

SUPPLY & DEMAND TRADING ZONE IDENTIFICATION

PROJECT DELIVERABLE

Using mathematical comparative rules on prices of individual stocks across multiple time frames to identify and shortlist from list of symbols/tickers in a given database. Each stock/ticker/symbol will have THREE timeframes that the analysis will process through – Higher, Intermediate and lower timeframe. Intermediate is optional, and only if the GUI field is checked Yes, it is used, otherwise, it is not used. The database to analyze is MySQL located on Google Cloud Computing Servers and updates at *user defined frequency*.

Project Language: Python 3.7+

Project Timeline: 30 days (plus debugging until the deliverable is fully functional)

CURRENT DATABASE STRUCTURE

6 Tables – Weekly, Daily, 60 Mins, 30 Mins, 15 Mins, 1 Min

Current Total Tickers is each table: 498 individual tickers. Subject to change, can be thousands more and the code should run the algorithm on every unique ticker it finds in the database.

Current Table Structure:

Date/Candle /Timestamp	Ticker	Open	High	Low	Close	Volume	SMA15	SMA 20	EMA15	EMA20
YYYY-MM-DD HH:MM:SS.0 00000	XYZ	float	float	float	float	Int	float	float	float	float
YYYY-MM-DD HH:MM:SS.0 00000	ABC	float	float	float	float	Int	float	float	float	float
YYYY-MM2-DD2- HH2:MM:SS. 11.11	XYZ	float	float	float	float	Int	float	float	float	float

**Ticker can be repeated in each intraday table. For ex: A 60-min hourly table will have 7 entries, one for each hour, for the same ticker. However, timestamp/date/candles will be unique.*

BACKGROUND: (Read carefully for full understanding of what is required)

The purpose of this project is to find price behavior of each stock in the past on three different timeframes. We will use Open/High/Low/Close of each candle for each timeframe per stock. This needs to be done mathematically for multiple stocks, based on rules and values entered by the user in Graphical User interface. The methodology requires a three-step process, which can be broken down into several smaller chunks of logical operation to arrive at the final list of recommendation/shortlist as an output.

- The first Input is to choose an *asset class* to run this algorithm. The choices are:
1) Stocks 2) Options Contracts 3) Foreign Exchange Currency Pairs 4) Futures Contracts. Depending on the choice, there will be specific set of data tables to analyze using the script that is being coded here.
*Currently, this project is only for **Stocks**. However, the Graphical User Interface/Configuration File must be ready to eventually expand to other asset classes listed above.*

- The second input is to choose **two** or **three** different timeframes that the scanner/program will run through. Choices are: **Monthly, Weekly, Daily, 60 mins, 30 mins, 15 mins, 5 mins and 1 min**. The analysis should run on **multiple, specified timeframes** (explained in detail below)

The potential examples of three different timeframes to analyze for each single stock, options contracts, futures commodity or Foreign currency pair in the future are:

- The direction of analysis moves in three steps from exactly in this order – First is HTF, then ITF and Finally LTF, if intermediate timeframe is selected.

Higher Time Frame (HTF) (Required)	Intermediate Time Frame (ITF) (OPTIONAL)	Lower Time Frame (LTF) (Required)
➡ Monthly Price Chart	Weekly Price Chart	Daily price Chart
➡ Weekly Price Chart	Daily Price Chart	Hourly Price Chart
➡ Daily Price Chart	Hourly Price Chart	15 Minute Price Chart
➡ Hourly Price Chart	15 Minute Price Chart	5 Minute Price Chart
➡ 30 Min Price Chart	5 Minute Price Chart	1 Min Price Chart

- The third input is to assign a *trade direction* before running the code. The direction of trades can be **Long(buying) OR Short(selling)**.
- Once values for each timeframe is entered into the GUI (detailed below), the code will **execute continuously** on a set schedule until stopped manually on **ALL** the stocks in the chosen database.
- Multiple instances** of the code/script with different values should be allowed to be executed independent of previous active scripts running.

Schedule for automatic script query execution:

- When Higher Time frame is **Monthly**, the script analysis should run *once per day* at {user defined} time of day. Default: 20:00 ET Mon-Fri. For HTF **Weekly**, it should run hourly, on the hour, every hour from 10:00 to 16:00. Default is M – F: 1000 – 1600 ET. For HTF **Daily**, it should run every 15 minutes and for HTF **Hourly**, it should run every 5 minutes. In other words, the Lower time frame, is how often the script should run once executed. This is true for automatic continuous execution. Manual executions should run on most current/real time data and is not required to be run again.
- Once the script determines that a ticker/stock has been found where all conditions/values are true, a report with a **score** is generated and **notifies via email/alert** each time there is a new buy or sell zone found based on the conditions described.

INPUT FIELDS (GUI INTERFACE):

GENERAL FIELDS

GUI field 1: “Asset Class” Stocks [other choices: Options, Foreign Exchange, Futures]. Default is Stocks. Field is required.

Stocks, Futures, Options, Forex

GUI field 2: “Timeframe”: [Choices are: Monthly, Weekly, Daily, 60 Min, 30 Min, 15 Min, 5 Min, 1 Min.]. This list must co-ordinate with the tables in the database. If a new timeframe is added to the database, it should also appear here as a choice.

* Make sure to test that Higher time frame is always larger than intermediate and lower time frames and that ITF is larger than LTF, when selecting then below. For Example, LTF cannot be Daily, when Higher time frame is Hourly, or intermediate time frame cannot be Weekly, when higher time frame is Daily.

2A - HTF (required), Choose 1: 30 Mins, Hourly, Daily, Weekly, Monthly

2B – ITF (Optional): 5 Min, 15 Min, Hourly, Daily, Weekly

2C – LTF (required), Select 1: 1 Min, 5 Min, 15 Min, Hourly, Daily

GUI field 3: Enter Trade Direction: Long [other choice: Short]. Default is Long. Field is required.

Long/ Short

GUI field 4: Enter Analysis Start Date: MM/DD/YYYY. Default date is always Today/most current. This field must also take date from the past for back testing.

ENTER Date/Calendar

(check for past setup starting from this date)

HIGHER TIME FRAME (HTF) FIELDS

HTF GUI field 5: Enter Total Number of unique past candles/timestamps in HTF to compare from ‘Trade Start Date’: 0000. (Integer field). Default 100. Max: till end of data table. (This is important because it allows control how far back the price setup that I'm looking for in each stock. I may want to restrict only to see if a specific price behavior in the past X number of days or weeks or hours)

Integer

(look how many candle back from the date above)

HTF GUI field 6: HTF Leg-in and Leg Out candle’s Open and Close range is within top X of the total past number (HTF GUI 5) of candles. Default is 5. Max: 10. Min 1

6A. HTF Leg in value

(compared to other candles, how long is this candle)

6B. HTF Leg out value

(compared to other candles, how long is this candle)

HTF GUI field 7: HTF Leg-in and Leg Out candle’s {Open and Close} price range **RATIO** compared to {Highest and Lowest} price of that same candle. I.E. Ratio of Body to Full Candle. Body must be X% of the full range. Default is 70%. Max: 100%. Min 60%.

7A. HTF BELOW CURRENT PRICE

Leg in Body-Range Ratio

7B. HTF BELOW CURRENT PRICE

Leg out Body-Range Ratio

7C. HTF ABOVE CURRENT PRICE

Leg in Body-Range Ratio

7D. HTF ABOVE CURRENT PRICE

Leg out Body-Range Ratio

HTF GUI field 8: HTF Basing Candles {Open and Close} price range **RATIO** compared to {Highest and Lowest} price of that same candle. I.E. Ratio of Body to Full Candle. Body must be X% of the full range. Default is 30%. Max: 49%. Applies to all (up to 3) basing candles.

8A. HTF BELOW CURRENT PRICE
Basing candle body-range %

8B. HTF ABOVE CURRENT PRICE
Basing candle body-range %

LOWER TIME FRAME (LTF) FIELDS

LTF GUI field 9: LTF Leg-in and Leg Out candle's Open and Close range is top X of the total past number (gui field 5) of candles. Default is 5. Max: 10. Min 3. For eg: If value of X is 5, it will shortlist top 5 candles compared against all the candles between (GUI field4) and (GUI field5). Leg in and leg out values are **INDEPENDENT** of each other.

Enter LTF Leg-in value

Enter LTF Leg-out value

LTF GUI field 10: LTF Leg-in and Leg Out Candle's Open and Close price range **RATIO** compared to High and Low of the same candle. I.E. Ratio of Body to Full Candle. Body must be X% of the full range. Default is 80%. Max: 100%. Min 70%.

10A. LTF BELOW CURRENT PRICE
Enter Leg in Body-Range Ratio

10B. LTF BELOW CURRENT PRICE
Enter Leg out Body-Range Ratio

10C. LTF ABOVE CURRENT PRICE
Enter Leg in Body-Range Ratio

10D. LTF ABOVE CURRENT PRICE
Enter Leg out Body-Range Ratio

LTF GUI field 11: LTF Basing Candles {Open and Close} price range **RATIO** compared to {High and Low} price of that same candle. I.E. Ratio of Body to Full Candle. Body must be X% of the full range. Default is 30%. Max 49%. Applies to all (up to 3) basing candles.

11A. LTF BELOW CURRENT PRICE
Enter Basing candle body-range %

11B. LTF ABOVE CURRENT PRICE
Enter Basing candle body-range %

GENERAL FIELDS

GUI Filed 12: Number of candles in the past to compare for Opposing Zone, if current candle is making All-Time-High prices or All-Time-Low OR there are no valid zones found in this period. (details on this exception is explained on a separate document – How to deal with ATH/ATL, not included here.)

Enter Value (integer)
Total candles to look back when no valid opposing zone found.

GUI field 13: Enter Frequency to execute script continuously every: Daily [other choices: Hourly, Minutes]. (After the first execution, this should occur only if new price data/candle has been added to the underlying database. No point running the script if there is no change in the data.)

Once/Daily/Hourly/Minutes

GUI field 14: Choose any one type of Execution:

Automatic

Manual

GUI field 15: For automatic, **Enter Time of day for** continuous scheduled execution of script: hh:mm:ss

Enter Time of day to
execute automatically

Save and run any of the above settings to reuse the same values in the future.

Enter Query Name & SAVE

SAMPLE OUTPUT:

This table should be saved in a database every time it changes. Also, in the next phase of this project, I may want automatic ordering based on this table and thus it should be in a format, where broker API's could pull from this table to place orders. However, until such time, I should be able to receive continuous alert as the output as often as new valid zones are found. Require feature: An Email alert notification **as often as new Asset/Ticker with a scored zone are discovered**, if the code is running on Automatic frequency.

Trade Direction (from gui field 3)	High Time Frame (from gui field 2)	Ticker (from database)	Last Closing price (from database)	Entry Price at LTF Zone (from analysis)	Date/Timestamp of leg-out at LTF Zone (from analysis)	ITF Trend, if app	Curve level (from analysis)	RRR (from analysis)	Zone Score (from analysis)
Long	Weekly	AAPL	\$000.00	\$000.00	MM/DD/YY	5<20	Low	5:1	8
Short	Daily	XYZ	\$000.00	\$000.00	MM/DD/YY	5EMA>20	Very High	3:1	10
Long	Hourly	AAPL	\$000.00	\$000.00	MM/DD/YY	>20	Very Low	2.5:1	9
Long	Weekly	AAPL	\$000.00	\$000.00	MM/DD/YY	5EMA<20	Low	4.78:1	7

The ABOVE TABLE IS WHAT THIS ENTIRE PROJECT IS ABOUT. If the logic of the code is accurate, this information is what is valuable. Below is the mathematical, logical breakdown.

IMPORTANT ADDITIONAL FEATURE

BACK TESTING:

The program should take any date from the past and run the program as if that back date is today. It will start the analysis where that backdate becomes the current/last candle. Then analyze the past data from that point to give an output of an available zone. When using Back testing feature, the query need not run automatically. Back testing will be done on manual execution of the script. The program should determine the oldest record in the highest timeframe and use that as the farthest back date it will analyze.

HYPOTHETICAL EXAMPLE:

I wish to run the script to find a weekly trade opportunity across all the S&P500 stocks today at 9PM at night and I decide to run a manual one-time query on the data. In the GUI, I choose, HTF as Weekly, ITF as Daily, LTF as Hourly. The direction of the trades I'm looking for today is LONG (I should also be able to run a scan for shorting opportunities, independent of the long scan).

The script will start with weekly chart (HTF) of Ticker 'A' and look back X number of candles (gui field 5), let's say 100 (i.e. 100 weeks). If Ticker 'A' doesn't have 100 weeks of data, it will take all the available weeks.

1. This is step one and it is to determine **CURVE**. If it finds the price action/pattern, made of 3 to 5 candles called rally-base-rally or drop-base-drop, exactly as defined to be true, it will assign a score.
2. It will then move to step 2, analyze the ITF for the same ticker 'A' based on the rules assigned to determine **TREND**, if the GUI input query requested it.
3. In this step it will analyze the LTF for ticker 'A', to find **TRADING ZONE**. It will score the trading zone based on assigned rules, and if true add a new recommendation to the output table and alert me. It will then move on to the next ticker and so forth until all the tickers have been analyzed and scored.

Similarly, I can choose to execute a separate query for shorting opportunities for the all the symbols for monthly trades with different values and another query to run on foreign currency pairs (when we have that data, not part of this project yet), on an hourly basis. Thus, it is important that multiple instances of the script can be executed for different types of trades, timeframes, markets etc., in addition to any automatic schedules queries previously setup.

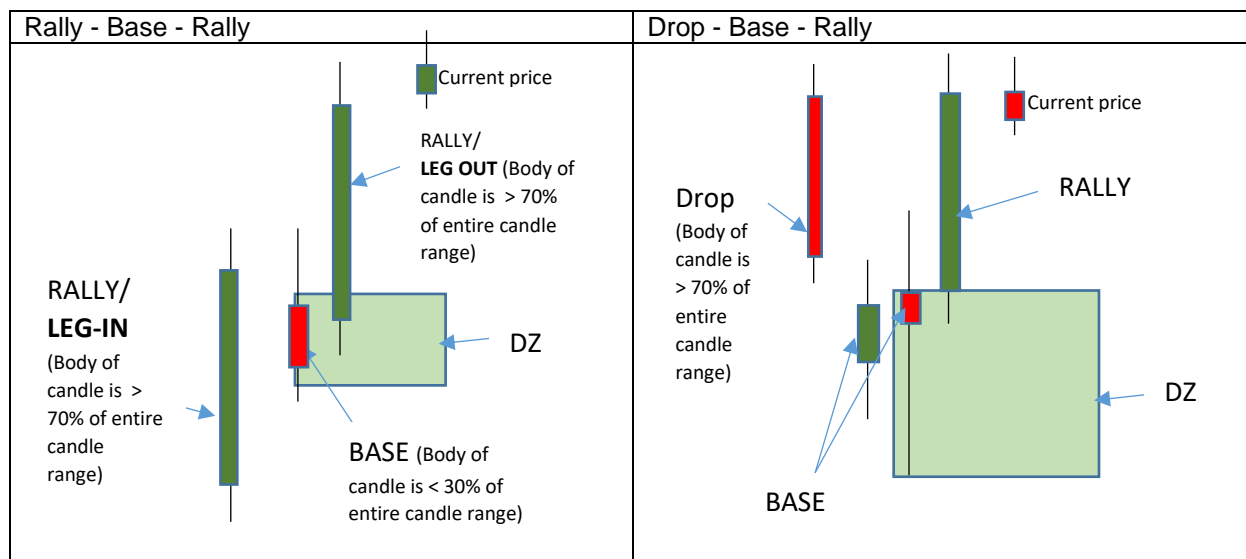
WHAT IS A DEMAND AND SUPPLY ZONE:

A DEMAND ZONE IS PRICE BEHAVIOR MADE OF 3 TO 5 CANDLES THAT ALWAYS OCCURE BELOW THE LOW PRICE LEVEL OF THE CURRENT/TODAY'S CANDLE. VISUALLY, FROM THE LOW OF CURRENT CANDLE, LOOK DOWN AND LEFT.

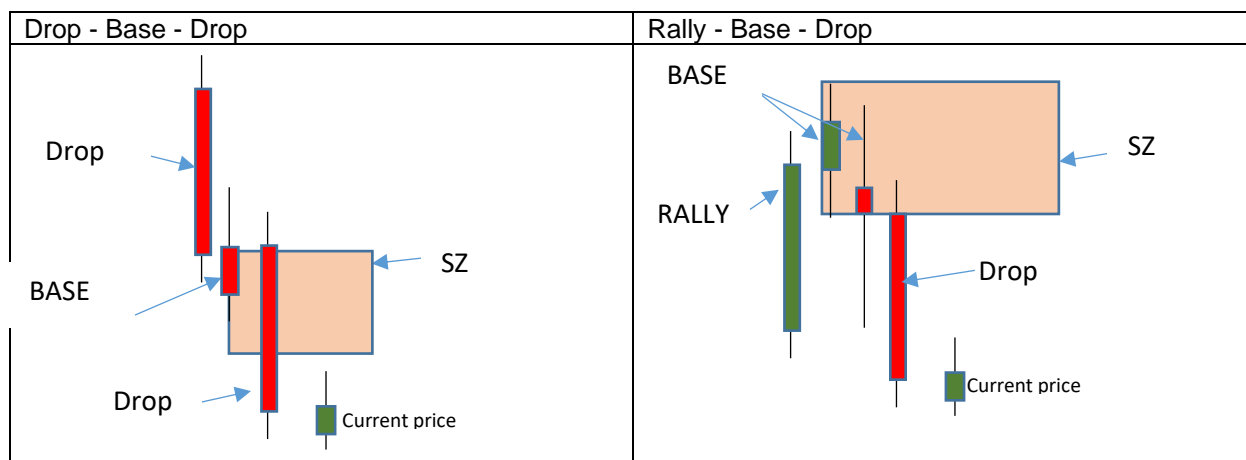
A SUPPLY ZONE IS PRICE BEHAVIOR MADE OF 3 TO 5 CANDLES THAT ALWAYS OCCURE ABOVE THE HIGH PRICE LEVEL OF THE CURRENT/TODAY'S CANDLE. VISUALLY, FROM THE HIGH OF THE CURRENT CANDLE LOOK UP AND LEFT.

There are 2 types of Demand Zones and Supply zones. They can be Rally-Base-Rally type or Drop-Base-Drop type.

Demand Zones look like example below. Note, both types of zone occur below the current candle.



Supply Zone looks like this:



- A **demand** zone is always **below** current price sometime in the past. Like the Green box above. A **supply** zone is always **above** the current price sometime in the past. Orange box above.
- Each zone is made of three parts and can be made up of **3, 4 or 5 candles**. No less, no more.
- When the scan is Long, analysis is to find valid Demand Zone below current price to score and supply zone as opposing price level to measure curve i.e. distance between the two zones.
- When the scan is Short, analysis is to find valid supply Zone above current price to score and demand zone as opposing price level to measure curve i.e. distance between the two zones.

Definition of Leg-in (LI): In a valid zone, this is the left side long extended candle. The body (open to close) must be **70% or more** (values from [gui 7](#), [gui 10](#)) of the entire range (High to Low) of that candle. It is always only 1 candle. When looking for long trades Leg-in can be any color for demand zone side and supply zone side. They represent very fast and big change in price in either direction. Rally means price went up and closed higher than open, drop means prices went down and closed lower than open.

Definition of a Base candle: In a valid zone, these are small candles that have middle body (open-close price) **less than 50%** (values [gui 8](#), [gui 11](#)) of the entire range (high-Low) of that candle. A base must be minimum of 1 candle and could be a maximum of 3 candles. Basing represents price consolidation and form the middle part of the zone.

Definition of Leg-out (LO): In a valid zone, this is the right side long extended candle. The body must be **70% or more** (*gui 7, gui 10*) of the entire range (high to low) of that candle. It is always just 1 candle. When looking for Long trades, the leg-out will always be green on demand side and red on supply side. They represent very fast and big change in price in either direction. Rally means up, drop means down. For short trades, the leg-out is always red candle on supply side, and green on demand side. However, color or direction of price is not important as much as how much the price moved. Detailed explanation below will clear it further.

A pattern of the three conditions of LI – Base – LO, next to each other made up of 3 to 5 candles is a valid zone. When occurring above current price it is a supply zone and when below current price, it is demand zone. The closer they are on the lower time frame to current/today's candle, the more valuable they are.

Find and score the zones correctly, across the database on a continuous basis and the project has met its goal.

BRIEF EXPLANATION OF 3 STEPS

Step 1: DETERMINE CURVE, ALWAYS ON HIGHER TIME FRAME

In HTF of an asset class, find **nearest** demand zone (DZ) and **nearest** supply zone (SZ), that looks like the pattern LO-BASE-LO as described above, comparing candles in the past as far back as (*gui field 5*). The range of price between these two zones becomes the *CURVE*. In other words, it is the price range within which the next steps of analysis will be conducted. The one supply zone on top and one demand zone at the bottom of the current price will define the range. If current price is lower towards the demand zone, it will be considered for long trade. If it is high towards the supply zone, it will be considered for short trade. Details on curve below. See *pic.1 below for visual example*.

Step 2: FIND TREND, ALWAYS ON INTERMEDIATE TIME FRAME, OPTIONAL, ONLY if value is selected in (*GUI Field 2B*)

In ITF, check to see if the trend of this ticker is up or down. IF $5EMA > 20SMA$, trend is up. If $5EMA < 20SMA$, trend is down.

Step 3: FIND TRADING PRICE LEVEL USING DEMAND ZONE (DZ) & SUPPLY ZONE (SZ), ON LOWER TIME FRAME

In LTF, if step 1 signaled long trade (low or very low on curve level), find the closest demand area. If one is found, score the demand zone and produce an output. Then find the Closest/Nearest opposing supply zone (scoring not needed here) and use that as the price to close the trade and take profit. This opposing supply zone is not scored. It's only for where to take profit after we have already entered the trade on the demand side. Opposing zone is also used to determine risk-to-reward ratio, discussed later.

If step 1 signaled short trade (high or very high on curve level), find closest supply zone, the demand zone and product an output. Then find the closest demand zone and use that as the price to close the trade and take profit. This opposing demand zone is not scored. It's only for where to take profit after we have already entered the trade on the supply side.

Difference between TRADING ZONE and OPPOSING ZONE

Although in set up they are the same but depends on the direction of trade (*gui 3*). If scanning for long trade, demand zone below the current price is the trading zone and the supply zone above, is the opposing zone. On the HTF the distance between the two zones is used to see where the current price is on the curve location. On the LTF, the distance is used to calculate risk to reward ratio. I.E. If I enter a trade at this price, where should my stop loss be (Risk) & where should my target me (Reward).

For short trade, the supply zone above current price is used for finding trading zone and below current price is the opposing supply zone. Again, the distance between the zones is called curve (*pic 1*) and where the

current price is located on this curve, tells if it is valid for a short trade or not. If scan was for long, current price must be low or very low on the curve, If scan was for short trade, current price must be high or very high on the curve.

Exception When looking for zones: Many times, prices are making all-time highs or lows and there are no opposing zones. In this scenario, the rules from ATH/L documents will be used to determine the opposing zone for HTF curve location and also for LTF trading price levels. This is detailed in another document. To be included separately.

DETAILED VISUAL BREAKDOWN OF EACH OF 3 STEP – CURVE LOCATION, TREND AND ZONE

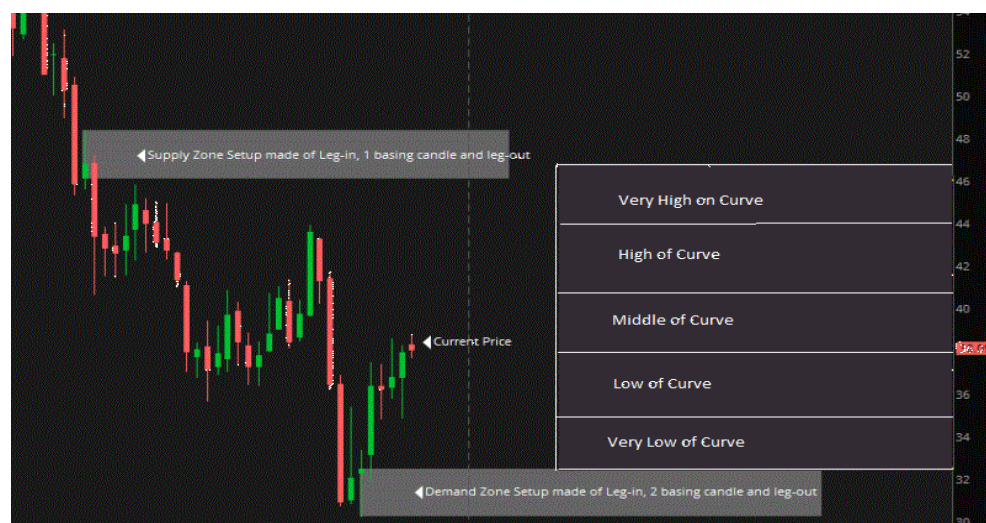
REQUIRED STAGE 1: Determine CURVE on Higher time Frame (HTF) of ticker 'XYZ'.

Here we determine the curve of where the current price lies relative to its previous prices looking in the past from current price. Program should identify the nearest areas that has a setup like in the grey boxes below (pic 1). We are looking for a demand zone and a supply zone nearest to the current price. We use the supply and demand zone patterns from above to find two zones, one above and one below current price and use that as a rang to see where current price is closer to.

Once the demand zone and supply zone is found, we divide the area in the middle into 5 equal parts. Then measure where is the current price in relation to the range of price in the near past - is in the very low or low of the curve, middle of the curve or the high/ very high of the curve? If it's in the very low or low area, it is considered true for long trade. If in the middle, no trade and therefore we move on to the next ticker and if in the high or very high, it's true for short trade, so far.

The current candle, nor any past candles between the current price and the zone, should have penetrated either supply or demand zones for it to be valid. The zones must be fresh as seen below. In other words, no other candle between the current price and the zone level should have reached the prices since the zone was formed. If one looks down and left for demand zone, no other candle is touching the grey box except the LEG-IN-BASE-LEG-OUT candles, which is part of the zone. The same is true for opposing zone. In the example below, the two zones are valid to measure curve, but then we determine that the current price is at the middle of the curve and thus not valid for trade.

Pic 1.



How to Mark the zones (The height of the grey box in the pic above)?

- A Demand Zone is marked from the highest Basing candle's body (whichever of the 1,2, or 3 basing candles have the highest body) to the lowest price among any of the basing candle or the leg-out candle (leg-in candle is ignored to mark the zone).
- A Supply Zone is marked from the lowest body in any of the Basing candle (whichever of the 1,2, or 3 basing candles have the lowest body) to the highest price among any of the basing candles or the leg-out candle (leg-in candle is ignored to mark the zone).
- The division of the curve into 5 equal parts is done from the bottom of the supply zone to the top of the demand zone.
- FOR ALL TIME HIGH OR NO OPPOSING ZONE FOUND: See ATH/ATL Document

OPTIONAL STEP 2: Determine TREND on Intermediate time Frame(ITF) of ticker 'XYZ'.

If the current price in the previous step was either low or very low on curve and not making all-time lows, (for long trades) or high/very high on curve and not making all-time-highs, (for short trades), AND ITF value is populated in the (GUI FIELD 2B), the script should proceed to analyze the trend, depending on which time period is used, determine if the 5EMA is greater than 20SMA for long (or is 5 EMA < 20SMA for short) or if prices are trading above or below the 20 period EMA on ITF price data. If HTF is monthly or weekly, compare with 5EMA & 20SMA, If the timeframes are Daily or less, it should only see if current prices are above or below 20EMA on the ITF time period. If the gui field 2B is not populated, ignore this step and simply find zones on HTF and LTF without a need to test against trend.

Pic 2. (Visual example of trend on ITF price data of XYZ. 5 Day EMA > 20 Day SMA)



REQUIRED STEP 3: Trading Zone Determination on Lower Time Frame of the Same Ticker (XYZ)

Here we determine the quality of zone and score it to determine viability of trade. If on both timeframes, the HTF and ITF, conditions return true, the program will proceed to find a zone in the LTF of that ticker/stock that meets all the conditions described later in the document to calculate a score before producing an output. At this stage, the script will look back only as far back as the date where the HTF zone is located. It may find up to 3 zones between current price and the zone from the HTF and score them based on the conditions given. The nearest one is more valuable but I would like to see other zones too, that may have formed earlier but are perhaps better setup for trading than the most recent one. Below is the example of 3 separate demand zones discovered on the lower time frame, between the higher time frame demand zone and the current price. Most often, only one or two zones will be found. (See pic 3 below for example of 3 sperate zones (height of grey box is a zone) found)

IMPORTANT: For long trades, the demand zones **MUST ALWAYS** be below the current candle's lowest price with no other candle piercing the zone. For Short trades, the supply zones **MUST** always be above the current candle's highest price with no other candle piercing the zone.

Pic 3. (LTF Zone markings)



The goal is to analyze programmatically and in sequence, continuously, on schedule, all the stocks in the database, one at a time, where price levels visually set up like LI-Base-LO pattern in the near past compared to the current candle's highest price and lowest price.

Side note: The assumption is that when the price comes to these “zone” levels in the future, there will be a potential for profitable trade. Thus, a shortlist allows to watch these stocks and price levels to be ready for trading at a future time. Currently, we will not be programming for placing orders. This script will only go as far as accurately and mathematically identifying price levels/zones that are potentially valid levels for future trade and thus generate a recommendation/shortlisting output. Once the program has proven to work well, the final stage (next project) will be to connect with a broker's API for order placement.

IN A NUT SHELL:



The analysis will compare three different time frames – HTF, ITF, LTF, for each stock, to determine if we find the LI-BASE-LO setup/pattern we are looking for.

- 1) Filter all the unique tickers in “HTF” looking for **zones** to determine **CURVE** using the values from the **GUI form and the rules from conditions below**.
- 2) Then these filtered tickers will be analyzed against the conditions in the “ITF” for **TREND** using **EMA and SMA trend lines, if applicable**.
- 3) The second filtered ticker list from ITF will be further analyze in the LTF table to find and score the **Quality of the Zone** using the values from the **GUI form and the rules from conditions below**.

The above analysis will run for **Long** Trade Direction and for **Short** trade direction independently and *simultaneously*. Multiple instances of varied time frames can be executed and scheduled in advance for scanning.

RULES TO DETERMINE OUTPUT:

After entering the values into the required field of the GUI by the user, the following rules will execute:

<u>HIGHER Time Frame to Identify & Score CURVE</u>	
Find and Mark <u>Demand Zone</u>	Find and Mark <u>Supply Zone</u>
<p>If the trade direction (gui field 3) is Long, run Demand Zone Step 1 through Step 5 in <i>this column first</i> for valid zone then run Supply zone steps sz1-sz5 in the right side column next, to find opposing zone. If opposing zone not found, use All-Time High rule.</p> <p>>> Start from - LOWEST PRICE on current (GUI field4) candle of the first <i>ticker</i> in an “asset class” (GUI field 1).</p> <p>End at –As far back as (GUI field5).</p> <p>The HTF DZ must be located inside the date range of the start & end points as entered above by user.</p> <p>** important note – the current candle is not considered a candle yet, because it is still active and will change continuously until that period is over. Therefore, it is only used for current price information and should not be used as a part of zone pattern/setup.</p>	<p>If the trade direction (gui field 3) is Short, run Supply Zone Step sz1 through Step sz5 in <i>this column first</i> for valid supply zone and then run demand zone steps 1-5 next from the left column, to find opposing zone. If opposing zone not found, use All-time-Low rule.</p> <p>>> Start from - HIGHEST PRICE on current (GUI field4) candle of the first <i>ticker</i> in an “asset class” (GUI field 1).</p> <p>End at – As far back as (GUI field5).</p> <p>The HTF SZ must be located inside the date range of the start and end points as entered above by user.</p> <p>** important note – the current candle is not considered a candle yet, because it is still active and will change continuously until that period is over. Therefore it is only used for current price information and should not be used as a part of pattern/setup.</p>
	

Step 1. To find NEAREST possible Leg-out candle below start price. (Apply ALL conditions in order)

- A. All Green (i.e. Open lower than close) candles with opening price less than "Start candle lowest price" **AND**
- B. All the candles that are among the top x (gui Field 6B, HTF leg out value) largest body (open to close price range) in comparison to the sizes of all other candles between start to end **AND**
- C. Where the RATIO of Candle range (Highest to lowest) to Body range (Open to close) is equal to or greater than => (gui field 7B, HTF DZ Leg-out value), as a percentage **AND**
- D. Opening Price is LOWER than the LOWEST of ALL candles that are between Start & the candle that is being analyzed to determine if it's a DZ leg-out candle.

If **ALL** the conditions above are true, these are all possible valid Demand side, leg-out candles. Let's call it DZLO1, DZLO2, DZLO#.... (Could be more than one for now). If no candle is found where all conditions above as true, move to next ticker.

Step 2: If step 1 returned true, identify 2nd ADJACENT candle in the set up to determine if it is a basing candle.

(A zone must have min 1, max 3 basing candles)

- A. Start with DZLO1 - The first, most recent leg-out candle, that is closest to current price candle.
- B. Check to see if the **immediate, next previous** candle to DZLO1 has it's "Candle range to Body range" ratio =< (less than) the % values of (gui field 8A)).

If true, it's the 1st basing candle, continue to Step 3. If false, move to DZLO2 candle in Step 1 and run step 2 again to identify if the previous candle to DZLO2 is basing or not. Continue till a Leg-out and a basing candle

Step sz1. To find NEAREST possible Leg-out candle above start price. (Apply ALL conditions in order)

- A. All RED (Close lower than open price) candles with opening price greater than "Start candle highest price" **AND**
- B. All the candles that are among the top x (gui Field 6B, HTF leg out value) largest body (open to close price range) in comparison to the sizes of all other candles between start to end **AND**
- C. Where the RATIO of Candle range (Highest to lowest) to Body range (Open to close) is equal to or greater than => (gui field 7D, HTF SZ Leg-out value), as a percentage **AND**
- D. Opening Price is HIGHER than the HIGHEST of ALL candles that are between Start & the candle that is being analyzed to determine if it's a SZ leg-out candle.

If **ALL** the conditions above are true, these are all possible valid Supply side, leg-out candles. Let's call it SZLO1, SZLO2, SZLO#.... (Could be more than one for now). If no candle is found where all conditions above as true, move to next ticker.

Step sz2: If step sz1 returned true, identify 2nd ADJACENT candle in the set up to determine if it is a basing candle.

(A zone must have min 1, max 3 basing candles)

- A. Start with SZLO1 - The first, most recent leg-out candle, that is closest to current price candle.
- B. Check to see if the **immediate, next previous** candle to SZLO1 has it's "Candle range to Body range" ratio =< (less than) the % values of (gui field 8B)).

If true, it's the 1st basing candle, continue to Step sz3. If false, move to SZLO2 candle in Step 1 and run step sz2 again to identify if the previous candle to SZLO2 is basing or not. Continue till a Leg-out and a basing candle next to it is found. If all the SZLO candles

<p>next to it is found. If all the DZLO candles have been checked and no Leg Out-Basing setup is found, move to next ticker symbol.</p>	<p>have been checked and no SZLO-Basing setup is found, move to next ticker symbol.</p>
<p>Step 3: Identify adjacent 3rd candle in the set up to determine if it is a leg-in or a 2nd basing candle.</p> <p>A. Is this candle (3rd in the setup) has "Candle range to Body range" ratio \leq the % values of (gui field 8A) OR</p> <p>B. this candle has "Candle range to Body range" ratio \Rightarrow the % values of (gui field 7A, HTF Leg-in value).</p> <p>If A is true it is a 2nd Basing candle. Move to step 4.</p> <p>If B is true, it is a leg-in candle. We will call it DZLI1, DZLI2, DZLI#......Move to Step 5.</p> <p>If neither is true, start the analysis from Step 1 on the next ticker/stock in database.</p>	<p>Step sz3: Identify adjacent 3rd candle in the set up to determine if it is a leg-in or a 2nd basing candle.</p> <p>A. Is this candle (3rd in the setup) has "Candle range to Body range" ratio \leq the % values of (gui field 8B) OR</p> <p>B. this candle has "Candle range to Body range" ratio \Rightarrow the % values of (gui field 7C, HTF Leg-in value).</p> <p>If A is true it is a 2nd Basing candle. Move to step sz4.</p> <p>If B is true, it is a leg-in candle. We will call it SZLI1, SZLI2, SZLI#......Move to Step sz5.</p> <p>If neither is true, start the analysis from Step sz1 on the next ticker/stock in database.</p>
<p>Step 4: If A was true in Step 3, i.e. a Basing candle, identify the 4th adjacent candle in the setup to determine if it is a Leg-In or a 3rd Basing candle.</p> <p>A. Is this candle (4th in the setup) has "Candle range to Body range" ratio \leq the % values of (gui field 8A) OR</p> <p>B. this candle has "Candle range to Body range" ratio \Rightarrow the % values of (gui field 7A, HTF Leg-in value).</p> <p>If A is true it is a 3rd Basing candle. Move to step 5.</p> <p>If B is true, it is a leg-in candle. We will call it DZLI1, DZLI2, DZLI#......Move to Step 5.</p> <p>If neither is true, start the analysis from Step 1 on the next ticker.</p> <p>Between Step 1 and Step 4, we have determined if there is set up made up of [LO-Basing] candle with base having up to 3 candles.</p>	<p>Step sz4: If A was true in Step sz3, i.e. a Basing candle, identify the 4th adjacent candle in the setup to determine if it is a Leg-In or a 3rd Basing candle.</p> <p>C. Is this candle (4th in the setup) has "Candle range to Body range" ratio \leq the % values of (gui field 8B) OR</p> <p>D. this candle has "Candle range to Body range" ratio \Rightarrow the % values of (gui field 7C, HTF Leg-in value).</p> <p>If A is true it is a 3rd Basing candle. Move to step sz5.</p> <p>If B is true, it is a leg-in candle. We will call it SZLI1, SZLI2, SZLI#......Move to Step sz5.</p> <p>If neither is true, start the analysis from Step sz1 on the next ticker.</p> <p>Between Step sz2 and Step sz4, we have determined if there is step up made up of [LO-Basing] candle with Base having up to 3 candles</p>
<p>Step 5: Identify if this (3rd, 4th or the 5th candle in the setup depending on how many basing candles were found in the previous steps), is a Leg-In candle.</p>	<p>Step sz5: Identify if this (3rd, 4th or the 5th candle in the setup depending on how many basing candles were found in the previous steps), is a Leg-In candle.</p>

<p>A. This candle has “Candle range to Body range” ratio => the % values of (gui field 7A, HTF Leg-in value).</p> <p>If A is true, we have complete “Leg In-Base-Leg Out” Setup. Mark a Demand Zone here (see “how to mark” on page 9 above.)</p> <p>Next step is to find the opposing Supply zone if trade direction is LONG.</p>	<p>A. This candle has “Candle range to Body range” ratio => the % values of (gui field 7C, HTF Leg-in value).</p> <p>If A is true, we have complete “Leg In-Base-Leg Out” Setup. Mark a Supply Zone here (see “how to mark” on pg. 9 above)</p> <p>Next step is to find the opposing Demand zone if trade direction is SHORT. (follow steps in the left column <<<<)</p>
<p>Step 6: Identify Opposing Supply Zone to determine the range of the curve for profitability potential. Similar to Demand zone, opposing supply zone is the same Leg in-Base-Leg Out setup but on the opposing higher side of the current price**.</p> <p>** Important Exception: When stock prices are making All Time Highs, there is no opposing Supply zone. In which case the highest price ever become the high of the curve and that is where we mark the supply level. Also, with no supply zone in the past, this stock can only be recommended for long trade. Therefore, there is no need to run Supply side steps. Read How to mark zone box on page 9 above.</p> <p>If No All-Time-High made by current price, run Step sz1 through sz5 and mark the first nearest supply zone above the current price. The opposing supply zone is not limited by (GUI field5). It can be found as far back as the data is available.</p>	<p>Step sz6: Identify Opposing demand zone to determine the range of the curve for profitability potential. Similar to supply zone, opposing demand zone is the same Leg in-Base-Leg Out setup but on the opposing lower side of the current price**.</p> <p>** Important Exception: When stock prices are making All Time Lows, there is no Opposing Demand zone. In which case the Lowest price between current and trading zone becomes the low of the curve and that is where we mark the demand zone. Also, with no DZ in the past, this stock can only be recommended for short trade. Therefore, there is no need to run demand side steps. Read How to mark zone box on page 9 above.</p> <p>If No All-Time-Low made by current price, run Step 1 through 5 in the left column and mark the first nearest demand zone below the current price. The opposing supply zone is not limited by (GUI field5). It can be found as far back as the data is available.</p>
<p>Step 7: DIVINDING CURVE & SCORING: Once the demand zone and supply zone are marked, we divide the area in the middle into 5 equal parts following “How to mark zones” rules. Then measure where is the current price in relation to the range of the curve- is in the very low or low of the curve, middle of the curve or the high/ very high of the curve? If it’s in the very low or low area, it is considered true for long trade. If in the middle, no trade and therefore we move on to the next ticker and if in the high or very high, it’s true for short trade, at least for now. See Picture 1 above for example.</p>	

Very Low: 2 Points

Low: 1 Point

Middle: 0 (No trade, move to next ticker)

high: 1 Point

Very High: 2 Points

OPTIONAL: Intermediate Time Frame for Trend determination

For Long (gui field 3) directional Trade

Step 8: If current price is Low or Very Low on the curve (as determined by step 7) and GUI Field 2B has value, perform Step 8 or else move to step 9.

If (gui field 2B) = Weekly or Daily, check if at current price level, 5EMA is **greater** than 20SMA on that timeframe.
If true, **Score = 1**, move next step LTF analysis.
If false, **Score 0** and continue to LTF analysis
OR
If (gui field 2B) = Hourly or lower, check if price trading **above** 20EMA on that timeframe.
If true, **Score = 1**, move next step LTF analysis.
If false, **Score 0** and continue LTF analysis

See example in Picture 2 above.

** Trends do not disqualify a potential trade, program continue analysis despite the outcome of step 8.

For Short (gui field 3) directional Trades

Step sz8: If current price is high or very high on the curve (as determined by step 7); and GUI Field 2B has value, perform Step 8 or else move to step 9.

If (gui field 2B) = Weekly or Daily, check if at current price level, 5EMA is **lower** than 20SMA on that timeframe.
If true, **Score = 1**, move next step LTF analysis.
If false, **Score 0** and continue to LTF analysis
OR
If (gui field 2B) = Hourly or lower, check if price trading **below** 20EMA.
If true, **Score = 1**, move next step LTF analysis.
If false, **Score 0** and continue to LTF analysis

** Trends do not disqualify a potential trade, program continue analysis despite the outcome of step 8.

REQUIRED: Lower Time Frame for Trading Zone Quality

Find and score Trading **Demand Zone**

If the trade direction (gui field 3) is **Long**, run Demand Zone Step 9 through Step 14 in this column first then run Supply zone steps sz9-sz14 (If not all-time high made by price) to mark opposing level and determine risk to reward ratio (RRR).

Find and score Trading **Supply Zone**

If the trade direction (gui field 3) is **short**, run supply Zone Step sz9 through Step sz14 in this column first then run demand zone steps 9-14 (If not all-time low made by price) to mark opposing level and determine risk to reward ratio (RRR).

Start from - LOWEST PRICE on current (GUI field4) candle.

End at –As far back as (GUI field 5).

The LTF DZ must be within Higher time frame DZ and SZ zones including the area of the HTF zones. Cannot be beyond the date HTF zone was formed.

**** important note – the current candle is not considered a candle yet, because it is still active and will change continuously until that period is over. Therefore, it is only used for current price information and should not be used as a part of pattern/setup.**

Start from - HIGHEST PRICE on current (GUI field4) candle.

End at –As far back as (GUI field 5).

The LTF SZ must be within Higher time frame DZ and SZ zones including the area of the HTF zone. Cannot be beyond the date HTF zone was formed.

**** important note – the current candle is not considered a candle yet, because it is still active and will change continuously until that period is over. Therefore, it is only used for current price information and should not be used as a part of pattern/setup.**

Step 9. To find all possible Leg-out candles within the start-end range.
(Apply ALL filters below)

- A. Find all Green (Close higher than open price) candles with opening price less than “Start candle lowest price” AND
- B. All the candles that are among the top x (gui Field 9, LTF leg out value) largest body (open to close price range) in comparison to the sizes of all other candles between start & end points AND
- C. Where the RATIO of Candle range (Highest to lowest) to Body range (Open to close) is equal to or greater than => (gui field 10, LTF Leg-out value), as a percentage. AND
- D. Opening Price is LOWER than the LOWEST of ALL other candles that are between Start & the candle that is being analyzed to determine if it’s a DZ leg-out candle.

If ALL the conditions above are true, these are valid Demand side, leg-out candles. Let’s call it LDZ-LO1, LDZ-LO2, LDZ-LO#.... (Could be more than one for now). If no candle is found where all conditions above as true, move to next ticker.

****Exception: Price gap – If there is a gap in price, that is the opening price of any candle is so far UP from the previous candle’s**

Step sz9. To find all possible Leg-out candles within the start-end range.
(Apply ALL filters below)

- A. All RED (Close lower than open price) candles with opening price greater than “Start candle highest price” AND
- B. All the candles that are among the top x (gui Field 9, LTF leg out value) largest body (open to close price range) in comparison to the sizes of all other candles between start & end points AND
- C. Where the RATIO of Candle range (Highest to lowest) to Body range (Open to close) is equal to or greater than => (gui field 10, LTF Leg-out value), as a percentage. AND
- D. Opening Price is HIGHER than the HIGHEST of ALL candles that are between Start & the candle that is being analyzed to determine if it’s a SZ leg-out candle.

If ALL the conditions above are true, these are valid Supply side, leg-out candles. Let’s call it LSZ-LO1, LSZ-LO2, LSZ-LO#.... (Could be more than one for now). If no candle is found where all conditions above as true, move to next ticker.

****Exception: Price gap – If there is a gap in price, that is the opening price of any candle is so far DOWN from the previous candle’s closing price, that that difference is as big as**

closing price, that that difference is as big as with the range of top X candles of (gui Field 9, LTF leg out value), consider it a valid leg out candle even when there is no actual leg-out candle present. See image below:



Gaps are detailed in another document. To be sent separately.

with the range of top X candles of (gui Field 9, LTF leg out value), consider it a valid leg out candle even when there is no actual leg-out candle present. See image below:



Gaps are further explained in detail in another document. To be sent separately.

Step 10: Identify 2nd candle in the set up to determine if it is a basing candle.
(A zone must have min 1, max 3 basing candles)

- A. Start with LDZ-LO1 from step 9 - The first, most recent leg-out candle, that is closest to current price candle.
- B. Check to see if the **immediate, next previous** candle to LDZ-LO1 has it's "Candle range to Body range" ratio \leq (less than) the % values of (gui field 11)).

If true, it's the 1st basing candle, continue to Step 11. If false, move to LDZ-LO2 candle in Step 9 and run step 10 again to identify if the next previous candle to LDZ-LO2 is basing or not. Continue till a Leg-out and a basing candle next to each other is found. If all the LDZ-LO candles have been checked and no [Leg Out-Basing] setup is found, move to next ticker symbol.

Step SZ10: Identify 2nd candle in the set up to determine if it is a basing candle.
(A zone must have min 1, max 3 basing candles)

- A. Start with LSZ-LO1 - The first, most recent leg-out candle, that is closest to current price candle.
- B. Check to see if the **immediate, next previous** candle to LSZ-LO1 has it's "Candle range to Body range" ratio \leq (less than) the % values of (gui field 11)).

If true, it's the 1st basing candle, continue to Step SZ11. If false, move to LSZ-LO2 candle in Step sz9 and run step SZ10 again to identify if the next previous candle to LSZ-LO2 is basing or not. Continue till a Leg-out and a basing candle next to it is found. If all the LSZ-LO candles have been checked and no [Leg Out-Basing] setup is found, move to next ticker symbol.

<p>Step 11: Identify a 3rd candle in the set up to determine if it is a leg-in or a 2nd basing candle.</p> <ul style="list-style-type: none"> A. Is this candle (3rd in the setup) has "Candle range to Body range" ratio \leq the % values of (gui field 11) OR B. this candle has "Candle range to Body range" ratio \Rightarrow the % values of (gui field 10, LTF Leg-in value). <p>If A is true it is a 2nd Basing candle. Move to step 12. If B is true, it is a leg-in candle. We will call it LDZ-LI1, LDZ-LI2, LDZ-LI#.....Move to Step 13. If neither is true, start the analysis from Step 1 on the next ticker.</p>	<p>Step SZ11: Identify a 3rd candle in the set up to determine if it is a leg-in or a 2nd basing candle.</p> <ul style="list-style-type: none"> A. Is this candle (3rd in the setup) has "Candle range to Body range" ratio \leq the % values of (gui field 11) OR B. this candle has "Candle range to Body range" ratio \Rightarrow the % values of (gui field 10, LTF Leg-in value). <p>If A is true it is a 2nd Basing candle. Move to step sz12. If B is true, it is a leg-in candle. We will call it LSZ-LI1, LSZ-LI2, LSZ-LI#.....Move to Step sz13. If neither is true, start the analysis from Step sz9 on the next ticker.</p>
<p>Step 12: If A was true in Step 11, i.e. a Basing candle, identify the 4th candle in the setup to determine if it is a Leg-In or a 3rd Basing candle.</p> <ul style="list-style-type: none"> A. Is this candle (4th in the setup) has "Candle range to Body range" ratio \leq the % values of (gui field 11) OR B. this candle has "Candle range to Body range" ratio \Rightarrow the % values of (gui field 10, LTF Leg-in value). <p>If A is true it is a 3rd Basing candle. Move to step 13. If B is true, it is a leg-in candle. We will call it LDZ-LI1, LDZ-LI2, LDZ-LI#.....Move to Step 13. If neither is true, start the analysis from Step 1 on the next ticker.</p> <p>Between Step 9 and Step12, we have determined if there is a setup made up of [LO-Basing candle] with Basing having up to 3 candles. Move to next step.</p>	<p>Step SZ12: If A was true in Step SZ11, i.e. a Basing candle, identify the 4th candle in the setup to determine if it is a Leg-In or a 3rd Basing candle.</p> <ul style="list-style-type: none"> A. Is this candle (4th in the setup) has "Candle range to Body range" ratio \leq the % values of (gui field 11) OR B. this candle has "Candle range to Body range" ratio \Rightarrow the % values of (gui field 10, LTF Leg-in value). <p>If A is true it is a 3rd Basing candle. Move to step SZ13. If B is true, it is a leg-in candle. We will call it LSZ-LI1, LSZ-LI2, LSZ-LI#.....Move to Step SZ13. If neither is true, start the analysis from Step SZ1 on the next ticker.</p> <p>Between Step SZ9 and Step SZ12, we have determined if there is step up made up of [Leg Out-Basing candle] with Basing having up to 3 candles.</p>
<p>Step 13: Identify if this (3rd, 4th or the 5th candle in the setup depending on how many basing candles were found in the previous steps), is a Leg-In candle.</p> <ul style="list-style-type: none"> A. This candle has "Candle range to Body range" ratio \Rightarrow the % values of (gui field 10, LTF Leg-in value). 	<p>Step SZ13: Identify if this (3rd, 4th or the 5th candle in the setup depending on how many basing candles were found in the previous steps), is a Leg-In candle.</p> <ul style="list-style-type: none"> A. This candle has "Candle range to Body range" ratio \Rightarrow the % values of (gui field 10, LTF Leg-in value).

<p>If A is true, we have complete “LegIn-Base-Leg Out” Setup. Mark a Demand Zone here (see “how to mark” on page 10).</p> <p>Continue Step 9 through 13 to find a second demand zones [Leg in-Base-Leg-out] for LDZ-LI2/Base/LDZ-LO2 that is after and below the first zone. This step determines if there are any additional LI-B-LO zones present.</p> <p>Next step is to find the opposing supply zone if trade direction is LONG and no all-time-highs made by price. There is only one, nearest to current price, opposing zone to be determined.</p>	<p>If A is true, we have complete “LegIn-Base-Leg Out” Setup. Mark a Supply Zone here (see “how to mark” on page 10)</p> <p>Continue Step sz9 through sz13 to find a second supply zones [Leg in-Base-Leg-out] for LSZ-LI2/Base/LSZ-LO2 that is above and after the first zone. This step determines if there are any additional LI-B-LO zones present.</p> <p>Next step is to find the opposing demand zone if trade direction is SHORT and no all-time-lows made by price. There is only one, nearest to current price, opposing zone to be determined.</p>
<p>Step 14: Identify Opposing Supply Zone to determine the risk to reward ratio (RRR). Similar to Demand zone, opposing supply zone is the same Leg in-Base-Leg Out setup but on the opposing higher side of the current price**.</p> <p>Step 14 is to run Step SZ9 through SZ13 and mark the first nearest supply zone above the current price.</p> <p>ATH Exception: If there is no valid opposing supply zone, the nearest Highest price level to current price is marked as supply level. Mathematically, Compare the high of each candle going backwards from current candle (GUI field4) to find the first candle that made a higher high than the current candle’s high. Mark the high of that candle as the supply level to calculate RRR. See example below:</p>	<p>Step sz14: Identify Opposing demand zone to determine the risk to reward ratio (RRR). Similar to Supply zone, opposing demand zone is the same Leg in-Base-Leg Out setup but on the opposing lower side of the current price**.</p> <p>Step sz14 is to run Step 9 through 13 in the left column and mark the first nearest demand zone below the current price.</p> <p>ATL Exception: If there is no valid opposing demand zone, the nearest Lowest price level to current price is marked as demand level. Mathematically, Compare the low of each candle going backwards from current candle (GUI field4) to find the first candle that made a lower low than the current candle’s Low. Mark the low of that candle as the demand level to calculate RRR.</p>



Step 15:

This step scores the Lower time frame Zone to determine quality. Higher the score, better the quality.

For trade direction Long (GUI field 3)-
Score Demand Zone.

1. Scoring leg-out: Strength of Leg-out candle.
2. Rank the Open–Close price difference of all the candles in (gui field 9, LTF leg out value, ranges between 3 -10 candles). Largest candle is 1, smallest is last, based on the value in field 9. If the Open to Close range of the leg-out candle of the marked DZ is the **highest or second highest** of all the candles compared here, **Score**

Step sz15:

This step scores the Lower time frame Zone to determine quality. Higher the score, better the quality.

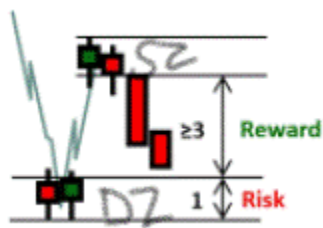
For trade direction Short (GUI field 3)-
Score Supply Zone.

1. Scoring leg-out: Strength of Leg-out candle.
2. Rank the Open–Close price difference of all the candles in (gui field 9, LTF leg out value, ranges between 3 -10 candles). Largest candle is 1, smallest is last, based on the value in field 9. If the Open to Close range of the leg-out candle of the marked SZ is the **highest or second highest** of all the candles compared here, **Score**

3.

If the Leg out candle's range is third largest or fourth largest compared to the 3 to 10 candles that were used to compare the strength of this Leg-out candle
Score 1.

3. Scoring Basing candles: Time at the marked Zone. If the zone has only 1 basing candle, **score 2**. If zone has 2 basing candles, **score 1**. If it has 3 basing candles, **score 0.5**.
4. Scoring Gap: Gap in price between Leg-out open price and first basing candle's price performance. If Leg-out open is **higher** than the first (the one previous to Leg out) Basing candle's **highest** price. **Score 1**. If the Leg-out open price is **higher** than basing candles close, but not **higher than its High**, **Score 0.5**.
5. **Scoring RRR**: How far **up** did the price move from the zone. i.e. where is the opposing supply zone. Compare the difference between the width of the marked DZ and the distance between the top of the zone and bottom of the opposing supply zone. If the ratio is 3:1 or greater. **Score 1**. If RRR is 2:1, **score 0.5**. anything less than 2:1 is scored 0. Also, this ratio should be shown in the output table for every recommendation.

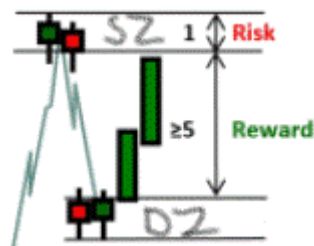


6. **Zone on Zone**: If the Lower time frame Demand Zone falls inside of

3.

If the Leg out candle's range is third largest or fourth largest compared to the 3 to 10 candles that were used to compare the strength of this Leg-out candle
Score 1.

3. Scoring Basing candles: Time at the marked SZ. If the zone has only 1 basing candle, **score 2**. If zone has 2 basing candles, **score 1**. If it has 3 basing candles, **score 0.5**.
4. Scoring Gap: Gap in price between Leg-out open price and first basing candle's price performance. If Leg-out open is **Lower** than the first (the one previous to Leg out) Basing candle's **lowest** price. **Score 1**. If the Leg-out open price is **lower** than basing candles close, but not **lower than its Low**, **Score 0.5**.
5. **Scoring RRR**: How far **down** did the price move from the zone. i.e. where is the opposing demand zone. Compare the difference between the width of the marked SZ and the distance between the bottom of the zone and the top of the opposing demand zone. If the ratio is 3:1 or greater. **Score 1**. If RRR is 2:1, **score 0.5**. anything less than 2:1 is scored 0. Also, this ratio should be shown in the output table for every recommendation.



6. **Zone on Zone**: If the Lower time frame Supply Zone falls inside of

<p>the Higher Time Frame Demand Zone. Score: 2</p> <p>Score one or both demand zones in the lower time frames that step 9 -14 found, if applicable, that is.</p>	<p>the Higher Time Frame Supply Zone. Score: 2</p> <p>Score all the supply zones in the lower time frames that step 9 -14 found, if applicable, that is.</p>
MAX Score: 12	MAX Score: 12

----- END OF SCRIPT-----

REAL EXAMPLES OF A LONG TRADE

GUI FORM:

Asset: Stocks

HTF: Weekly

ITF: DAILY

LTF: HOURLY

Direction: Long

Start Date: 05/10/2019

HTF Fields:

HTF Analysis range: 52

HTF compare: leg-in: 10, Leg out: 15

HTF legs body size below current price: Leg-in: 60%, Leg-out: 70%

HTF Legs above current price: Leg-in: 60%, Leg-out: 70%

HTF Base body size below current price: 40%

C

LTF Fields:

LTF compare: leg-in: 10, Leg out: 5

LTF legs body size below current price: Leg-in: 60%, Leg-out: 70%

LTF Legs above current price: Leg-in: 60%, Leg-out: 70%

LTF Base body size: 30%

ITF Legs above current price: Leg-in: 60%, Leg-out: 70%

Frequency: Daily

Run Type: Automatic

Run Time: 20:00:00 ET

Name of Scan Query: Weekly long SCAN – auto.

SAVE Query. Yes. Select Folder.

Program scans all stocks in the database. Below is example, where this all the conditions were TRUE.

Weekly HTF Chart



Current price is at very low of curve (around lower 20%). Valid for Long Trade. **Score: 2**. Next is Intermediate timeframe for trend analysis.

Daily ITF Chart



5EMA(Orange) < 20SMA. Trend is down so **Score = 0**. The analysis continues because Trend doesn't nullify a trade. Onto Trading Zone timeframe. The green box is just showing the price level found in HTF, its not used at ITF for anything. Here only current price is compared to EMA/SMA.

Hourly LTF Chart



Here we see: Current price is \$197.3. Current candle Lowest: \$196.45.
Demand Zone is \$195.44 to \$ 196.24. Risk is \$.80.
Opposing Supply Zone is at \$200.14. Rewards is \$3.9. RRR is 4.8

A valid Demand Zone with very large leg-out candle. **Score = 2**

2 Basing Candles: **Score 1**

RRR is greater than 3. **Score 1**

LTF Trading zone is not on top of the HTF Demand Zone. **Score = 0**

There is no gap up in price. **Score = 0**

Real Actual Output:

Trade Direction (from gui field 3)	High Time Frame (from gui field 2)	Ticker (from database)	Last Closing price (from database)	Entry Price at LTF Zone (from analysis)	Date/Time stamp of Leg out at LTF Zone (from analysis)	ITF Trend	Curve level (from analysis)	RRR (from analysis)	Zone Score (from analysis)
Long	Weekly	AAPL	\$197.30	\$196.24	05/10/19 14:30	5EMA < 20SMA	Very Low	4.8 : 1	6

Email/SMS Alert example:

{Scan Name: Weekly Long - Auto} 6 score opportunity for AAPL at 05/10/19 2:30PM.

The above alert is what I will need to see as often as the script is finding new demand zones and supply zones that are scored above a certain number. I would like to be able to configure what that filter should be. I may not want to see trades with score lower than 8, and I can turn off/on the notification accordingly.

-----END of EXAMPLE-----