data efficiently.

This approach will help you create a robust and dynamic Tableau dashboard tailored to crypto day trading strategies, offering real-time insights and interactivity for users.

For real-time analysis, configure Tableau to refresh data at specified intervals (e.g., every few seconds). how?



To configure Tableau for real-time data analysis with automatic data refreshes at specified intervals, you can follow these steps:

### 1. Connect Tableau to a Real-Time Data Source

- Ensure that your data source is capable of providing real-time data. Typically, this would be a live connection to a database like SQL, which continuously updates with the latest data.

### 2. Set Up Auto-Refresh for Live Connection in Tableau Desktop

Tableau Desktop doesn't have a native feature for setting refresh intervals of a few seconds directly within the application. However, you can achieve frequent data refreshes using Tableau Server or Tableau Online, or by manually configuring Tableau Desktop to update frequently.

Here's how to set it up:

#### Using Tableau Desktop (Manual Refresh):

- Connect to your live data source.
- On your Tableau Desktop dashboard, right-click on the data source in the Data pane.
- Select **"Refresh"** to manually update the data. For automated scenarios, you'd have to use Tableau Server or Online.

### 3. Using Tableau Server or Tableau Online for Automatic Refreshes

For real-time updates, Tableau Server or Tableau Online is more appropriate:

#### Step 1: Publish the Workbook

- Once your workbook is ready, publish it to Tableau Server or Tableau Online.
- In Tableau Desktop, go to **"Server" > "Publish Workbook"**.
- Provide the necessary details and publish the workbook to the server.

#### Step 2: Configure Automatic Data Refreshes

- On Tableau Server or Tableau Online, navigate to the published workbook.
- Click on the **“Data Sources”** tab to view the data sources used in the workbook.
- For live data sources, Tableau Server/Online automatically fetches the latest data every time a user loads the dashboard. However, to refresh the data automatically at specified intervals:
  - Use **Tableau Bridge** for Tableau Online if you're working with on-premise data.
  - For real-time dashboards, you might not need to set up scheduled extracts since they are live; the data refreshes every time the view is loaded. But for more frequent control, you can implement JavaScript API for auto-refresh.

### Step 3: Implement JavaScript API for Auto-Refresh

- For cases where you need the dashboard to auto-refresh every few seconds, you can use the Tableau JavaScript API.
- Here’s a basic example of how to do this:

javascript

Copy code

```
<script type="text/javascript">

var viz;

var vizDiv = document.getElementById('vizContainer');

var vizURL = 'Your Tableau Server URL here';


var options = {
  width: '100%',
  height: '800px',
  hideTabs: true,
  hideToolbar: true,
  onFirstInteractive: function () {
    setInterval(function () {
      viz.refreshDataAsync();
    }, 5000); // Refresh every 5 seconds
  }
};
```

```
viz = new tableau.Viz(vizDiv, vizURL, options);
```

```
</script>
```

- Replace 'Your Tableau Server URL here' with the actual URL of your Tableau dashboard.
- This script will refresh the data every 5 seconds.

#### 4. Considerations for Performance

- Frequent refreshing can impact performance, especially if your data source is large or complex.
- Monitor the server and optimize the data sources or extracts to ensure that the system handles frequent updates without lagging.
- If performance issues arise, consider limiting the volume of data displayed or aggregating the data before displaying it.

#### 5. Testing the Setup

- Ensure that the auto-refresh mechanism works as expected by loading the dashboard and observing if the data updates in real-time according to the specified interval.

By following these steps, you can set up Tableau to refresh data at specified intervals, enabling real-time analysis.

These are typically calculated based on historical highs and lows over a certain period. A simple approach is to use rolling highs and lows as proxies for support and resistance.

- **Support Level (Lowest Low):**

plaintext

Copy code

```
WINDOW_MIN(MIN([Low]), -n, 0)
```

Replace n with the period you want to consider for the support level (e.g., 20 days).

- **Resistance Level (Highest High):**

plaintext

Copy code

```
WINDOW_MAX(MAX([High]), -n, 0)
```

Replace n with the period you want to consider for the resistance level.

### Create Calculated Fields in Tableau:

1. Go to **Analysis > Create Calculated Field**.
2. Name it "Support Level" and enter the formula above.
3. Repeat the process for "Resistance Level."

### 2. Relative Strength Index (RSI)

The RSI measures the speed and change of price movements and is used to identify overbought or oversold conditions.

- **RSI Calculation:**

- First, calculate the average gain and loss:

plaintext

Copy code

```
IF [Close] - LOOKUP([Close], -1) > 0 THEN [Close] - LOOKUP([Close], -1) ELSE 0 END
```

and

plaintext

Copy code

```
IF [Close] - LOOKUP([Close], -1) < 0 THEN ABS([Close] - LOOKUP([Close], -1)) ELSE 0 END
```

- Then, calculate the average gain/loss over the desired period (n):

plaintext

Copy code

```
WINDOW_AVG(IF [Close] - LOOKUP([Close], -1) > 0 THEN [Close] - LOOKUP([Close], -1) ELSE 0 END, -n, 0)
```

and

plaintext

Copy code

```
WINDOW_AVG(IF [Close] - LOOKUP([Close], -1) < 0 THEN ABS([Close] - LOOKUP([Close], -1)) ELSE 0 END, -n, 0)
```

- Finally, calculate RSI:

plaintext

Copy code

```
100 - (100 / (1 + [Average Gain] / [Average Loss]))
```

### Create Calculated Fields in Tableau:

1. Create fields for "Gain" and "Loss" using the first set of formulas.
2. Create fields for "Average Gain" and "Average Loss" using the WINDOW\_AVG function.
3. Finally, create the "RSI" calculated field using the final formula above.

### 3. Stochastic Oscillator

The Stochastic Oscillator compares a particular closing price of a security to a range of its prices over a certain period.

- **Stochastic Oscillator Calculation:**

- Calculate the %K:

plaintext

Copy code

```
100 * (([Close] - WINDOW_MIN([Low], -n, 0)) / (WINDOW_MAX([High], -n, 0) - WINDOW_MIN([Low], -n, 0)))
```

- Calculate the %D (3-period SMA of %K):

plaintext

Copy code

```
WINDOW_AVG([%K], -2, 0)
```

### Create Calculated Fields in Tableau:

1. Create a calculated field for "%K" using the formula above.
2. Create another calculated field for "%D" (SMA of %K).

### Step 3: Build the Visualizations

#### 1. Candlestick Chart

- Drag Time to Columns and Open, High, Low, Close to Rows.
- Create a candlestick chart using the appropriate mark type.

#### 2. Support and Resistance Levels

- Add the "Support Level" and "Resistance Level" calculated fields to the chart as reference lines.

#### 3. Volume Analysis

- Drag Time to Columns and Volume to Rows.
- Create a bar chart to visualize the trading volume.



#### 4. RSI and Stochastic Indicators

- **RSI Line Chart:**
  - Drag Time to Columns and the "RSI" calculated field to Rows.
  - Set the mark type to Line.
- **Stochastic Oscillator Line Chart:**
  - Drag Time to Columns and %K to Rows.
  - Set the mark type to Line.
  - Add %D to Rows as well, and create a dual-axis chart if desired.

#### Step 4: Assemble the Dashboard

1. **Top Section:**
  - Place the candlestick chart with support and resistance levels.
2. **Middle Section:**
  - Position the volume chart below the candlestick chart.
3. **Bottom Section:**
  - Add the RSI and Stochastic indicators at the bottom, allowing traders to see overbought or oversold conditions.
4. **Side Bar:**
  - Include filters and parameters to allow the user to adjust the timeframe and other settings.

#### Step 5: Deploy the Dashboard

- Publish to Tableau Server or Tableau Online.
- Configure automatic refreshes if using live data.

By following these steps, you'll create a comprehensive Range Trading dashboard in Tableau that calculates and visualizes key trading indicators directly within the platform.

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Formulas etc:

for a hypothetical day trade what would the out look be on an asset with these numbers? open

0.75

prev close

0.73

market cap

80.52M

high

1.08

vol

19,303,057

52W high

13.30

low

0.75

avg vol

3,754,285

52W low

0.71

Based on the provided numbers, here's a breakdown of the hypothetical day trading outlook for the asset:

Key Numbers Provided:

Open Price: \$0.75

Previous Close: \$0.73

Market Cap: \$80.52M

High: \$1.08

Volume: 19,303,057

52-Week High: \$13.30

Low: \$0.75

Average Volume: 3,754,285

52-Week Low: \$0.71

#### Analysis:

##### Opening vs. Previous Close:

The asset opened at \$0.75, which is slightly above its previous close of \$0.73. This could indicate positive sentiment in the market at the start of the trading day. Traders might perceive this as a sign of potential upward movement, especially if the market conditions are favorable.

##### Volume Analysis:

The trading volume for the day is 19,303,057, significantly higher than the average volume of 3,754,285. High volume often indicates strong interest in the asset, which could lead to increased volatility. In a day trading scenario, this high volume could be a signal for a potential breakout or significant price movement.

##### Price Range:

The low for the day matches the opening price at \$0.75, and the high for the day is \$1.08. This suggests a wide trading range, which presents opportunities for both upward and downward trades. However, the current trading range (\$0.75 - \$1.08) compared to the 52-week high of \$13.30 indicates that the asset has experienced significant depreciation over the past year.

##### 52-Week Range:

The asset's 52-week range is \$0.71 (low) to \$13.30 (high). The current trading price is near the 52-week low, which might attract buyers looking for a bargain. However, it could also indicate underlying weaknesses or negative sentiment that has driven the price down over time.

##### Market Cap:

With a market cap of \$80.52M, this asset likely falls into the small-cap category, which is often associated with higher risk and volatility. Small-cap stocks can experience large price swings, making them attractive for day traders looking for quick gains but also risky.

##### Outlook:

##### Bullish Indicators:

The asset opened higher than its previous close, which might suggest a bullish trend if it continues to rise.

The significant increase in volume compared to the average indicates strong market interest, which could lead to substantial price movements, making it an attractive candidate for day trading.

Bearish Indicators:

The current price is near the 52-week low, which could signal underlying weaknesses. The fact that the asset has fallen from a 52-week high of \$13.30 to the current level might indicate long-term negative sentiment.

The wide trading range could indicate volatility, which, while offering opportunities, also increases risk.

Day Trading Strategy:

Given these factors, a day trader might consider:

Entering a Long Position: If the asset shows signs of a continued upward trend with strong volume, it could be a good opportunity to ride the momentum up to or near the day's high.

Entering a Short Position: If the asset fails to break above its intraday high and starts to decline, especially if volume decreases, a short position might be considered to capitalize on a potential downward move.

Stop-Loss and Take-Profit: Given the volatility, tight stop-loss orders should be set to manage risk, with potential take-profit orders set near resistance levels or within the day's high range.

Disclaimer: This analysis is hypothetical and for informational purposes only. Always perform your due diligence and consult with a financial advisor before making any trading decisions.

what would the resistance and support levels be for a 24 hour period?

To determine the resistance and support levels for a 24-hour period, we can use the high, low, open, and close prices, along with some common technical analysis techniques.

1. Using Pivot Points:

Pivot points are widely used by day traders to predict potential support and resistance levels. Here's how you calculate them:

Pivot Point (P):

$P$

=

High

+

Low

+

Close

3

P=

3

High+Low+Close

First Resistance (R1):

*R*

1

=

2

×

*P*

−

Low

$R1 = 2 \times P - \text{Low}$

First Support (S1):

*S*

1

=

2

×

*P*

-

High

$$S1=2\times P-\text{High}$$

Second Resistance (R2):

$R$

2

=

$P$

+

(

High

-

Low

)

$$R2=P+(\text{High}-\text{Low})$$

Second Support (S2):

$S$

2

=

$P$

-

(

High

-

Low

)

$$S2=P-(\text{High}-\text{Low})$$

Given Data:

Open: \$0.75

High: \$1.08

Low: \$0.75

Close: \$0.73

Calculation:

Pivot Point (P):

$P$

=

1.08

+

0.75

+

0.73

3

=

2.56

3

=

0.8533

P=

3

1.08+0.75+0.73

=

3

2.56

=0.8533

First Resistance (R1):

$R$

1

=

2

×

0.8533

–

0.75

=

1.7066

–

0.75

=

0.9566

$R1 = 2 \times 0.8533 - 0.75 = 1.7066 - 0.75 = 0.9566$

First Support (S1):

$S$

1

=

2

×

0.8533

–

1.08

=

1.7066

–



1.08

=

0.6266

$S1 = 2 \times 0.8533 - 1.08 = 1.7066 - 1.08 = 0.6266$

Second Resistance (R2):

$R$

2

=

0.8533

+

(

1.08

-

0.75

)

=

0.8533

+

0.33

=

1.1833

$R2 = 0.8533 + (1.08 - 0.75) = 0.8533 + 0.33 = 1.1833$

Second Support (S2):

$S$

2

=

0.8533

-

(

1.08

-

0.75

)

=

0.8533

-

0.33

=

0.5233

$S2 = 0.8533 - (1.08 - 0.75) = 0.8533 - 0.33 = 0.5233$

Summary of Support and Resistance Levels:

Pivot Point (P): \$0.8533

First Resistance (R1): \$0.9566

First Support (S1): \$0.6266

Second Resistance (R2): \$1.1833

Second Support (S2): \$0.5233

Interpretation:

R1 (\$0.9566) and R2 (\$1.1833): These are the levels where you might expect the price to face resistance if it tries to move upwards. Traders often take profits or consider selling at these levels.

S1 (\$0.6266) and S2 (\$0.5233): These are the levels where you might expect the price to find support if it moves downward. Traders often consider buying at these levels.

These levels serve as potential areas where the asset's price may reverse or consolidate within the 24-hour trading period.

so in other words the s1 would a buy price and the r1 would be a sell price

Yes, that's correct in the context of how support and resistance levels are typically used in trading:

**S1 (Support 1):** This level is considered a potential buy price because it's the first level where the price is likely to find support, meaning the price might stop falling and start to rebound. Traders often place buy orders at or near the S1 level expecting the price to increase after hitting this support.

**R1 (Resistance 1):** This level is considered a potential sell price because it's the first level where the price is likely to encounter resistance, meaning the price might stop rising and start to decline. Traders often place sell orders at or near the R1 level expecting the price to decrease after hitting this resistance.

In a typical range-bound trading strategy:

Buy when the price approaches or touches the S1 level, anticipating a bounce upward.

Sell when the price approaches or touches the R1 level, anticipating a drop downward.

This approach is often used by day traders and swing traders who seek to capitalize on short-term price movements within a defined range. However, it's essential to combine these levels with other indicators and market context to make more informed trading decisions.

what other indicators

When using support (S1) and resistance (R1) levels for trading, it's beneficial to combine them with other technical indicators to increase the accuracy of your trading decisions. Here are some commonly used indicators:

#### 1. Relative Strength Index (RSI)

**Purpose:** RSI measures the speed and change of price movements and helps identify overbought or oversold conditions.

**Application:** If the RSI is below 30 (indicating oversold conditions), it might confirm a buy signal at the S1 level. If RSI is above 70 (indicating overbought conditions), it might confirm a sell signal at the R1 level.

#### 2. Moving Averages (MA)

**Purpose:** Moving averages smooth out price data to identify the direction of the trend.

**Application:** A short-term moving average crossing above a long-term moving average (golden cross) could support a buy decision at S1. Conversely, a short-term moving average crossing below a long-term moving average (death cross) could support a sell decision at R1.

### 3. Bollinger Bands

Purpose: Bollinger Bands are used to measure market volatility and identify overbought and oversold conditions.

Application: If the price touches the lower Bollinger Band and is near S1, it may suggest a buy opportunity. If the price touches the upper Bollinger Band and is near R1, it may suggest a sell opportunity.

### 4. MACD (Moving Average Convergence Divergence)

Purpose: MACD shows the relationship between two moving averages of a security's price and is used to identify changes in the strength, direction, momentum, and duration of a trend.

Application: A bullish MACD crossover (MACD line crosses above the signal line) could confirm a buy signal at S1. A bearish MACD crossover (MACD line crosses below the signal line) could confirm a sell signal at R1.

### 5. Volume

Purpose: Volume is the number of shares or contracts traded in a security or market during a given period.

Application: High volume near S1 could indicate strong buying interest and support the idea of a price bounce. High volume near R1 could indicate strong selling interest and support the idea of a price reversal.

### 6. Fibonacci Retracement Levels

Purpose: Fibonacci retracement levels indicate potential reversal levels based on the Fibonacci sequence.

Application: If S1 or R1 align with key Fibonacci retracement levels (e.g., 38.2%, 50%, 61.8%), it can provide additional confidence in those levels as potential buy or sell points.

### 7. Stochastic Oscillator

Purpose: This oscillator compares a particular closing price of a security to a range of its prices over a certain period of time.

Application: If the Stochastic Oscillator is below 20 (indicating an oversold condition), it could confirm a buy signal at S1. If the oscillator is above 80 (indicating an overbought condition), it could confirm a sell signal at R1.

### 8. Candlestick Patterns

Purpose: Candlestick patterns, like Doji, Hammer, or Engulfing patterns, provide insight into market sentiment and potential reversals.

Application: A bullish reversal pattern near S1 may confirm a buy signal, while a bearish reversal pattern near R1 may confirm a sell signal.

## 9. ATR (Average True Range)

Purpose: ATR measures market volatility by decomposing the entire range of an asset price for that period.

Application: If ATR is high, it indicates strong volatility, which might suggest a wider range for S1 and R1. Conversely, low ATR suggests lower volatility and tighter support and resistance levels.

## 10. Ichimoku Cloud

Purpose: This is a comprehensive indicator that defines support, resistance, momentum, and trend direction.

Application: If the price is above the Ichimoku Cloud and near S1, it could confirm a buy signal. If the price is below the cloud and near R1, it could confirm a sell signal.

## Conclusion

Combining these indicators with support (S1) and resistance (R1) levels can help you make more informed trading decisions by confirming signals and filtering out potential false positives. Traders often use a combination of 2-3 indicators to align with their specific strategy, as relying on one indicator alone may lead to less reliable signals.

can you give me a full example for my mock trading tracker

Certainly! Here's a full example of how you might set up a mock trading tracker for a hypothetical day trade using various technical indicators. This example will incorporate support and resistance levels along with several technical indicators to help inform your buy, sell, and hold decisions.

Asset Data:

Asset: XYZ Corp

Open: \$0.75

Previous Close: \$0.73

Market Cap: \$80.52M

High: \$1.08

Low: \$0.75

Volume: 19,303,057

Average Volume: 3,754,285

52-Week High: \$13.30

52-Week Low: \$0.71

Step 1: Calculate Support and Resistance Levels

Using Pivot Points:

Pivot Point (P):

$P$

=

1.08

+

0.75

+

0.73

3

=

0.8533

P=

3

$1.08 + 0.75 + 0.73$

$= 0.8533$

First Resistance (R1):

$R$

1

=

2

×

0.8533

-

0.75

=

0.9566

$$R1 = 2 \times 0.8533 - 0.75 = 0.9566$$

First Support (S1):

S

1

=

2

×

0.8533

−

1.08

=

0.6266

$$S1 = 2 \times 0.8533 - 1.08 = 0.6266$$

Step 2: Apply Technical Indicators

Relative Strength Index (RSI):

Current RSI: 25 (indicating oversold conditions)

Interpretation: RSI below 30 suggests the asset is oversold. Combined with the S1 level, this could signal a potential buy opportunity.

Moving Averages (50-day SMA and 200-day SMA):

50-day SMA: \$0.80

200-day SMA: \$1.20

Current Price: Below both SMAs, suggesting a bearish trend.

Interpretation: If the price crosses above the 50-day SMA while near S1, it could indicate a potential reversal.

Bollinger Bands:

Upper Band: \$1.10

Lower Band: \$0.70

Current Price: Near the lower band (\$0.75)

Interpretation: The price near the lower Bollinger Band and S1 could signal a potential buy if the price starts to move upwards.

Volume Analysis:

Current Volume: 19,303,057 (significantly higher than average)

Interpretation: High volume near support levels often suggests strong interest, potentially signaling a reversal.

MACD:

MACD Line: Rising

Signal Line: Below MACD Line

Interpretation: A bullish crossover (MACD line crossing above the signal line) near S1 could confirm a buy signal.

Step 3: Formulate Trading Plan

Buy Order:

Criteria: If the price reaches S1 (\$0.6266) and RSI is below 30 with a bullish MACD crossover.

Stop-Loss: Set just below the 52-week low (\$0.71) to minimize potential losses.

Take-Profit: Set near R1 (\$0.9566) or adjust based on intraday price action.

Sell Order:

Criteria: If the price reaches R1 (\$0.9566) and RSI is above 70, suggesting overbought conditions.

Trailing Stop: Use a trailing stop to capture gains if the price continues to rise beyond R1.

Hold Position:



Criteria: If the price hovers between P (\$0.8533) and R1 (\$0.9566) without strong signals from other indicators, hold and monitor.

#### Step 4: Track and Adjust

Intraday Monitoring: Continuously monitor volume, price movement, and indicators throughout the day.

Adjust Orders: Be ready to adjust stop-loss, take-profit levels, or entry points based on new market data (e.g., news, significant volume spikes).

#### Example Trading Log:

Time	Action	Price	Indicator	Confirmation	Notes
09:30 AM	Open Position	\$0.75	RSI: 25, Near S1, MACD Bullish	Entered near support level	
11:00 AM	Monitor	\$0.80	Volume increasing, RSI rising	Holding position, watching for resistance	
01:30 PM	Consider Selling	\$0.95	RSI: 68, Near R1, MACD steady	Close to R1, considering trailing stop	
03:30 PM	Close Position	\$0.96	RSI: 70, Hits R1, Volume Peaks	Exited trade at resistance level	

#### Conclusion

This example integrates support and resistance levels with several technical indicators to create a comprehensive trading plan. By following these steps, you can make informed decisions about when to buy, sell, or hold based on a combination of technical signals.

what do day traders typically do if the r and s values arent reached

When day traders set up their trading plans based on support (S) and resistance (R) levels but those levels aren't reached during the trading session, they generally have a few strategies they might employ:

#### 1. Hold the Position or Stay Out

Hold: If the price remains between the support and resistance levels without touching either, traders may choose to hold their positions and wait for a clearer signal.

Stay Out: If no entry signal is triggered (i.e., the price doesn't reach S1 for a buy or R1 for a sell), some day traders might choose not to enter any trade for the day, avoiding unnecessary risk.

#### 2. Reassess and Adjust the Plan

Dynamic Adjustment: Traders might adjust their support and resistance levels throughout the day based on new information or price action. For example, if the price stays within a narrow range, they might recalibrate their levels to reflect the new price action.

Use of Secondary Indicators: Traders may rely more heavily on other technical indicators like RSI, MACD, or moving averages to make trading decisions when the price doesn't hit predefined S or R levels.

### 3. Intraday Scalping

Scalping Small Moves: Instead of waiting for the price to hit S1 or R1, traders might switch to a scalping strategy, where they make multiple small trades based on minor price movements. This can involve buying at minor intraday support levels and selling at minor intraday resistance levels.

### 4. Cancel Pending Orders

Cancel or Modify Orders: If the S or R levels aren't reached, traders may cancel their pending orders to avoid potential losses from sudden market shifts or modify them if new patterns emerge.

### 5. Implement Stop-Loss Adjustments

Trailing Stop-Loss: If a trader has an open position but the price doesn't move toward their target (R1 or S1), they might use a trailing stop-loss to lock in profits if the market starts to move against them.

### 6. Exiting at Market Close

Closing Out: Some day traders close all positions by the end of the trading day, regardless of whether their price targets were reached. This is to avoid overnight risk, as holding positions overnight can expose them to unexpected market movements when the market opens the next day.

### 7. Re-Evaluate the Strategy

Review and Learn: After the trading session, traders often review why the price didn't reach their S or R levels. They may adjust their strategies, refine their indicators, or reconsider their approach for future trades.

These strategies help day traders manage risk and make decisions when the market doesn't behave as expected. Flexibility and quick decision-making are key traits for successful day trading, especially when the price action doesn't align with predefined support and resistance levels.

could this be converted into an algorithm for testing on <https://www.quantconnect.com/terminal>

Warren Buffett, inspired by Benjamin Graham, follows a disciplined approach to value investing. The basic components of this "algorithm" include:

**1. Intrinsic Value Calculation:**

- Buffett focuses on buying stocks when their market price is significantly below their intrinsic value. Intrinsic value is calculated based on the company's earnings, cash flow, and future growth prospects.
- **Discounted Cash Flow (DCF) Analysis:** This is a primary tool used by Buffett to estimate intrinsic value. It involves forecasting the company's future free cash flows and discounting them back to their present value using a discount rate (often the company's weighted average cost of capital).

**2. Margin of Safety:**

- Buffett insists on a "margin of safety"—the difference between a company's intrinsic value and its current market price. This margin protects against errors in valuation and unforeseen market conditions.

**3. Economic Moat:**

- Buffett looks for companies with a sustainable competitive advantage, which he calls an "economic moat." This could be in the form of brand strength, proprietary technology, network effects, or regulatory advantages that protect the company from competitors.

**4. Management Quality:**

- The quality of the company's management is crucial. Buffett prefers management teams that are transparent, honest, and capable of deploying capital effectively.

**5. Long-Term Prospects:**

- Buffett focuses on companies with stable, long-term growth prospects rather than those seeking short-term gains. He prefers businesses that are easy to understand and predict over many years.

**6. Financial Health:**

- Companies should have strong balance sheets with manageable debt levels and consistent profitability. Buffett avoids companies with excessive debt or volatile earnings.

**Example of Applying Buffett's Principles:**

Imagine you're considering investing in a company. Using Buffett's principles, you would:

1. Estimate the company's intrinsic value through DCF analysis.
2. Ensure the current stock price is significantly lower than this intrinsic value (providing a margin of safety).

3. Assess whether the company has a strong economic moat.
4. Evaluate the quality of the management team.
5. Consider the company's long-term growth prospects and its financial health.

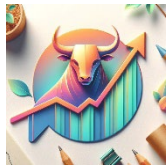
### Buffett's Approach in Practice:

While not a formal algorithm, Buffett's systematic approach has been compared to an algorithm due to its disciplined, rule-based nature. The principles of value investing that Buffett follows can be programmed into a quantitative model, which might resemble an "algorithm" for identifying investment opportunities.

### Conclusion:

The so-called "Buffett's Bargain Algorithm" refers to the application of Warren Buffett's value investing principles to identify and invest in undervalued stocks with strong long-term potential. While there isn't a formal algorithm published by Buffett himself, these principles can be and often are adapted into systematic investment strategies by both individual investors and financial institutions.

what is the formula for that?



The formula for determining the intrinsic value of a stock, which is central to Warren Buffett's value investing approach, typically revolves around **Discounted Cash Flow (DCF) Analysis**. Here's a breakdown of the key components:

#### 1. Discounted Cash Flow (DCF) Formula:

The DCF formula is used to calculate the present value of expected future cash flows from an investment, which Buffett refers to as intrinsic value.

$$\text{Intrinsic Value} = \sum_{t=1}^n \frac{FCF_t}{(1+r)^t} + \frac{TV}{(1+r)^n}$$

Where:

- **FCF<sub>t</sub>**: Free Cash Flow in year *t*
- **r**: Discount rate (often the Weighted Average Cost of Capital, or WACC)
- **n**: The number of years into the future you are forecasting
- **TV**: Terminal Value, which accounts for all future cash flows beyond the *n* years you've projected

#### 2. Terminal Value (TV) Calculation:

The terminal value can be calculated using the Gordon Growth Model, assuming that the free cash flows will grow at a steady rate indefinitely:

$$TV = \frac{FCF_{n+1}}{r-g}$$

Where:

- **FCF<sub>n+1</sub>**: Free Cash Flow in the year after your projection period ends
- **g**: Long-term growth rate of the company

### 3. Margin of Safety:

Once you have calculated the intrinsic value, Buffett's principle of a margin of safety suggests that you should only invest if the market price is significantly lower than the intrinsic value. This margin of safety could be expressed as:

$$\text{Margin of Safety} = \frac{\text{Intrinsic Value} - \text{Market Price}}{\text{Intrinsic Value}} \times 100\%$$

A margin of safety of 20% or more is often considered a good threshold.

### 4. Economic Moat Consideration:

While not a formula, the evaluation of an economic moat involves assessing qualitative factors such as brand strength, patents, network effects, etc. A company with a strong moat is likely to have more predictable cash flows, making the DCF model's assumptions more reliable.

### 5. Application Example:

Let's say you are analyzing a company with the following assumptions:

- Expected Free Cash Flow (FCF) for the next 5 years: \$10M, \$11M, \$12M, \$13M, \$14M.
- Discount Rate (r): 8%
- Terminal Growth Rate (g): 2%

You would:

1. Calculate the present value of each year's FCF using the DCF formula.
2. Calculate the terminal value using the Gordon Growth Model.
3. Sum these values to determine the intrinsic value.
4. Compare this intrinsic value with the current market price to determine if there's a sufficient margin of safety.

### Conclusion:

These formulas embody Buffett's value investing principles and can be applied systematically to assess whether a stock is a "bargain" according to Buffett's approach. While the calculation involves some

subjectivity (e.g., choosing the discount rate and growth rate), it provides a structured way to estimate the intrinsic value of a stock.