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License Agreement

Please read the following information carefully before using the Lottery Statistic Analyser, this covers the terms and conditions you are accepting by installing and / or using the Lottery Statistic Analyser.

DO NOT USE THE LOTTERY STATISTIC ANALYSER IF YOU DO NOT AGREE WITH THE TERMS AND CONDITIONS.

Lottery statistic Analyser will be referred to as LSA throughout this document. LSA is a PC based software that you as a user install on your computer. Jamie Pocock is the author, distributor and sole owner of LSA. Without the full written permission of Jamie Pocock signed and witnessed by legal representative of Jamie Pocock and a legal witness of the third party (you) you may not do the following. No company, no business, no individual person of any type or kind may copy, distribute or rewrite LSA. This covers but is not limited to electronic means ( over the internet, or intranet) and media distribution (CD, DVD, or any other possible storage device). LSA may not be converted to other formats, including but in no way limited to for use on PDA’S, phones and/or Mobile devices, other operating systems. LSA and any complementary files that are installed are distributed and licensed "as is". Jamie Pocock disclaims all warranties, either spoken or unspoken, including, but not restricted to implied warranties of merchantability and fitness for a specific objective. Should LSA prove defective, you the user assumes the risk of paying the entire cost of all necessary servicing, repair, or correction and any incidental or consequential damages. In no event will Jamie Pocock be liable for any damages whatsoever (including without limitation damages for loss of profits, interruption, loss of information and the like) arising due to the use or the inability to use LSA even if Jamie Pocock has been advised of the probability of such damages arising. Subjected to the conditions in this license agreement you may redistribute the unmodified trial version of LSA, provided you do not charge for it or alter it in anyway.

The lottery statistic Analyser is copyright protected and owned by Jamie Pocock.
Trial Version

LSA comes with a trial usage of 15 loads, after loading LSA 15 times LSA will cease to load. If you decide you would like to continue using LSA after the trial then you can purchase a product key.

Purchasing LSA
You can purchase a product key from the following website

http://www.lsa-lottery-software.com/Purchase.htm

Jamie Pocock does not have access and can never have access to your payment details. The details you enter when purchasing LSA are kept between you and the card company.

Jamie Pocock is provided the following information in regards to the transaction from the card company after the payment has cleared.

- Name
- Address
- Date of Purchase
- Email Address
- Payment Completed Status

When the confirmation email is received by Jamie Pocock from the card company a product key will generated and sent to the email address you provided the card company during the purchase.

Jamie Pocock will NOT gift, sale or pass on your details in anyway, type or form period. Jamie Pocock will retain the details provided for support purposes only.

All information received is treated under the following strict security policy

- All data is encrypted using a custom 256bit data encryption, (virtually impossible to crack)
- All data is stored on a standalone computer that is not connected to any form of network.
- Your details will only ever be used in the future to confirm your registration details when providing technical support.
Welcome to Lottery Statistic Analyser

Lottery Statistic Analyser is a powerful lottery analysis application written for the PC and is designed to provide powerful statistics for over 250 draws worldwide.

Key features include:

- **Analyse The Entire Draw**: LSA not only has the capability of providing statistics on past draws as most lottery programs do but LSA has the unique ability to analyse and produce statistics on every possible combination in the draw.

- **Comprehensive Graphs**: LSA provides some great looking interactive graphs. These graphs provide the user with a massive amount of visual information, by simply moving the mouse over a graph you can find a great deal of information on that ball. You can expand the graphs full screen and right click to get a mini graph with details about a specific number.

- **Detailed Reports**: The reports produced by LSA provide the user with a massive amount of information not seen in such detail before, the reports are very informative and full of interesting statistics about the draw you play.

- **Wheels and MNA's**: Not only can LSA produce wheels, LSA has a unique feature called Maximized Number Arrangements or MNA. An MNA will outperform standard wheels by up to 40% for tickets purchase vs. possible wins.

- **Multiple Languages**: LSA has the ability to be ported to any language. It ships with a massive 36 languages and has the ability to cover many more.

- **Statistics**: Everywhere you look you will see detailed information and facts in LSA such as the how many times within the lottery ball 23 can appear as the lowest ball, how many times the ball appears in the entire draw, what's truly next due based on every combination possible, true hot warm and cold numbers and so much more.

- **Advanced Predictions**: LSA uses some very modern and advanced math to project lines across graphs containing past draw data, these plot lines can be manipulated to provide advanced predictions not found anywhere else.
System Requirements

LSA requires a PC running Windows to run, currently LSA is not available on the MAC or on Linux

Minimum Requirements

- A PC with 1Ghz processor or higher
- 512mb RAM

Recommended Requirements

- A PC with 2Ghz processor or higher
- 1GB RAM

Supported Operating Systems

- Windows 2000
- Windows ME
- Windows XP - 32bit and 64bit versions are supported
- Windows Vista - 32bit and 64bit versions are supported
- Windows 7 - 32bit and 64bit versions are supported.

Prerequisite Software

- VB Runtime Library, if not installed on your computer LSA will install this during installation.
- Visual Basic Script Engine, again LSA will install this automatically if not found on your computer
- Adobe Reader to view the help files.
**Language Support**

LSA supports multiple languages, however I don't speak multiple languages so support will be limited outside of English.

Languages Currently Supported by LSA

| Afrikaans   | Arabic | Armenian | Azerbaijani | Basque | Belarusian | Bulgarian | Catalan | Chinese (Simplified) | Chinese (Traditional) | Chinese | Croatian | Czech | Danish | Dutch | English | Estonian | Filipino | Finnish | French | German | Greek | Haitian Creole | Hebrew | Hindi | Hindi / Urdu | Hungarian | Icelandic | Indonesian | Italian | Japanese | Korean | Latvian | Lithuanian | Macedonian | Malay | Maltese | Norwegian | Persian | Polish | Portuguese | Romanian | Russian | Serbian | Slovak | Slovenian | Spanish | Swahili | Swedish | Thai | Turkish | Ukrainian | Urdu | Vietnamese | Welsh | Yiddish |
|-------------|--------|----------|-------------|--------|------------|-----------|---------|----------------------|-----------------------|---------|----------|-------|--------|-------|----------|----------|----------|---------|--------|--------|-------|----------------|--------|-------|------------|----------|----------|-----------|--------|---------|--------|--------|----------|----------|-------|--------|-----------|--------|--------|-----------|--------|--------|

To learn more about language support see the section on setting up a language
Install and Uninstall

Installing LSA on Windows XP

- To install LSA on windows XP simply run the LSAV#.exe installer file (# being the file version). This will launch the installer from where you will be guided through the rest of the installation process.

Installing LSA on Windows 7

Windows 7 users need to install LSA as an administrator, this is due to new file security Microsoft have put in place. If LSA is not installed as an administrator it won't have the required permissions to use the live update feature, it may also be restricted in saving user information such as what draw the user last loaded.

- To install LSA as an administrator right click the LSAV#.exe installer file (# being the file version). In the menu that pops up select Run this program as an administrator, say yes to the prompt. This will launch the installer from where you will be guided through the rest of the installation process.
- If you are experiencing problems see the troubleshooting section on how to run LSA as an administrator.

Uninstalling LSA

Windows XP - LSA can be removed through the Add/Remove programs in control panel
Windows 7 - LSA can be removed through the Programs and features in control panel
Loading Draws in LSA

LSA comes with over 200 draws to choose from. When LSA first loads you will most likely want to change the default draw to one you play.

Instructions on loading a draw
- Select the Draws Menu
- Select Database Window
- Select the draw required from the list of available draws.
- Click the Load Draw button to load the database
- LSA will remember the last draw you load and will load it for you the next time you start LSA.

Instructions on deleting a draw
- Select the Draws Menu
- Select Database Window
- Select the draw required from the list of available draws.
- Click the Delete button
Lottery Statistic Analyser Help

Instructions on editing a draw

- Select the Draws Menu
- Select Database Window
- Select the draw required from the list of available draws.
- Click the Edit button
  - Name: Enter the name of the draw
  - Pick: Select the pick from the drop down menu
  - Pool: Select the pool of numbers used in the draw
  - Date Format: Select the date format for the draw
  - Country: Select Your Country from the available list
  - Region: Select your local region, this is the state or county
  - Bonus Balls: Select 0, 1 or 2 for the number of bonus numbers drawn
  - Bonus Has Separate Pool: Tick if bonus is drawn from its own pool
  - BB1 Name: Enter the name of the bonus ball i.e. Powerball
  - BB1 Pool: The pool if selected from main pool will be the pool - pick
  - BB2 Name: Enter the name of the bonus ball i.e. Lucky Star
  - BB2 Pool: If bonus is selected from main pool then (pool - pick - bb1)
  - Odds of Prize: Not required but is the global chances of winning a prize
  - Prizes: Tick all possible prizes, this effects some calculations in LSA

Note on Bonus ball pool:

Example: If you have a 6/49 draw with a bonus that gets drawn from the 49 numbers then you count the remaining balls as the bonus balls pool. For example 6 balls are drawn from 49 leaving 43 unique numbers not drawn, this is the bonus ball pool 43, again if two bonus numbers get drawn then reduce the second bonus number pool by 1 more, which is 42.
Update Draws Manually

LSA's database files can be updated manually using Notepad.

All LSA's databases are stored in the following folder:
C:\ProgramData\Micracom\Lottery Statistic Analyser\Databases

However it is easier to open a draw file by loading the draw in LSA and clicking the following button found bottom left of the main window.

Whenever editing a draw file please keep to the format already in the draw.
Below is an example of a draw with no bonus numbers:

12 13 31 39 41 43 01/03/09 Sat
06 21 22 25 28 38 01/07/09 Wed
10 13 14 20 29 35 01/10/09 Sat
07 10 13 18 21 37 01/14/09 Wed

Below is an example of a draw with 2 bonus numbers:
I have highlighted the bonus balls:

10 12 24 25 41 03 05 04/01/08 Fri
08 24 36 49 50 04 08 11/01/08 Fri
14 16 23 40 46 04 08 18/01/08 Fri
02 06 09 19 45 07 08 25/01/08 Fri

Bonus numbers must follow the main ball numbers.
A date must be in the format DD/MM/YY or MM/DD/YY
Do not use long dates such as DD/MM/YYYY as LSA will not understand and regard the first two digits of the year as the year.
The day name does not have to be added, LSA works this out if omitted.

Again do be careful when adding draws and follow the existing draw format.
If an error occurs after editing a draw use the Live-update to download a good copy again.
Lottery Statistic Analyser Help

Live Update

LSA can update its draws using a feature called Live Update. To use live update you must first be a registered user.

Updating a draw with live update

- Select the Draws Menu
- Select the Live Update
- Click the button Check
- LSA will then establish a connection to the server, the first time you do this you may get prompted to allow LSA access to the internet, please allow access or the updates cannot work.
- Tick each checkbox to select all the updates.
- Click the button Update
- After the updates have downloaded click Exit
- Click the menu titled Windows
- Click Main Window to reload

Now the database will be up to date
Features of the Main Window

This section walks you through each function and its purpose. If you don't understand a term used then see the Glossary of Terms at the end of this document. If you wish to know how to use the features see the Using LSA section.

The Main Window is the first screen you will see once you enter LSA. From here you have a powerful set of lottery analysis tools at your figure tips.

What you can do in this window.

- Makes plus one draw predictions
- Displays past draw results
- Analyse past numbers
- View reports
- Perform regression analysis on past draws
- View detailed information on each number
- Find the best numbers to play based on all combinations possible in the draw and find out where to position them on your ticket for the best % to win.
- Find what numbers are currently Hot, warm or cold
- Display detailed number frequency information
- Display averages of each ball appearance including bonus numbers.
- Interactive graphs. Move the mouse over the graph to display various statistics.
- See numerical placement odds.
Lottery Statistic Analyser Help

This list is not the complete list of features the Main Window offers. Please see index on page 2 for more features.

Analysis selection mode  Analysis Type  Ball Filter

![Image](image.png)

**1:** The **Analysis Selection Mode** dropdown list located top left of the main window allows you to select between the two modes of LSA.

When a mode is selected the Analysis Type menu will change providing a different set of options for each of the two modes.

The two Analysis Modes are as follows

**Mode 1 = Counts** *(As selected in the above image)*

**Analysis Types Available**

- **Appearances** - The total times each number has appeared.
- **Distribution** - How many times each number appears in the entire draw.
- **Last Out** - How many draws have passed since each number last appeared
- **Next Due** - When is each number next due to appear.

**Mode 2 = Predictions**

**Analysis Types Available**

- **LOWESS** - A very powerful prediction mode using LOWESS regression analysis.
- **LOWESS ND** - Another powerful prediction mode using LOWESS regression analysis mixed with the normal distribution of the draw.
- **Trends** - Uses various types of regression to predict a future draw

The Ball Filter is available in both modes and allows you to analyse each ball placement individually or all the balls at once.
Buttons of the Main Window

Across the bottom of the main window is a set of buttons that allow easy access to various features.

**Visit Draw Website**

Allows you to jump to the draw official website. This link taken from and can be changed in the database window, using the edit button.

**Edit Draw**

Opens the currently loaded database in Notepad. Please see the section update draws manually for information on the data format of the file.

**Check For Winning Numbers**

Allows you to quickly check for winning numbers.

**View Report in Large Window**

Opens the and displays a new resizable window containing the report of the main window.

**Launch Wheels**

Opens and displays the wheel window.

**2: Report Type Menu** (Selected above with LOWESS in the box)

Shown below are the options available (Analysis Type / Report Type Menu)

1. **Counts / Appearances**
   a. Show the total appearance count of each number to date.
2. **Counts / Last Out**
   a. Show the total draws past since each number last appeared.
3. **Counts / Next Due**
   a. Based on Total Appearance and Last Out shows when each number is next due to appear.
4. **Predictions / LOWESS**
   a. Plots a logically weighted line through the past draws and attempts to predict one draw in the future. LOWESS = locally weighted scatterplot smoothing. See Wikipedia for full information
Lottery Statistic Analyser Help

3: Ball Placement. The dropdown list allows you to focus in on just one ball Placement

The term Ball Placement will be referred to repeatable so for the purposes of this help file Ball Placement simple means if you numerically sorted the numbers that came out in a draw, the lowest would have a Ball Placement 1 the second lowest would be ball placement 2 and so on.

The ball placement menu changes depending on the draw you have loaded. You can select Ball 1, Ball 2, Ball 3 and so on plus you can also select any bonus ball the draw may have.

A regression is preformed individually on each selected ball placement giving much more control over the prediction rather than performing a regression on all the numbers drawn.
Lottery Statistic Analyser Help

4: Main Window Graph

1. The graphs in LSAv5 and above are interactive, by moving the mouse over the graph statistical information can be seen below the graph.
2. LSA has the ability to display bar graphs and line graphs depending on your preferences. Use the drop down list marked 5 on image map above to select **Show Graph Settings** allowing you to change between bar and line graphs.

5: Main Windows Options

**Show Graph Settings**

1) Drop down list to select between various views
   a) **Show Draw Results:** Lists all draws
   b) **Show Combinations Finder:** Search for numbers in the draw
   c) **Show Graph Settings:** Displays graph settings listed below
      (1) **Show Bar Graph**
      (2) **Show Line Graph**
      (3) **Auto Scale Graph** Scales the graph from lowest to highest value.
      (4) **Display Max, Med and Min values** Adds markers to the graph
Lottery Statistic Analyser Help

Show Draw Results
Simply lists all draws in a grid used for quickly referencing past draws when working with a lottery. See 6: Draw Results Display for more functions.

Show Combinations Finder
Search the entire draw for a number or combinations of numbers.

6: Draw Results Display
By double clicking the list you can directly edit the draw file in notepad.
This can cause problems for LSA if the format you enter is not correct.
The line below is in the correct format
09 18 19 24 31 41 21 18/03/11
B1 B2 B3 B4 B5 B6 BB DD/MM/YY
The draw numbers must go from left to right lowest to highest.
Any bonus numbers are added after the main numbers.
Date goes on the right of the numbers.
Compatible date formats for V5 and above are MM/DD/YY and DD/MM/YY
The year must always be 2 digits not 4.

8: Draw File Button
Loads the current draw database into Windows Notepad.

9: Wheels Button:
Loads up the wheel Window. See the help file Wheels for information and features of the Wheel Window. This can be found in the help menu.

10: Lottery Results
A legacy feature of V4 that was not removed as it gives an easy to read version of the numbers selected in the draws list.

11: Lottery Results Date and Day
A legacy feature of V4 that was not removed as it gives an easy to read version of the selected draw in the draws list.

12: Scan Button
LSA automatically scans draws when needed, the Scan button can be used if you think the data needs a refresh or the graph is not displaying statistics correctly.
Lottery Statistic Analyser Help

13 : Report Selector

Allows you to select from a list of reports.

1. Appearance Averages
2. Hot Warm Cold
3. Number Frequency
4. Numbers Due to Appear
5. Numerical Placement Odds
6. Per Ball Appearance - Ball
7. Per Ball Appearance - Count

14 : Show Reports Button

 Loads the report in to a larger page for displaying and printing.
Trouble Shooting Guide

This section attempts to answer questions I am occasionally asked.

If the answer to your question is not here then please do contact me using the Help button on the splash screen of LSA, through the help menu of LSA or through the website.

How to Run LSA as an Administrator

- **Windows 64Bit machine**
  - Navigate to C:\Program Files (x86)\Micracom\Lottery Statistic Analyser
- **Windows 32Bit machine**
  - Navigate to C:\Program Files \Micracom\Lottery Statistic Analyser
- Right Click LSAv6_0_0.exe
- Select **Properties**
- Select the **Compatibility** tab
- Click the button "Change Settings For All Users"
- Tick **Run This Program as an administrator**
- Click **OK**
- Click the **Security** tab
- Click **Edit**
- Click **Add**
- Type in the word
- Everyone
- Click **OK**
- Highlight Everyone in the list (Group or user names:)
- Tick **Allow on Full Control**
- Click **Apply**
- Click **OK**
- Click **OK**

Now when you run LSA from the start menu you will get a security prompt, just click the Yes button and LSA will load and run.
Running LSA when prompted under User Account Control

Some users will have tighter security than others on their PC, if you see the following message when loading LSA simply click Yes to continue to load LSA, this is safe and will in no way compromise the security of your computer. If you select no LSA will not run.
How do I add my own draw to LSA

LSA has a pre-defined list of draws that is updated through the live update, this is required to keep track of the ever changing rules of games around the world.

If the draw you play is not available in LSA that does not mean LSA cannot run it.

To have a draw added to LSA please contact me providing the following information.

<table>
<thead>
<tr>
<th>Information</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID=</td>
<td>Must match the ID in the draw information file</td>
</tr>
<tr>
<td>Region=</td>
<td>Rhode Island</td>
</tr>
<tr>
<td>Name=</td>
<td>Powerball</td>
</tr>
<tr>
<td>Pick=</td>
<td>5</td>
</tr>
<tr>
<td>Pool=</td>
<td>59</td>
</tr>
<tr>
<td>BB1=</td>
<td>1 ( 0 = no bonus ball )</td>
</tr>
<tr>
<td>BB1Pool=</td>
<td>39 ( The pool of remaining numbers the bonus is drawn from )</td>
</tr>
<tr>
<td>BB2=</td>
<td>1 ( 0 = no bonus ball 2 )</td>
</tr>
<tr>
<td>BB2Pool=</td>
<td>39 ( The pool of remaining numbers the bonus 2 is drawn from )</td>
</tr>
<tr>
<td>DateFormat=</td>
<td>MM/DD/YY ( DD/MM/YY )</td>
</tr>
<tr>
<td>Website=</td>
<td><a href="http://www.rilot.com/powerball.asp">http://www.rilot.com/powerball.asp</a>?</td>
</tr>
</tbody>
</table>

If you have a list of draw data for the draw then please provide that as well.
Glossary of Terms

While using LSA you may come across some unfamiliar terms, use this reference to find the meanings of these terms and information about their purpose.

Appearance Averages

A name of a moving report in LSA that shows the average appearance of each number to date. This is calculate from adding together the times each number appeared and dividing each number by the total number of draws used to add the total together. This is repeated for each ball in the draw to make up the final average appearance report.

Appearances

Used throughout LSA to refer to the number of times a ball or balls have appeared.

Avg

Used in prediction mode. The Avg is an abbreviation of average, it’s used when calculating a prediction from a projection. When calculating a projection every ball is calculated with the previous and next ball, when using Avg an average of the totals is used throughout the equation.

Avg is effected strongly by stray balls, for example take a 6/49 game, if over a 50 draw period one draw came out with the number 34 as the lowest ball then this would be considered a stray ball as only 3,003 combinations contain ball 34 as the lowest ball in the 13,983,816 possible combinations available compared to let’s say number 4 with 1,221,759 combinations having ball 4 as the lowest ball. Stray balls do appear now and again but rarely. If LSA were to scan back over 100 draws this stray ball will still throw the prediction of to some extent using AVG prediction method.

It is therefore recommended you use Avg when the draws contain none or very few stray numbers.

It is recommended to use Med when stray numbers are present in the past draw data. See MED for how it works

Stray numbers can be found by looking in the reports menu - Global Reports - Per Ball Appearance Count report.

Ball Placement

Ball placement refers to the final numeric position of a draws numbers. For example if in a draw the numbers are drawn in the following order 33 45 02 07 17 24 they would be sorted in numeric order and would read 02 07 17 24 33 45 the ball placement is then as follows.

- Ball placement 1 would be 02
- Ball placement 2 would be 07
- Ball placement 3 would be 17
- Ball placement 4 would be 24
- Ball placement 5 would be 33
- Ball placement 6 would be 45
Lottery Statistic Analyser Help

Ball Placement is a very important piece of information when calculating lottery statistics especially when every combination in the entire draw is used as the reference to the statistic calculated.

Ball Position
This refers to the position of a ball in the line of draw numbers, don’t confuse with ball placement, ball position does not take into account numbers, just positions. When numbers are drawn in a lottery the ball position is as they appear. When sorted numerically the ball position is still 1 to the total balls drawn.

Combination Finder - Tools
A lottery tool available in LSA that allows the user interested in number combinations to quickly see all the possible combinations a larger ball combination can be broken down into.

When the lists have been generated you can copy a list to the system clipboard ready for pasting into other applications such as Excel by simply double clicking the list..

Confidence Band
Used in LSA’s prediction window under the trends mode. The confidence band represents the uncertainty in the estimate of the predicted curve plotted in the prediction window, this confidence band provides a graphical representation of the likely hood of the prediction coming true, the wider the band the less likely the plotted curve will hit its required target (the next ball number)

Database Window
The database window is the main tool in LSA for loading draws, another key feature of the database window is to allow users to change draw information such as bonus balls, the pick, the pool, the official website and so on. Draws change constantly and although they are kept up to date through live update not every draw is part of the update schedule and can take a few weeks to be changed. It is then this tool can be used to change the draw rules. If you do discover a rule change please do notify me so I can update the live update to take into account the new rule change.

Date Format
The format LSA sees the dates in. LSA can handle two different date formats

1. MM/DD/YY
2. DD/MM/YY

If you attempt to use any other date format such as MM/DD/YYYY then LSA will not handle the data correctly and become confused as it will read the first two year numbers and see every year as 20 in the 21st century. LSA cannot handle eastern dates and they must be converted to either of the recommend formats.

Draw Combination Generator - Tools
A lottery tool available in LSA that allows the user interested in number combinations to generate and save to file all the possible combinations in a lottery draw.
**Lottery Statistic Analyser Help**

**Draw Filters Window**
A window in LSA that allows you to filter any ball, day, month or year and produce reports on the results.

**Exponential Regression**
One of the four types of regression used in Trends mode. Exponential regression is calculated using the following formula.

\[ y = e^{a_0 + a_1 x} \]

See Regression in LSA for more information

**Global Reports**
Any of LSA’s Reports that are based on every possible combination in the entire draw.

All Global reports are very powerful and provide the true statistics and odds of a draw

**Higher or Lower**
A moving report found in LSA that shows each past draw along with the follow symbols

+ The number was higher than the previous draw
- The number was lower than the previous draw
= The number was the same as the previous draw

**Interpolate**
(In mathematics) Calculation of the value of a function between the values already known

**Irritations**
Refers to the number of time LSA will recalculate a LOWESS equation.
Irritations range between 1 an 10 with 10 being the most accurate.

**Lexicographical Order**
Sometimes referred to as the LEX index it is the unique index of a set of numbers in a draw, if you were to list every possible combination in the lottery draw from lowest to highest then mark the list 1,2,3,4 and so on you would have the LEX index of the lottery draw.

1-01 02 03 04
2-01 02 03 05
3-01 02 03 06
4-01 02 03 07
5-01 02 03 08
6-01 02 03 09
7-01 02 03 10
8-01 02 04 05

The LEX index can be easily seen above in the left column

**Lexicographical Order - Tools**
A lottery tool available in LSA that allows the user to convert a set of draw numbers to its lexicographical index and convert a lexicographical index to a set of draw numbers.
See Lexicographical Order

Linear Regression
One of the four types of regression used in Trends mode. Exponential regression is calculated using the following formula.

\[ y = a_0 + a_1 x \]

See Regression in LSA for more information

Live Update
Allows the user to keep LSA up to date

The follow updates can be retrieved during a live update

- **Draw Results**
  - Updates the results of the draw currently loaded in LSA.

- **Draw Settings**
  - Updates LSA’s draw information database, if a rule change occurs this is how LSA will know about that change.

- **Wheels**
  - New wheels and MNA’s are added regularly, Live update will ensure you have the latest wheels available.

- **Help Files**
  - Now and again the help file is updated, Live update will download any newly released help files for you.

Draw history
The term used in LSA to refer all past draw results, this would be the same as all the draw data in the draws database file.

Logarithmic Regression
One of the four types of regression used in Trends mode. Exponential regression is calculated using the following formula.

\[ y = a_0 + a_1 \log(x) \]

See Regression in LSA for more information

LOWESS
**LOWESS for the layman**
LOWESS is a modern but fairly complex regression algorithm
For many users of LSA the workings behind LOWESS would be unimportant, with many users only interested in the result LOWESS produces.
If this is the case then just to think of LOWESS as a method LSA uses to predict future draws, a line plotted across past draws with the sole purpose to predict future draws.

For the users that want to know more about how LOWESS works.
LOWESS fits a curve through the past draw numbers using the LOWESS algorithm.
LOWESS works by assuming a curve plotted from any subset of draw results can be approximated by a straight line. For each ball number, LOWESS finds the n nearest points to that ball number (n is configurable using smoothness), LOWESS then performs a weighted linear regression using a tricube weighting function. It then adjust the coordinates of the data point based on the result of the weighted linear regression.

The weighting function used for LOWESS is the tri-cube weight function as shown in the equation below.

$$ w(x) = \begin{cases} 
(1 - |x|)^3 & \text{for } |x| < 1 \\
0 & \text{for } |x| \geq 1 
\end{cases} $$

**LOWESS ND**

One of LSA’s prediction modes.

LOWESS ND displays the past numbers but using their Normal Distribution value.

LOWESS is plotted the same as the standard LOWESS prediction however the calculations use the Normal Distribution value not the balls total appearances.

If you compare this chart with the global report Normal Distribution you will see the relationship between the normal distribution and this graph.

**LSA**

The abbreviated term for the Lottery Statistic Analyser

**Main Window**

The first window that loads, this window contains the main interface of LSA which you can launch wheels from, load reports and interactive graphs and a lot more.

**Max**

Used in prediction mode. The MAX is an abbreviation of Maximum, it’s used when calculating a prediction from a projection. When calculating a projection every ball is calculated with the previous and next ball, when using MAX the maximum value of the totals is used throughout the equation biasing the prediction high.

It cannot be guaranteed a higher ball will appear but it’s a very good guide not to pick numbers above the MAX result.
**Lottery Statistic Analyser Help**

**MWC**

MWC is an abbreviation of Maximum Win Coverage See Maximum Win Coverage

**Maximum win coverage**

A term used throughout LSA that refers to the maximum number of winning combinations that can fit in a set of draw numbers.

If you see this term you know that you can never improve on the possible combinations covered because LSA has already worked out the Maximum Win Coverage.

Example: The Maximum Win Coverage for the numbers 01 02 03 04 05 06 is 57 and as a percentage would be 100% as it cannot be improved upon. By betting the line 01 02 03 04 05 06 you cover the following 57 combinations (100% possible in the single line)

<table>
<thead>
<tr>
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<th>20</th>
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<th>6</th>
<th>1</th>
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<tr>
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<td>01 02 03 04 05</td>
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</tr>
</tbody>
</table>

The above example assumes prizes can be won if you hit 2, 3, 4, 5 and 6 numbers.

Below is another example that uses the following 3 lines

03 05 09 11 12 13 15 18 46
09 10 12 15 18 46

Listed below are all the combinations found in the above three lines.

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Lottery Statistic Analyser Help

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Some readers may notice that the first example covers 15, 20,15,6,1 combinations whereas the second three line example covers exactly 3 times the combinations of the 1st example. 45,60,45,18,3.

This proves LSA has not repeated any winning combinations and the maximum win coverage or MWC remains at 100%. If it was not 3 times the MWC of a single ticket then something has gone wrong and your odds have been reduced. LSA always ensures that a MWC is achieved.

Statistics for the three line example above are as follows

Wheel vs. max combos that can fit in 3 tickets

2 Ball Hits = 45 of 45 possible from 3 tickets: 100.00%
3 Ball Hits = 60 of 60 possible from 3 tickets: 100.00%
4 Ball Hits = 45 of 45 possible from 3 tickets: 100.00%
5 Ball Hits = 18 of 18 possible from 3 tickets: 100.00%
6 Ball Hits = 3 of 3 possible from 3 tickets: 100.00%

Ways to win = **171** of **171** possible from **3** tickets:
Ways to win percentage = **100% from 3 tickets**

So to summarize when you see a Maximum Win Coverage you know the maximum number of different winning combinations has been arranged in the tickets used without repeating a winning combination.
This system gives the user many more chances of winning a prize for the amount of money spent.
Lottery Statistic Analyser Help

**Med**

Used in prediction mode. The MED is an abbreviation of Median, it's used when calculating a prediction during a projection. When calculating a projection every ball is calculated between the previous and next ball, when using MED the median value of the totals is used throughout the equation. More importantly when a draw analysis reaches its end there is no next ball to finish the calculating so MED is used in making the prediction for this next ball

Med is preferred over Avg as stray numbers do not affect the overall prediction like they would using AVG. See AVG for a full explanation.

Median is described as the numerical value separating the higher half from the lower half. The median of a list of numbers can be found by arranging all the numbers from lowest to highest and picking the middle one. If there is an even number of balls, then there is no single middle value; the median is then usually defined to be the mean of the two middle values.

**Min**

Used in prediction mode. The MIN is an abbreviation of Minimum, it's used when calculating a prediction during a projection. When calculating a projection every ball is calculated between the previous and next ball, when using MIN the minimum value of the totals is used throughout the equation. More importantly when a draw analysis reaches its end there is no next ball to finish the calculating so MIN is used in making the prediction for this next ball

Min is a least preferred regression type when analysing lower numbers as LOWESS will often smooth the plot line to a low bias point hence producing unrealistic results for a prediction. However it provides a good lower boundary reference not to pick below when you choose your numbers.

**MNA**

An advanced system unique to LSA that enables the user to arrange numbers to maximize cost per possible chance of winning.

See Wheel for more information.

**Moving Hot Warm and Cold**

One of LSA's moving reports it displays the hot, warm and cold status of the past draw results. These values can be changed by the user using the Hot and Cold links at the top of the screen when the report is visible.

**Moving Reports**

Any of LSA's Reports that are based on previous drawing history.

**Normal Distribution**

The N

The normal distribution is considered the most important probability distribution in statistics. LSA uses this distribution when making many of its global calculations.
Study the curve carefully as
68% of the balls drawn will fall within 1 standard deviation of the mean
95% of the balls drawn will fall within 2 standard deviations of the mean
Almost all (99.7%) of the balls drawn will fall within 3 standard deviations of the mean.

The normal distribution of a set of numbers is calculated by the following equation

$$f(x) = \frac{1}{\sqrt{2\pi}\sigma^2} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

Number Frequency
In LSA number frequency refers to the total times a number appears within a group of numbers.

Number Frequency is also the name giving to one of LSA’s moving reports that provide
statistics on the total appearances of past numbers in a draw.

Numbers Due to Appear
Number Due to Appear is the name giving to one of LSA’s moving reports that gives detailed
information on past draw number frequencies and the next time the number is due to
appear based upon the draw history.

Numerical Placement Odds
One of LSA’s global reports.
When a draw occurs the numbers are sorted into numeric order (lowest to highest). Using this report you can globally reference the chances of each numbers final numeric position. This report uses all possible combinations in the draw to make its calculations. Studying the report it can be seen which numbers are more likely to appear in each numeric position.

Per Ball Appearance - Ball
One of LSA’s global reports that displays the ball number in order of the total number of
times each ball appears in each ball position. This report is calculated from every possible
combination in the lottery. The values are sorted by their highest occurrence to their lowest
occurrence but displayed as ball numbers. See Per Ball Appearance - Count for the same report but using the totals instead of the ball numbers.

Statistically the numbers at the top are more likely to appear than those at the bottom
A high percentage of draws that get drawn will have numbers found in the top positions of this report.

**Per Ball Appearance - Count**

One of LSA’s global reports that displays the total number of times each ball appears in each ball position calculated from every possible combination in the lottery. The values are sorted by their highest occurrence to their lowest occurrence. See Per Ball Appearance - Ball for the same report but using the balls numbers instead of the total appearance values.

Statistically the numbers at the top are more likely to appear than those at the bottom
A high percentage of draws that get drawn will have numbers found in the top positions of this report.

**Pick**

The number of balls drawn from the pool of numbers in a lottery

**Placement Probability**

A percentage value which describes the chances of a ball appearing in a certain numeric position. Placement probability is calculated from every possible combination / ball position in the entire draw.

**Polynomial Regression**

One of the four types of regression used in Trends mode. Exponential regression is calculated using the following formula

\[ y = \sum a_n x^n \]

See Regression in LSA for more information

**Pool**

The total number of different balls available in a lottery

**Prediction Band**

**Predictions**

A forecast of a future draw

**Reduced wheels**

A wheel is simply a way of arranging numbers to cover a given predefined criteria.
Such a predefined criteria could be as follows

*Guarantee a 3 ball match if any 3 of 8 selected numbers are drawn from a pool of 49*

<table>
<thead>
<tr>
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<th>Numbers selected</th>
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<tbody>
<tr>
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<td>01 10 15 20 30 49</td>
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</tbody>
</table>
Lottery Statistic Analyser Help

<table>
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<tr>
<th>Wheel</th>
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<td>02 10 15 20 40 49</td>
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<tr>
<td>02 10 15 30 40 49</td>
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</tbody>
</table>

3 Ball combinations: 56 out of 180 possible 3 ball combinations from 9 tickets
4 Ball combinations: 70 out of 135 possible 4 ball combinations from 9 tickets
5 Ball combinations: 44 out of 54 possible 5 ball combinations from 9 tickets
6 Ball combinations: 9 out of 9 possible 6 ball combinations from 9 tickets

Ways to win = 179 of 378 possible from 9 tickets:
Ways to win percentage = 47%

The reduced wheel covers the selected criteria but at a cost.
Notice that only 179 out of 378 possible winning combinations are covered.
I would personally use LSA's MNA's as this ensures 100% of the possible combinations are covered. See the Wheels Manual for a lot more information on wheels and MNA's

Regression

Any of a number of techniques for modeling and analyzing several variables, in this case lottery results. Regression analysis is daily used around the world for making predictions and forecasting unknown events. Regression analysis lends itself perfectly to lottery analysis and LSA utilizes the power of regression to show trends and produce predictions.

In linear regression, data points are assumed to be related by: \( y = m \times x + c + \text{err} \)
m and c are constants, and err is a random variable.
Linear regression estimates m, c and err based on the available draw data.
As m and c are estimated values, the trend line \( y = m \times x + c \) may be inaccurate.
The uncertainties are therefore represented as the confidence band.
To predict the next draw data point (infer y given x), we use \( y = m \times x + c + \text{err} \).
As m, c and err are estimated values, the predicted data point may be inaccurate. The uncertainties are represented as the prediction band

Smoothness Factor

A setting found in the LOWESS prediction mode that allows the user to vary the smoothness of the LOWESS curve. See LOWESS

This variable smoothness is the single most important setting in LOWESS, changing it effects the curve plotted across the past draw results and effects the prediction of the curve.

Statistics Window

One of LSA's windows the Statistics Windows main purpose is to display each ball's history in a separate graph and the entire history in the bottom most graph. All the graphs are interactive and by moving the mouse over the graph information can be seen in the bottom of the window in relation to the ball the mouse is over.
Lottery Statistic Analyser Help

**Stray Numbers**
A term used to describe ball numbers drawn that have a low likelihood of appearing.
LSA always splits draw results into their numeric order (Lowest to highest)
For each ball position it can be seen which numbers are more likely to appear.
Stray numbers are the numbers that are equal to or less than 15% likely to appear in the ball position. See the Stray Numbers Report in LSA for a complete list.

**Sum**
Used in the prediction windows Sum is the sum of Min, Avg, Med and Max divided by 4 to give an average of all 4 types of prediction. Under testing it can be seen Sum is a very good statistic to watch when choosing numbers.

**Trend Line**
A trend line shows the trend in a draw and is typically created with regression analysis.
Creating a trend line allows the measuring of the underlying data and provides the ability to both interpolate and estimate the value of the data for forecast purposes.

**Trends**
In LSA trends refer to the general direction in which the draw is developing or changing.

**True Hot Warm Cold**
A powerful global report found in LSA that provides Hot, Warm and Cold status of each number based upon the every possible combination in the entire draw.

An example of how powerful and simply impressive this report actually is....

LSA is capable of calculating how many times each number appears per ball placement in the entire draw, so using a 6/49 draw for this example LSA can find that 178,365 of the possible 13,983,816 combinations available contain the number 2 as a 2nd ball (Ball Placement 2).

Knowing that 178,365 combinations in the entire draw contain the number 2 as a second number LSA then divides the total combinations in the draw by the number of combinations with number 2 as a second ball.

So for this example LSA would simply divide as follows

\[
13,983,816 \div 178,365 = 78.4
\]
LSA now knows that in a 6/49 draw ball number 2 will appear on average once every 78 draws throughout the life of this draw.

Now LSA looks to the past draw data to calculate the true hot, warm and cold.

LSA counts how many drawings have occurred that contain the number 2 as a second ball and divides by the total drawings searched.

So for this example let’s say LSA scanned 300 draws and found 4 to contain number 2 as a second ball.

\[
300 / 4 = 75
\]

An average of 75 was found, this would suggest that the draw is following its global rules, it is not fixed and I personally would now wait for at least 60 draws before considering using number 2 as a second ball in my selection.

LSA covers all ball placements and all numbers giving the user a golden reference to the entire draws true hot, warm and cold status at any point in time.

**Wheel**

A term used to describe an arrangement of lottery tickets that meet a certain predefined criteria. Wheels are often misunderstood and people spend a lot of money playing wheels in the hope they have better odds of winning. The real truth is most wheels reduce the players odds and earn lottery companies more money.

See MNA’s for a way of maximizing the odds on the tickets played, or read the wheels manual for in depth explanation of wheels and MNA’s

**Wheels and MNA’s**

See Wheel